U.S. Department of Health and Human Services (HHS)
National Institutes of Health (NIH)
Office of the Director (OD)
Division of Program Coordination, Planning, and Strategic Initiatives (DPCPSI)

Council of Councils Meeting
September 7, 2023

Meeting Minutes

I. CALL TO ORDER AND INTRODUCTIONS

Robert W. Eisinger, Ph.D., Acting Director, DPCPSI, welcomed participants, NIH staff members, and members of the public to the meeting of the Council of Councils. The virtual meeting began at 10:00 a.m. on Thursday, September 7, 2023. The meeting attendees are identified below. Dr. Eisinger then reviewed the day's agenda.

A. Attendance

1. Council Members

Council Members Present

Chair: Robert W. Eisinger, Ph.D., Acting Director, DPCPSI
Executive Secretary: Franziska Grieder, D.V.M., Ph.D., Director, Office of Research Infrastructure Programs (ORIP), DPCPSI
Maria Rosario G. Araneta, Ph.D., M.P.H., University of California, San Diego, La Jolla, CA
Kristin Ardlie, Ph.D., Broad Institute of Massachusetts Institute of Technology and Harvard, Cambridge, MA
Linda Chang, M.D., M.S., FAAN, FANA, University of Maryland School of Medicine, Baltimore, MD
Graham A. Colditz, M.D., Dr.P.H., M.P.H., Washington University School of Medicine in St. Louis, St. Louis, MO
Andrew P. Feinberg, M.D., M.P.H., The Johns Hopkins University School of Medicine, Baltimore, MD
Monica Gandhi, M.D., M.P.H., University of California, San Francisco, San Francisco, CA
Rick Horwitz, Ph.D., Allen Institute for Cell Science, Seattle, WA
Rafael Irizarry, Ph.D., Dana–Farber Cancer Institute and Harvard T.H. Chan School of Public Health, Boston, MA
Kevin B. Johnson, M.D., M.S., FAAP, FACMI, FAMIA, University of Pennsylvania, University of Pennsylvania Health System, and Children's Hospital of Philadelphia, Philadelphia, PA
Karen C. Johnston, M.D., M.Sc., University of Virginia, Charlottesville, VA
Barbara Kelley, Hearing Loss Association of America, Bethesda, MD
Paul J. Kenny, Ph.D., Icahn School of Medicine at Mount Sinai, New York, NY
Jean A. King, Ph.D., Worcester Polytechnic Institute, Worcester, MA
Gary A. Koretzky, M.D., Ph.D., Weill Cornell Medical College, New York, NY
Michael Kotlikoff, V.M.D., Ph.D., Cornell University, Ithaca, NY
Richard D. Krugman, M.D., University of Colorado Anschutz Medical Campus, Aurora, CO
Kevin C. Kent Lloyd, D.V.M., Ph.D., University of California, Davis, Davis, CA
Jennifer Jaie Manly, Ph.D., Columbia University Medical Center, New York, NY

Rhonda Robinson-Beale, M.D., UnitedHealth Group, Minneapolis, MN
Susan Sanchez, Ph.D., The University of Georgia, Athens, GA
Jean E. Schaffer, M.D., Joslin Diabetes Center, Harvard Medical School, Boston, MA
Anna Maria Siega-Riz, Ph.D., M.S., University of Massachusetts Amherst, Amherst, MA
Lauren Silvis, J.D., Tempus, Inc., Washington, DC
Russell N. Van Gelder, M.D., Ph.D., University of Washington, Seattle, WA

2. Liaisons

Janine A. Clayton, M.D., FARVO, Director, Office of Research on Women's Health, DPCPSI
Susan K. Gregurick, Ph.D., Director, Office of Data Science Strategy (ODSS), DPCPSI
Franziska B. Grieder, D.V.M., Ph.D., Director, ORIP, DPCPSI
Timothy H. Holtz, M.D., M.P.H., on behalf of **Bill G. Kapogiannis, M.D., FIDSA,** Acting Director, Office of AIDS Research, DPCPSI
Nick J. Jury, Ph.D., on behalf of **Christopher J. Lynch, Ph.D.,** Acting Director, Office of Nutrition Research, DPCPSI
David M. Murray, Ph.D., Director, Office of Disease Prevention, DPCPSI
Karen L. Parker, Ph.D., M.S.W., Director, Sexual & Gender Minority Research Office, DPCPSI
Stefan M. Pasiakos, Ph.D., FACSM, Director, Office of Dietary Supplements, DPCPSI
George M. Santangelo, Ph.D., Director, Office of Portfolio Analysis (OPA), DPCPSI
Douglas M. Sheeley, Sc.D., Acting Director, Office of Strategic Coordination (OSC), DPCPSI
Jane M. Simoni, Ph.D., Director, Office of Behavioral and Social Sciences Research (OBSSR), DPCPSI
Marina L. Volkov, Ph.D., Director, Office of Evaluation, Performance, and Reporting, DPCPSI
Karina L. Walters, Ph.D., M.S.W., Director, Tribal Health Research Office, DPCPSI

3. *Ex Officio* Member Absent

Tara A. Schwetz, Ph.D., Acting Principal Deputy Director, NIH

4. Presenters

Joshua Denny, M.D., M.S., Chief Executive Officer, *All of Us* Research Program
Susan K. Gregurick, Ph.D., Director, ODSS, DPCPSI
Xiang-Ning Li, M.D., Ph.D., Director, Division of Construction and Instruments (DCI), ORIP, DPCPSI
Oleg Mirochnitchenko, Ph.D., Program Director, Division of Comparative Medicine (DCM), ORIP, DPCPSI
Stephanie Murphy, V.M.D., Ph.D., DACLAM, Director, DCM, ORIP, DPCPSI
Tonse N. K. Raju, M.D., Program Officer, Institutional Development Awards (IDeA) States Pediatric Clinical Trials Network, Environmental influences on Child Health Outcomes (ECHO) Program
Douglas Sheeley, Sc.D., Acting Director, OSC, DPCPSI
Michael Spittel, Ph.D., Health Science Administrator, OBSSR, DPCPSI

5. NIH Staff and Guests

In addition to Council members, presenters, and Council liaisons, others in attendance included NIH staff and interested members of the public.

B. Announcements and Updates

Franziska Grieder, D.V.M., Ph.D., the Executive Secretary for the NIH Council of Councils, reviewed the following:

- Council members are Special Government Employees during the days of Council meetings and are therefore subject to the rules of conduct governing federal employees.

- Each Council member submitted a financial disclosure form and conflict-of-interest statement in compliance with federal requirements for membership on advisory councils. The financial disclosures are used to assess real and perceived conflicts of interest, and Council members must recuse themselves from the meeting during discussions of any items for which conflicts were identified.

- Time is allotted for discussion between the Council members and presenters, but time for comments from other meeting attendees is limited. The public may submit comments in writing; instructions are available in the *Federal Register* notice for the meeting, which was published on August 8, 2023.

- Minutes from the May 11, 2023, meeting are posted on the DPCPSI website. The minutes from this meeting also will be posted there.

C. Future Meeting Dates

The next Council meetings are scheduled for January 25 and 26, May 30 and 31, and September 12 and 13, 2024.

II. REISSUE CONCEPT CLEARANCE: MUTANT MOUSE RESOURCE AND RESEARCH CENTERS (MMRRC) AND THE INFORMATICS, COORDINATION AND SERVICE CENTER (ICSC) FOR THE MMRRCS

Oleg Mirochnitchenko, Ph.D., Program Director, DCM, ORIP, DPCPSI, introduced the renewal of the MMRRC and ICSC concept, which supports continued acquisition, distribution, and cryopreservation of scientifically valuable, genetically engineered mouse strains and mouse embryonic stem cell lines and maintenance of the ICSC. Funds available and the anticipated number of awards are contingent on NIH appropriations, and the project period is 5 years.

The four MMRRCs, strategically located across the United States, distribute and cryopreserve scientifically valuable, genetically engineered mouse strains and mouse embryonic cell lines with potential value for the biomedical research community at the local, regional, national, and international levels. The purpose of the MMRRC aligns with the ORIP Strategic Plan, which emphasizes expansion and accessibility of animal models and animal and biological materials, as well as exploration of ways to improve the reproducibility of research using disease models.

Each MMRRC receives mice from donating investigators and establishes banks of cryopreserved sperm, embryos, and materials for distribution to research investigators. Standard operating procedures are in place for services that are similar across centers, and each center has specific areas of specialization. About 10 percent of the budget is used for small high-risk, high-reward research pilot projects that complement the goals of the MMRRC Consortium. Currently, the MMRRC stores about 62,000 unique mutant alleles. The total number of users is increasing.

The ICSC maintains and further develops a public website portal and customer service center for the MMRRC. It reviews and processes applications from donating investigators; facilitates interaction with

biomedical investigators; provides informatics and database services; coordinates donated strains; oversees marketing efforts; and represents the MMRRC at conferences.

The MMRRC plays a significant role in supporting rigor, transparency, and experimental reproducibility. They dedicate significant effort to authenticating the mice and provide an easily accessible web portal, mutually agreed-upon standards of practice, and Research Resource Identifiers. The MMRRC also uses surveys, focus groups, and workshops to gather feedback and collaborates with other repositories, NIH programs, and the international community to improve their processes.

The MMRRC contributes significantly to COVID-19 research by distributing highly in-demand mouse strains, participating in the Global Mouse Models for COVID Consortium, and providing grant supplements to members to develop new strains for COVID-19 research, investigate virus variants, develop new procedures, and assess how facilities should operate during a pandemic.

Discussion Highlights

- The discussants, Drs. Susan Sanchez and Russ Van Gelder, provided their comments. Dr. Sanchez emphasized the importance of animal models and the MMRRC's work. She strongly supported reissuing the concept. Dr. Van Gelder agreed and commended the easy-to-use website. He also recommended that the MMRRC provides clear information about redundancy structures.

- Dr. Mirochnitchenko explained that yearly surveys show very high user satisfaction rates.

- When asked how responsibilities are spread across MMRRCs, Dr. Mirochnitchenko responded that the ICSC manages all requests and submissions, and mouse strains are equally distributed across MMRRCs.

- In response to a question about maintenance of cell lines that are not accessed, Dr. Mirochnitchenko explained that 95 percent of the collection is cryopreserved. About a dozen mouse strains are in highest demand.

- Requesters may ask the MMRRCs to reconstitute animals or may ask for germ cells if they have the capacity to reconstitute them. When asked about the success rate of recovery from cryopreservation, Dr. Mirochnitchenko estimated that the MMRRC is currently about 80 percent efficient, and efforts to improve efficiency are underway.

Vote

A motion to approve the MMRRC and ICSC concept reissue was forwarded and seconded. The motion passed with one abstention.

III. CONCEPT CLEARANCE: EQUIPMENT AND RESEARCH ON EXTRINSIC FACTORS

Stephanie Murphy, V.M.D., Ph.D., Director, DCM, ORIP, DPCPSI, introduced for concept clearance a new program to enhance the rigor and reproducibility of animal research by studying and managing environmental extrinsic factors. This concept would support research projects to characterize the effects of extrinsic factors that influence physiological and behavioral outcomes in experimental conditions using animal models. The funds available and the anticipated number of awards for this program are contingent on NIH appropriations and the submission of highly meritorious applications. The award project period would range from 3 to 4 years depending on the grant mechanism.

Dr. Murphy explained that NIH has long recognized the importance of rigor and reproducibility in biomedical research. The Advisory Committee to the Director Working Group on Enhancing Rigor, Transparency, and Translatability in Animal Research recommended in its final report that NIH should encourage and support efforts to better understand, monitor, record, and report extrinsic factors related to animal care that may affect research results. Extrinsic factors can include, but are not limited to, water quality, temperature, lighting parameters and regimen, movement or vibration, and noises.

The *ORIP Strategic Plan 2021–2025* emphasizes the need to facilitate the development and ensure the availability of the highest quality and most useful animal models and related resources for the advancement of research on human diseases; to improve and disseminate the best models for human conditions and diseases that are of interest to multiple NIH ICs; and to advance the application of new technologies to support research resources and improve the generation, care, preservation, and distribution of animal models.

To gauge the status of and gaps in rigor and reproducibility of animal studies related to extrinsic factors, ORIP organized in September, 2022, a series of 3 virtual sessions as a workshop in collaboration with NIA and several ICs that were focused on aquatic models, rodents, and large animals, i.e., nonhuman primates and swine. Topics that impact rigor and reproducibility in animal studies included extrinsic factors, housing environments, equipment and modern technology. Key factors were highlighted for different animal models, such as water quality for aquatic animals, lighting and temperature for rodents, and social structure for large animals. Workshop participants also acknowledged that modern equipment is required to manage, measure, and report relevant extrinsic factors, and systematic studies are needed to provide crucial data regarding the impact of environmental extrinsic factors on the rigor and reproducibility of animal research.

Xiang-Ning Li, M.D., Ph.D., Director, DCI, ORIP, DPCPSI, explained that building on the recommendations from this workshop, ORIP proposed a program to support research projects from shared facilities and cores, with resources focused on the systematic characterization of the effect of extrinsic factors that influence physiological and behavioral outcomes in experimental conditions using animal models. A proposed project must be applicable to two or more NIH ICs and be relevant to physiology or disease that affects multiple body systems, and throughout the life span of the animal model. Proposed projects also are expected to support the purchase of modern equipment to manage, measure, and study relevant extrinsic factors in rigor and reproducibility of animal studies. Since the applications must address the need to study one or more extrinsic factors and explain the purpose of the proposed equipment, ORIP is working with other NIH ICs to identify and address key research and resource gaps, including key extrinsic factors for each animal model and the types of modern technology required to monitor and study the effects of extrinsic factors.

Suitable projects could include investigation of smart tank or cage systems to monitor and manage local environments, exploration of biological mechanisms affected by a specific extrinsic factor, or identification of biomarkers related to behavioral or physiological changes in response to extrinsic factors. Proposed outcomes for the initiative include identification of key information on critical extrinsic factors; standardized procedures to record, document, and report extrinsic factors that is standardized, reproducible, and ready for computer analysis; and increased equipment resources to address gaps in the studies of extrinsic factors.

<u>Discussion Highlights</u>

- The discussants, Drs. Kevin C. Kent Lloyd and Maria Rosario Araneta, provided their comments. Dr. Lloyd supported the program and commented on the need to continue improving rigor and reproducibility, particularly in animal research. Dr. Araneta underscored Dr. Lloyd's comments and

support, and encouraged ORIP to consider monitoring and recognizing other extrinsic factors, such as disease outbreaks and natural disasters.

- When asked about the difference between this concept and a concept cleared at a previous Council meeting, Dr. Murphy explained that the previous concept supports research to characterize and validate a broader scope of factors related to animal models—extrinsic factors are only one facet of animal model validation.

- In response to a question about metrics to determine the value of the assessment, Dr. Murphy pointed out that regulatory processes could be reviewed to assess impact, although such processes are not usually an ORIP focus. Dr. Li commented that increasing publications in the field will help ORIP identify metrics to further evaluate the success of the program. Dr. Murphy added that OPA has many tools that can be used to assess impact.

- When asked about requirements for sharing new protocols, Dr. Murphy commented that NIH's Data Management and Sharing Policy specifically outlines the types of data that must be shared. ORIP encourages awardees to share information and protocols.

- Dr. Murphy acknowledged that training had not been considered in this concept, but it can be added to this program in the future. She noted that some initiatives allow curriculum development, but do not support research and purchase of equipment.

- When asked about scale, Dr. Murphy stated that centers are not proposed for this project because the focus will be on resource-related research projects and equipment instead. The program is intended to start on a smaller scale, but the first year of the project period will likely require a sizable budget to provide for the purchase of equipment.

- Dr. Murphy explained that although some proposals may explore the interaction between intrinsic and extrinsic factors, the proposed research must focus primarily on extrinsic factors that align with ORIP's mission and focuses on research areas from two or more ICs, or exceeds one body system.

- When asked how to move from studying to managing extrinsic factors, Dr. Murphy noted that this initiative will provide information that can be used by those who manage resources. The concept emphasizes rigor and reproducibility, so the extrinsic factors that need to be considered will be harmonized, and how to monitor and report on them will be considered. The program may identify some factors that cannot be controlled, but their management can be harmonized and accommodated in statistical analysis.

Vote

A motion to approve the Equipment and Research on Extrinsic Factors concept was forwarded and seconded. The motion passed with three abstentions.

IV. REISSUE CONCEPT CLEARANCE: PREDOCTORAL TRAINING IN ADVANCED DATA ANALYTICS FOR BEHAVIORAL AND SOCIAL SCIENCES RESEARCH—INSTITUTIONAL RESEARCH TRAINING PROGRAM [T32]

Michael Spittel, Ph.D., Health Science Administrator, OBSSR, DPCPSI, outlined the reissuance of the Predoctoral Training in Advanced Data Analytics (TADA) for Behavioral and Social Sciences Research (BSSR)—Institutional Research Training Program T32, a predoctoral training program focused on applying innovative computational and data science analytic approaches to shape the next generation of

the BSSR health research workforce. The program is designed to ensure that current methodological and statistical training in BSSR keeps pace with the rapid changes in how data on human behavior are obtained and studied, as well as to expand the sectors in which BSSR methods and statistics training is focused. The funds available and the anticipated number of awards are contingent on NIH appropriations and submission of highly meritorious applications. He noted that OBSSR funded eight awards in 2020 with budgets averaging $250,000 in direct costs annually per site.

TADA awardees must have an interdisciplinary team of scientific mentors, including both a BSSR mentor and a mentor familiar with advanced computational methods. The awardees must gain experience in academia or industry and have collaborative research opportunities. Courses address topics not commonly offered in typical academic environments, such as software development for data scientists, advanced statistics and machine learning, data visualization, and causal interference and experimental design. The training also must emphasize principles and practices that promote reproducibility of results. OBSSR takes an active role in convening and facilitating cross-site exchanges, training webinars, and annual in-person meetings.

To date, TADA has supported 65 trainees across diverse disciplines. About half of the trainees self-report being White, and slightly more than half self-report being female. Both BSSR and data and computer science disciplines are represented among the awardees. An evaluation of the program is planned for 8 to 10 years after its 2020 initiation. This will be based on such metrics as subsequent participation in: an academic research training or career development program; authorship of scientific publications in peer-reviewed journals; research or employment in a research field; independent research grant support from NIH or another source; and successful completion of a BSSR doctoral degree program. Trainees have produced 85 publications to date and have been involved in organizing webinars on relevant topics. Dr. Spittel highlighted several trainee success stories.

Dr. Spittel encouraged Council members to renew TADA because the program was launched with the understanding that investing in the cohort for more than one funding cycle would be necessary and represents a scientific priority for NIH. OBSSR has a unique opportunity to support this NIH-wide effort in training predoctoral researchers. Dr. Spittel emphasized that the first funding cycle of TADA has demonstrated the importance of long-term investment in predoctoral methods and data training to advance BSSR.

Discussion Highlights

- The discussants, Drs. Anna Maria Siega-Riz and Paul Kenny, provided their comments. Dr. Siega-Riz supported the reissuance of this concept, commending the networking opportunities and breadth of scientific disciplines represented. Dr. Kenny agreed that supporting this type of data science aligns with OBSSR's mission and suggested that TADA could serve as a template for other NIH training programs to add data science expertise.

- In response to Dr. Siega-Riz's suggestion to implement an exit survey and collect additional information on trainees' career paths and scholarly products, Dr. Spittel confirmed that TADA is working to expand the formal evaluation.

- When asked about next steps to strengthen the impact of the program, Dr. Spittel commented on the need to encourage senior leadership in various fields, especially beyond the technology sectors, to increase early-pipeline support. In the second cohort, the program also plans to broaden its focus on participants with innovative concepts.

- Dr. Spittel explained how advanced computational methods are defined in the notice of funding opportunity (NOFO) and emphasized that the program gives the students permission to cross scientific disciplines to develop expertise in multiple BSSR areas.

- When asked about potential short-term metrics to measure program success, Dr. Spittel explained that the NOFO requires metrics with long timelines, such as graduation and publication. OBSSR also is considering ways to add short-term evaluations.

Vote

A motion to approve the Predoctoral TADA for BSSR Institutional Research Training Program concept was forwarded and seconded. The motion passed with one abstention.

V. COMMON FUND UPDATE

Douglas Sheeley, Sc.D., Acting Director, OSC, DPCPSI, provided an update on the Common Fund (CF), which provides an opportunity for NIH institutes, centers, and offices (ICOs) to collaborate on crosscutting projects likely to stimulate additional advances and change the trajectory of biomedical research in a meaningful way over a short period of time with a limited investment. CF investments are limited to 10 years or less, but the projects often are able to remove roadblocks and enhance research activities in a particular area. One of the key features is the inter- and multi-disciplinary nature of the programs and their collaborative management among several ICOs, which ensures that the programs address all identified needs in a particular topic area effectively.

The CF sponsors 20 to 30 programs at any given time in three categories: transformational science and discovery projects; catalytic data resource projects; and projects that re-engineer the research enterprise. The last category focuses on how science is conducted, how problems are approached, and how discoveries are implemented into practice. The CF also facilitates the High-Risk, High-Reward (HRHR) Research Programs, which support an investigator or team of investigators who have the potential to make an innovative impact with significant latitude in their research focus.

Dr. Sheeley highlighted several CF programs. The Molecular Transducers of Physical Activity Consortium (MoTrPAC) is designed to better understand the biological benefits of exercise at a molecular level. While the study is ongoing, preliminary results include the identification of 40,000 analytes with roles in the process, several particularly important pathways, and strong sex-specific responses. The Extracellular RNA Communication Program focused on an area that was new when the program began. Research from the program has been adopted by the community during the past 10 years. The general information and resources gathered by this program have specific applications that can be used in a variety of circumstances.

Dr. Sheeley described the Gabriella Miller Kids First Pediatric Research Program that combines cohorts of study participants with childhood cancer and structural birth defects with the goal of identifying commonalities, and these data can be accessed by researchers.

The CF Data Ecosystem (CFDE) makes CF resources available for reuse by all researchers. Phase 2 of the CFDE will strengthen its infrastructure and improve access.

He noted that the Undiagnosed Disease Network is reaching the end of its CF support, but will receive continued support from ICs. Individuals who have difficulty finding answers about their conditions through conventional means can apply to the program, which has been able to provide additional diagnostic information to more than 600 people since its launch.

Dr. Sheeley described the Community Partnerships to Advance Science for Society (ComPASS) program, which is in its initial stages. ComPASS addresses structural problems that affect public health by working with community organizations familiar with how to change the trajectory of health in a community.

He noted that discussions on improving the CF are ongoing. In collaboration with OPA, new analytic tools are under development to determine the scientific footprint of a CF program and how it impacts the scientific missions of the ICOs. Management and long-term planning of the CF programs are being simplified. The strategic planning process also has been improved for FY 2026, with an open call for ideas from the community followed by a retreat planned in January 2024 for ICO directors to make recommendations on program concepts. The CF aims to make its selection process predictable. Dr. Sheeley described a new CF initiative, the Venture Space, that is designed to support focused initiatives to accomplish a specific goal over a short period of time. These projects must meet CF criteria, but would be less expansive and simpler to manage, providing a new and complementary facet to the program. The pilot will begin soon, and a concept is anticipated for discussion at the January 2024 Council meeting.

Discussion Highlights

- When asked how successful programs are scaled to share data beyond CF support, Dr. Sheeley explained that the OSC works closely with ODSS to ensure CFDE is aligned with NIH-wide data management activities and share best practices learned from CFDE. CFDE focuses on addressing data-related issues resulting from CF programs and ensuring the data can be used and reused.

- In response to a question about supporting high-risk research more broadly, Dr. Sheeley commented that the HRHR Research Program within CF aims to capture the most valuable projects with the most crosscutting impact and ensure they can be used as examples for other NIH programs fostering high-risk, high-reward research.

- Dr. Sheeley clarified that unlike the Advanced Research Projects Agency for Health (ARPA-H), the focused advances anticipated from the Venture Space program are expected to have a broad impact across NIH's scientific goal areas, rather than continuing to advance development of a product that impacts one specific clinical need. Council members encouraged OSC to increase communication with ARPA-H, as well as defining clear distinctions and goals between the programs.

- Dr. Sheeley commented that additional analysis of CF programs using OPA portfolio analysis tools will be performed.

- In response to a question about changes to the CF to include Venture Space, Dr. Sheeley clarified that the CF is about 20 years old and has significant flexibility. He commented that the CF has a responsibility to use that flexibility to develop programs that are responsive to different scientific needs. CF programs are designed with an initial 5-year initial investment and subsequently reevaluated to determine if longer-term support is warranted with an option to use other approaches. Dr. Sheeley suggested current flexibility could be used to effectively pursue scientific opportunities.

- When asked how to support resources produced by CF programs, Dr. Sheeley explained that the CF historically has not supported infrastructure over the long term, but NIH continues to effectively support such resources. Resources need to be judged on the basis of their actual use, so programs can apply for support and ICs can determine whether they will fund it.

VI. REISSUE CONCEPT CLEARANCE: IDEA STATES PEDIATRIC CLINICAL TRIALS NETWORK THIRD CYCLE—NOFOS FOR DATA COORDINATING AND OPERATIONS CENTER AND CLINICAL SITES

Tonse N. K. Raju, M.D., Program Officer, IDeA States Pediatric Clinical Trials Network, ECHO, presented two concept clearances for reissue. The purpose of the ECHO IDeA States Pediatric Clinical Trials Network (ISPCTN) is to develop, implement, and disseminate results from high-impact multicenter clinical trials to enhance the health of children living in rural or underserved communities in IDeA states. The funds available and number of awards are contingent on NIH appropriations, but $15 million has been set aside to fund approximately 18 highly meritorious clinical sites and a data coordinating and operations center (DCOC). The duration of the third cycle award period is 5 years.

The mission of the ECHO program is to enhance the health of children for future generations by conducting high-impact research in five pediatric topic areas: pre-, peri-, and postnatal health; upper and lower airway disorders; obesity; neurodevelopmental outcomes; and positive health. The IDeA state program covers Puerto Rico and 23 states that historically have very low levels of NIH funding. Of these, ISPCTN currently supports sites in 18 states, including a DCOC. The overall goals of the ISPCTN are to provide children from rural and underserved populations access to state-of-the-art clinical trials; build pediatric research capacity within the IDeA states; engage stakeholders in ISPCTN research processes; and enhance diversity, equity, inclusion, and accessibility in the workforce and among study participants. Children in rural and underserved communities in IDeA states experience worse health outcomes yet are underrepresented in clinical trials. IDeA states need capacity building to develop and implement clinical trials. IDeA state institutions historically have struggled to compete for NIH funding.

Dr. Raju described the first cycle of ISPCTN was from 2016 to 2020. The second cycle started in 2020 and will end in 2025. The program has developed and implemented nine protocols. To date, the investigators have produced 26 publications in high-impact journals. One study has already effected changes in medical care for newborns affected by opioid withdrawal syndrome. ISPCTN has: trained 37 early stage investigators (ESIs); funded five ESI-generated proposals as pilot studies; supported seven diversity supplements; and funded an opportunities and infrastructure award. ISPCTN also has implemented quality improvement and capacity-building processes to maximize rigor, relevance, feasibility, and potential impact.

Dr. Raju emphasized that ISPCTN remains the only NIH-funded pediatric clinical trials network focused on enhancing the health of children living in rural or underserved communities. It has already produced high-impact results during its first cycle and the beginning of its second cycle. ISPCTN is poised to increase its return on investment. In the third cycle, the program plans to complete the ongoing trials, implement trials waiting to be launched, and develop and implement five new high-impact multicenter trials. ISPCTN also will continue its efforts to refine capacity building and facilitate stakeholder engagement throughout the research process.

Discussion Highlights

- The discussants, Drs. Richard Krugman and Karen Johnston, provided their comments. Dr. Krugman commended the program and recommended that future protocols specifically include explicit questions for adolescents and adults who participate in these trials regarding whether the subjects have a history of child sexual abuse or maltreatment. Dr. Johnston suggested that ISPCTN continue building its capacity to enroll people from underrepresented populations, train early stage investigators, and increase collaborations with and guidance for other programs.

- Council members recommended expanding the definition of underrepresented people beyond IDeA states to include economically-disadvantaged areas within states or using congressional districts; Dr. Raju clarified that state-level IDeA categorization was a request from Congress.

- Dr. Matthew Gillman, Director of ECHO, explained that ECHO has a dedicated communication strategy and works with communications teams across NIH and with researchers to translate results into practice.

Vote

A motion to approve the IDeA States Pediatric Clinical Trials Network Third Cycle—NOFOs for Data Coordinating and Operations Center and Clinical Sites concept reissuance was forwarded and seconded. The motion passed with four abstentions.

VII. *NIH STRATEGIC PLAN FOR DATA SCIENCE, 2025–2028* UPDATE

Susan K, Gregurick, Ph.D., NIH Associate Director for Data Science, and Director, ODSS, DPCPSI, provided an update on the development of the *NIH Strategic Plan for Data Science, 2025–2028*. NIH's first Strategic Plan for Data Science, released in June 2018, had multiple aims: develop data infrastructure by optimizing data storage and security and connecting NIH data systems; modernize NIH data and data repository ecosystems; support storage and sharing of data sets and better integrate clinical and observational data into biomedical data; enhance data management and analytics by supporting useful, generalizable, and accessible tools and workflows; enhance NIH data science workforce, expand the national data science workforce, and engage a broader community; and develop policies for a FAIR (i.e., Findable, Accessible, Interoperable, and Reusable) data ecosystem.

Recent efforts to update the strategic plan have included an ODSS-sponsored all-hands data science workshop in early 2022 along with completion of a new draft strategic plan in summer, 2022. Input was also collected from the NIH Scientific Data Council and other components of NIH in 2023. Community input will be obtained in response to a request for information planned to be issued in fall 2023. The updated plan is guided by six overarching principles: (1) communicating achievable goals for data science; (2) building on the successes of the current Strategic Plan for Data Science; (3) integrating the goals and priorities of NIH ICOs; (4) including broad goals and specific priority activities; (5) providing accountability; and (6) reflecting input from internal and external stakeholders. Feedback that helped shape the draft plan includes the need to emphasize the NIH Policy for Data Management and Sharing as a key component of the strategy; identify the unique challenges and opportunities of human-derived data for research (including social determinants of health [SDoH], environmental determinants of health [EDOH], standards, and common data elements); emphasize artificial intelligence (AI) and machine learning (ML) methodologies that can enhance and accelerate basic science research; and identify policy barriers and governance impediments to important data science activities.

Dr. Gregurick described in detail each of the goals in the draft plan. The first goal of the updated plan places the highest priority on developing the necessary capabilities to sustain the NIH Policy for Data Management and Sharing. To accomplish this goal, NIH will support community efforts to manage and share and sustain data. An increased focus will be on data stewardship through training; core competencies; new tools for data management; and partnerships with researchers, librarians, and others to support data management and data sharing.

The second goal articulates a vision to enhance human-derived data for research and is motivated by an interest in utilizing real-world data and other kinds of data derived from human health care for research. This goal will include: adopting health information technology standards for research; enhancing adoption of SDoH for health equity; and providing cross-disciplinary training to empower clinical data science.

The outcomes of these objectives will include increased support for research in clinical and health care data science (including new methods for privacy protection, participant-informed consent, and data governance); increased support for developing tools to collect and analyze data from wearable devices and other new real-world data technologies; and new programs to integrate social and environmental determinants with clinical data.

The third goal addresses new opportunities in methods and AI. It encompasses generation of large data sets for AI within ethical frameworks that are inclusive to address underlying biases, develop and validate advanced AI methodologies, and support FAIR software sustainability. This will provide opportunities to develop social and technical solutions for ethical AI (including new technologies and methodologies to take advantage of foundational models) and enhanced support for FAIR software development (including supporting partnerships between biomedical data science and computer scientists).

The fourth goal encompasses support for a federated biomedical research data infrastructure. This goal aims to: enhance utilization of cloud and hybrid computing architectures; support efficiencies and sharable technologies across NIH data platforms; expand researchers' ability to access data and ensure accountabilities for privacy protection and cybersecurity of systems; ensure a robust and connected data resource ecosystem that includes interoperability across NIH-supported cloud platforms; and develop new capabilities for data search and discovery.

The final goal is to develop a broader data science community. This will result over the next 5 years to: increase training opportunities in data science; develop and advance initiatives to expand the data science workforce; enhance data science collaboration within the NIH intramural research program; and broaden and champion capacity building and community engagement efforts. These efforts will result in increased use of data science approaches in biomedical and behavioral research, enhanced diversity of the data scientist workforce, and growth in data science skills among clinician scientists.

Discussion Highlights

- In response to a question about the role of large language models in the strategic plan, Dr. Gregurick explained that large language models are interesting for training on large quantities of data and provide an opportunity to organize, synthesize, and understand particular topics. Understanding the bias and transparency of large language models and assessing the ethical frameworks that underlie some of the uses of large language models also will be important components of NIH-wide data science efforts.

- When asked about plans to standardize approaches to data privacy, Dr. Gregurick noted that an internal NIH working group will be making recommendations related to data privacy and medical imaging. ODSS is investigating standardized approaches and ways to leverage cloud capabilities to provide access to these types of data in a secure framework. Council members encouraged the acceleration of this activity.

- In response to a question about how to ensure that data shared across NIH are made available to the scientific community, Dr. Gregurick mentioned an NIH-wide working group is examining how to make data more accessible and analyzable across cloud platforms. Making all data accessible and findable across NIH systems is a long-term goal.

- When asked about the difficulty of predicting the needs of future users, Dr. Gregurick explained that the interoperability program started as a pilot and was based on use cases. Researchers deliberate and propose use cases, and ODSS co-designs the interoperability capabilities needed for data access and analysis across NIH system platforms. Dr. Gregurick emphasized the importance of collaborating with users to understand their needs.

VIII. UPDATE ON THE *ALL OF US* RESEARCH PROGRAM AND ADVISORY PANEL

Joshua Denny, M.D., M.S., Chief Executive Officer, *All of Us* Research Program, NIH, provided an update on *All of Us*, which aims to accelerate health research and medical breakthroughs and enable individualized prevention, treatment, and care. *All of Us* emphasizes nurturing partnerships with participants, delivering biomedical data sets securely, and catalyzing the ecosystem of community researchers and funders. The program launched nationally in May 2018 and just surpassed 700,000 participants.

Data collected are similar regardless of whether participants join in person or digitally and include physical measures, biosamples, survey responses, and wearable device readings. The program works to return value to participants who provide their data, and genetic information is one of the participants' highest priorities. Participants can receive reports on hereditary disease risk and genes that may affect medications, and genetic counselors are available to support the return of information. Data are harmonized, with consistent privacy methodology applied and personal identifying information removed. Anyone can access the public-tier information, and data access is possible through a researcher workbench. *All of Us* also is working to increase its ability to build ancillary studies.

All of Us has released the largest set of broadly available genome sequences for research and continues to release about one data set per year; the newest release includes long-read data sequences. Fitbit data also are available. The whole-genome data set has allowed researchers to identify significant novel variation, much of which is not in most common current releases of the Genome Aggregation Database, which reflects the diversity of the participant population. The number of researchers using the resource has more than doubled during 2023, and publications are increasing. *All of Us* is working to increase the number of researchers from underrepresented populations who are using the resource and is pairing them with experienced researchers; the former will be able to engage with other potential users from underrepresented populations. Publications have been based on a variety of *All of Us* data types. Some of the highest-impact papers have used Fitbit data to associate clinical outcomes with changes in activity levels. The program works across NIH to identify funding opportunities and has launched its own rolling engagement opportunity to increase enrollment and communications. The program also is seeking to increase engagement with Tribal and Tribal research communities.

Future activities include: expanding the number of genome sequences in the next curated data release; increasing long-read sequencing; adding more data from digital health technology; and implementing new surveys. One of the recently added surveys gathers data about mental health and well-being and includes time points from the beginning of the COVID-19 pandemic. Another new initiative is the Nutrition for Precision Health program, which is supported by 18 ICOs.

Discussion Highlights

- In response to a question about privacy protections for Native American participants, Dr. Denny explained that self-identified American Indian and Alaska Native (AI/AN) participants can currently enroll. In accordance with a prior Tribal consultation, NIH does not enroll on Tribal lands or directly seek to enroll AI/AN participants. He noted that their data have not been released yet and a Tribal consultation scheduled for later in September will formally address next steps. He emphasized that the program has proactively contacted those who self-identify as AI/AN to inform them about the process.

- Dr. Denny clarified that the numbers on the website regarding the data available to researchers and the total enrollment numbers are not exactly correlated. Enrollment numbers are updated daily. The

data in the researcher workbench have been curated, and each data set has a specific cutoff date rather than a live update.

- When asked whether the program asks participants about experiences with childhood mistreatment, Dr. Denny explained that the new mental health and well-being questionnaire includes questions on adverse childhood experiences. He commented that more than 70,000 people have already completed it.

- In response to a question about enrollment progress, Dr. Denny explained that enrollment dropped significantly in 2020 because the majority of specimen collections at that time were conducted in person. The COVID-19 pandemic caused the program to build other ways of reaching people virtually while in-person enrollment has recovered slowly. They now have the ability to reach participants anywhere and are exploring opportunities for future expansion.

- When asked about alignment with large health systems, Dr. Denny explained that they have worked with some insurers, as well as companies such as drug store chains. This cooperation has increased enrollment and will provide opportunities for focused enrollment efforts.

IX. REVIEW AND VOTE ON THE COUNCIL OPERATING PROCEDURES

Dr. Eisinger outlined the changes to the Council operating procedures. These included updates to: reflect the requirement that all foreign applications and applications with a foreign component that include a budget be brought before the Council; the requirement for Advisory Council members to continue to provide additional consideration of new and renewal applications from well-supported investigators who currently receive $2 million or more (an increase from the previous threshold of $1 million) in total costs per year of active NIH funding, including both grants and cooperative agreements; and the terminology change from funding opportunity announcement to NOFO.

Vote

A motion to approve the updated Council operating procedures was forwarded and seconded. The motion passed with no abstentions.

X. ADJOURNMENT

Dr. Eisinger adjourned the open session at 3:09 p.m. on September 7, 2023.

XI. REVIEW OF GRANT APPLICATIONS

This portion of the meeting was closed to the public, in accordance with the provisions set forth in Sections 552(b)(c)(4) and 552(b)(c)(6), Title 5, U.S. Code and Section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix).[1] Members were instructed to exit the meeting if they deemed their participation during the deliberation of any matter before the Council would represent a real or perceived conflict of interest. Members were asked to sign a conflict-of-interest/confidentiality certification to this effect. The *en bloc* vote for concurrence with the initial review recommendations was affirmed by all Council members present. During the closed session, the Council concurred with the review of 123 ORIP applications with requested first-year direct costs of $559,867,644.

[1] For the record, it is noted that members absented themselves from the meeting when the Council discussed applications (a) from their respective institutions or (b) in which a conflict of interest may have occurred. This procedure applied only to applications that were discussed individually, not to *en bloc* actions.

XII. CERTIFICATION

I hereby certify that, to the best of my knowledge, the foregoing summary minutes are accurate and complete.

Robert W. Eisinger -S Digitally signed by Robert W. Eisinger -S
Date: 2023.10.18 15:37:49 -04'00'

Robert W. Eisinger, Ph.D.
Chair, NIH Council of Councils
Acting Director, DPCPSI, OD, NIH

Date

Franziska B. Grieder -S Digitally signed by Franziska B. Grieder -S
Date: 2023.10.18 14:21:22 -04'00'

Franziska Grieder, D.V.M., Ph.D.
Executive Secretary, NIH Council of Councils
Director, ORIP, DPCPSI, OD, NIH

Date