National Diabetes and Digestive and Kidney Diseases Advisory Council
National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health Department of Health and Human Services

I. CALL TO ORDER

Dr. Rodgers

Dr. Griffin Rodgers, Director, NIDDK, called to order the 216th meeting of the National Diabetes and Digestive and Kidney Diseases Advisory Council at 10:00 a.m. on May 12, 2021, via Zoom videoconference. This meeting was conducted using a two-tiered webinar format. The panelist tier consisted of NIDDK's Advisory Council members and NIDDK staff members who presented during the meeting. The audience tier was available to members of the public and allowed them to view and listen to the meeting.

A. ATTENDANCE – COUNCIL MEMBERS PRESENT

Ms. Tracey Brown
Dr. David D'Alessio *
Dr. Iain Drummond
Dr. Penny Gordon-Larsen
Dr. Barbara Kahn
Dr. Mark Nelson
Dr. Richard Peek
Dr. David Penson
Ms. Ceciel Rooker
Dr. Kathleen Sakamoto
Dr. Michael Snyder
Dr. Ronald Sokol
Dr. Ian Stewart *
Ms. Lorraine Stiehl
Dr. Gary Wu

* Ex-Officio

Subject Matter Experts:
Dr. E. Dale Abel
Dr. Robert Eckel
Ms. Dawn P. Edwards
Dr. Keith C. Norris

Also Present:
Dr. Griffin Rodgers, Director, NIDDK and Chair of the NIDDK Advisory Council
Dr. Karl F. Malik, Executive Secretary, NIDDK Advisory Council
Dr. Matthew E. Portnoy, Deputy Director, Division of Extramural Activities
Dr. Gregory G. Germino, Deputy Director, NIDDK
Dr. William Cefalu, Director, Division of Diabetes, Endocrinology and Metabolic Diseases, NIDDK
Dr. Stephen P. James, Director, Division of Digestive Diseases and Nutrition, NIDDK
Dr. Robert A. Star, Director, Division of Kidney, Urologic, and Hematologic Diseases, NIDDK

B. NIH and NIDDK PANELISTS/SPEAKERS

Dr. Eliseo Pérez-Stable, Director, National Institute on Minority Health and Health Disparities
Dr. Marie Bernard, Acting NIH Chief Officer for Scientific Workforce Diversity, and Deputy Director, National Institute on Aging
Dr. Robert Rivers, NIDDK

Dr. Peter Perrin, NIDDK
Dr. David Saslowsky, NIDDK
Dr. Voula Osganian, NIDDK
Dr. Olivier Blondel, NIDDK
Dr. Xujing Wang, NIDDK
Dr. Miranda Broadney, NIDDK
Dr. Lisa Spain, NIDDK
Dr. Pamela Thornton, NIDDK
Dr. Norann Zaghloul, NIDDK
Dr. Paul Kimmel, NIDDK
Dr. Katrina Serrano, NIDDK

C. ANNOUNCEMENTS

Dr. Rodgers

Dr. Rodgers began by noting this is NIDDK's fourth consecutive virtual Council meeting. NIH has decided that all advisory council meetings will be held virtually at least through September 2021, so the next NIDDK Advisory Council meeting will again take place in a virtual format on September 9 and 10. He expected that the January 2022 meeting will take place in person.

Council Member News

Dr. Rodgers recognized four subject matter experts who joined the meeting:

- **E. Dale Abel, M.D., Ph.D.**, is the Francois M. Abboud Chair in Internal Medicine, John B. Stokes III Chair in Diabetes Research, Chair and Department Executive Office of the Department of Internal Medicine, Director of the Fraternal Order of Eagles Diabetes Research Center, and Professor of Medicine in Biochemistry and Biomedical Engineering at the University of Iowa Carver College of Medicine in Iowa City, Iowa.
- **Robert Eckel, M.D.**, is a Professor of Medicine, Emeritus, in the Division of Endocrinology, Metabolism, and Diabetes and the Division of Cardiology at the University of Colorado, Anschutz Medical Center in Morrison, Colorado.
- **Dawn P. Edwards** is a Patient Advocate and Wellness Ambassador at the Rogosin Institute and the NXStage Medical Company in Jamaica, New York.
- **Keith C. Norris, M.D., Ph.D.,** is Professor of Medicine and Executive Vice Chair for Equity Diversity and Inclusion at the University of California, Los Angeles in Los Angeles, California.

Dr. Abel and Dr. Eckel will participate in discussions within the Diabetes, Endocrinology and Metabolic Diseases (DEM) subcommittee. Ms. Edwards and Dr. Norris will participate in discussions within the Kidney, Urology, and Hematology (KUH) subcommittee.

General Announcements

Dr. Rodgers pointed out that 2021 is the 100th anniversary of the discovery of insulin, which transformed the treatment of diabetes and shifted the prognosis from almost always fatal to a manageable condition. NIDDK has played an important role in the understanding of the

pathophysiology, prevention, and management of all forms of diabetes. This includes NIDDK's landmark studies such as the Diabetes Control and Complications Trial (DCCT), the follow-up Epidemiology of Diabetes Interventions and Complications (EDIC) study, and the Diabetes Prevention Program Outcomes Study (DPPOS). NIDDK has also contributed to technological advances such as continuous glucose monitors and the artificial pancreas. To highlight these advances, NIDDK and the Canadian Institute of Health Research (CIHR) are hosting a joint symposium on June 2 and 3, 2021 with the theme: Heterogeneity of Diabetes: Beta Cells, Phenotypes and Precision Medicine. The symposium will bring together research leaders with the aim of facilitating engagement, stimulating collaboration and highlighting critical knowledge gaps and novel approaches in diabetes research.

Dr. Rodgers also recounted some recent news about former Council members:

- **Dr. Bruce Spiegelman, former member and long-time NIDDK grantee,** will receive the American Diabetes Association's Albert Renold Award, which recognizes career achievements in mentorship or creating a robust environment for diabetes research. Dr. Spiegelman focuses on the regulation of energy metabolism with a particular emphasis on gene transcription. His team at Dana-Farber Cancer Institute in Boston studies fat and muscle cell development, control of metabolic rates, and the dysregulation of glucose and lipid metabolism in disease to better understand biochemical pathways in metabolic diseases. Dr. Spiegelman has trained and mentored several dozen students and postdocs, many of whom currently have independent laboratories across the country, with numerous NIDDK-funded projects.
- **Dr. Robert W. Schrier**, renal physician and former NIDDK Advisory Council Member, died on January 23, 2021. A prolific principal investigator on NIDDK-funded grants from 1986-2014, Dr. Schrier contributed greatly to research on polycystic kidney disease, kidney failure, and the regulation, release, and action of the hormone vasopressin. His work led to more than 1,000 publications and his three volume textbook *Diseases of the Kidney and Urinary Tract* is used by clinicians and academicians around the world. He was also a great help in developing one of NIDDK's previous strategic plans. Dr. Schrier served as president of the American Society of Nephrology, the International Society of Nephrology, and the National Kidney Foundation – the only person to have served in all three roles.

NIDDK Staffing News

Dr. Rodgers made the following staffing announcements:

- **Dr. James Balow** has stepped down as the Clinical Director of the NIDDK Intramural Research Program and **Dr. Chris Koh** has stepped into the role of Acting Clinical Director. A national search to fill the Clinical Director position will commence later this month. Dr. Rodgers thanked both Dr. Balow and Dr. Koh for their service in this role.
- Dr. Rodgers had announced the retirement of **Dr. Philip Smith** at the January 2021 meeting, a move that will take place at the end of May. **Dr. Karen Teff** from the Division of Diabetes, Endocrinology, and Metabolic Diseases (DEM) will replace Dr. Smith as co-Director of the Office of Obesity Research and on the NIH Obesity Research Task Force Senior Leadership Group. Dr. Rodgers extended best wishes to Dr. Smith on his retirement and gratitude to Dr. Teff for stepping up to these new roles.
- **Ms. Catherine Carr**, NIDDK Regulatory Officer, has left NIH for an opportunity at the Food and Drug Administration.

- **Dr. Yu-Chen Tsai** has assumed the role of NIDDK Regulatory Officer, joining . Dr. Ying Huang in the Office of Clinical Research. Dr. Tsai was formerly a regulatory specialist at Emmes, a global clinical research organization.
- **Dr. Ludmila Pawlikowska** has joined NIDDK's Division of Digestive Diseases and Nutrition (DDN) to focus on genetics and genomics of liver and digestive disorders and obesity. She received her undergraduate degree from Harvard University and her Ph.D. from the University of California San Francisco. Following post-doctoral work in genetics of biliary disorders and common and rare disease genomics, she joined the faculty at UCSF, where she advanced to the rank of Associate Professor and a Member of the Institute for Human Genetics, and conducted research in the genomics of liver disorders, aging, stroke, and vascular malformations.
- **Kaitaia Fu**, **Hubert Walters**, and **Sunshine Wilson** have all joined NIDDK as Senior Grants Management Specialists.

Dr. Rodgers also announced some additional NIDDK staff retirements:

- **Dr. Tamara Bavendam**, Program Director for the NIDDK Women's Urologic Health Program, has retired after 8 years at NIDDK. Dr. Bavendam applied her knowledge from clinical practice and work in the private sector to expand and promote the NIDDK's women's urology program. Her dedication to the NIDDK's mission and women's urologic health is recognized and valued extensively throughout the research community.
- **Dr. Deborah Hoshizaki** has retired from her position as Program Director for the Kidney and Urology Regeneration and Repair portfolio. Dr. Hoshizaki had 18 years of federal service and worked to establish the Genito-Urinary Development Molecular Anatomy Project (GUDMAP) as well as the Rebuilding a Kidney Consortium (RBK), which focuses on finding the best strategies for generating nephrons for clinical use. She worked tirelessly to increase the visibility of research results into the broader scientific community.

Dr. Rodgers also recognized "above and beyond" service taken on by some NIDDK staff. As the nation experiences a surge of unaccompanied children arriving at the southern border, HHS has asked for staff to volunteer to support the response and help ensure that the needs of these children are met while in the care of the United States. Currently, 12 NIDDK staff members have volunteered to help with these efforts that include long hours and challenging circumstances. Dr. Rodgers thanked these staff members for their empathy, sense of duty and willingness to leave friends, family, and the comforts of home to care for others in need.

Other NIDDK News

Dr. Rodgers gave a brief update on the development of the NIDDK Strategic Plan, which will complement disease-specific planning efforts. Staff have received many valuable ideas and insights from the Strategic Plan Working Group, the NIDDK Advisory Council, and a public Request for Information (RFI) released in 2020. Based on this input, NIDDK staff have been writing the first draft, which will be sent to external members of the Working Group for review. NIDDK will then post a draft of the Plan on the website this summer for public comment, before finalizing later this year.

Dr. Rodgers also highlighted recent outreach and engagement efforts on social media, including a Facebook Live event as part of National Kidney Month in March. Dr. Rodgers

interviewed Dr. Jonnie Hamilton, Medical Manager, Ascension Community Health and First Vice President of Chi Eta Phi Sorority Incorporated. The discussion focused on how to help patients manage chronic kidney disease (CKD) and ways to protect kidney health. The event reached about 500 participants and had a positive reception. A second Facebook event in April focused on promising chronic kidney disease research, where Dr. Rodgers spoke with NIDDK's Drs. Robert Star and Paul Kimmel.

NIDDK has gained more than 10,000 followers on Twitter and plans a Twitter chat on June 3 to coincide with the symposium commemorating the 100th anniversary of insulin. Dr. Rodgers invited Council members and the public to join the conversation and follow NIDDK on Twitter, Facebook, YouTube, and Instagram.

II. CONSIDERATION OF SUMMARY MINUTES OF THE 215th COUNCIL MEETING

Dr. Rodgers

The Council approved, by voice vote, the Summary Minutes of the 215th Council meeting, which had been sent to them in advance for review.

III. FUTURE COUNCIL DATES

Dr. Rodgers

In order to save time, Dr. Rodgers did not review all planned Advisory Council meeting dates. Updates will be posted on the Council website.

IV. ANNOUNCEMENTS

Dr. Malik

Confidentiality

Dr. Karl Malik reminded Council members that material furnished for review purposes and discussion during the closed portion of the meeting is considered confidential. The content of discussions taking place during the closed session may be disclosed only by the staff and only under appropriate circumstances. Any communication from investigators to Council members regarding actions on an application must be referred to the Institute. Any attempts by Council members to handle questions from applicants could create difficult or embarrassing situations for the members, the Institute, and/or the investigators.

Conflict of Interest

Dr. Malik reminded Council members that advisors and consultants serving as members of public advisory committees, such as the NIDDK Advisory Council, may not participate in situations in which any violation of conflict of interest laws and regulations may occur. Responsible NIDDK staff shall assist Council members to help ensure that a member does not participate in, and is not present during, the review of applications or projects in which, to the member's knowledge, any of the following has a financial interest: the member, or his or her spouse, minor child, or partner (including close professional associates), or an organization with which the member is connected.

To ensure that a member does not participate in the discussion of, nor vote on, an application in which he/she is in conflict, a written certification is required. A statement is provided for the signature of the member, and this statement becomes a part of the meeting file. Dr. Malik directed each Council member to a statement in his or her meeting folder regarding the conflict of interest in review of applications. He asked each Council member to read it carefully, sign it, and return it to NIDDK before leaving the meeting.

Dr. Malik pointed out that when the Council reviews applications in groups without discussion —also called "*en bloc*" actions—all Council members may be present and may participate. The vote of an individual member in such instances does not apply to applications for which the member might be in conflict.

Regarding multi-campus institutions of higher education, Dr. Malik said that an employee at one campus may participate in any particular matter affecting another campus, if the employee's financial interest is solely at one campus and the employee has no multi-campus responsibilities.

V. REPORT FROM THE NIDDK DIRECTOR

Dr. Rodgers

Budget Update

Dr. Rodgers gave an update on the status of the budget appropriation process for NIH for Fiscal Year 2022. He reminded members that the Fiscal Year 2021 Omnibus Appropriations Package was signed into law just before the Council's January 2021 meeting. This bill included $42.7 billion for the NIH, a 3 percent increase over FY2020, including funding for targeted programs such as the BRAIN Initiative, Alzheimer's disease research, and opioid research. NIDDK received $2.132 billion in the 2021 appropriations, an $18 million (0.8 percent) increase.

Dr. Rodgers explained that a change in administration typically delays the budget process, which starts with the President's Budget Request. President Biden released a Fiscal Year 2022 discretionary request, which only provides high-level budget guidance. This is sometimes called the "skinny" budget.

Dr. Rodgers shared a few details about the President's discretionary budget, which includes $51 billion for the NIH, an increase of $9 billion over FY2021 funding. This amount includes $6.5 billion for a new entity at NIH called the Advanced Research Projects Agency for Health (ARPA-H). The idea behind this is to promote high-risk/high-reward innovative research for health, similar to DARPA at the Department of Defense and ARPA-E at the Department of Energy. Few details are available at this point, but the administration noted an initial focus that includes "cancer and other diseases such as diabetes and Alzheimer's."

The skinny budget also mentions several areas of interest to NIH, including ending the opioid crisis, the HIV/AIDS epidemic, health inequities, racial disparities, and the health impact of climate change. Dr. Rodgers said that the full budget should be released soon, and he will provide additional information about the process at the September 2021 Council meeting.

Congressional Activities

Dr. Rodgers reported on Congressional activities by NIDDK staff over the past months, including three virtual congressional briefings on different aspects of NIDDK research.

- On March 31, the Endocrine Society organized a briefing on diabetes and COVID-19. Representative Kim Schrier of Washington State, a pediatrician who has type 1 diabetes, provided opening remarks. Dr. Rodgers gave a presentation on NIDDK research, and Dr. Will Cefalu, DEM Director, also participated.
- On April 14, the Friends of NIDDK organized a briefing focused on the NIDDK annual report titled *NIDDK Recent Advances & Emerging Opportunities*. Directors of NIDDK's three extramural divisions and Dr. Rodgers talked about research advances and emerging opportunities described within the report. Former council member Ms. Pamela Taylor gave a moving and informative talk about her experience with diabetes and her participation in the Diabetes Prevention Program and the Diabetes Prevention Program Outcomes Study. Dr. Rodgers took time to thank Council members for their constructive feedback on the report, which was released at the January Council meeting.
- On May 7, Dr. Rodgers, along with several other NIH Institute Directors, met virtually with the clerks of the Senate Appropriations Labor-HHS Subcommittee to talk about autoimmune disease research. Dr. Rodgers spoke about NIDDK research in this area, with a focus on type 1 diabetes.

Council Questions and Discussion

Comment from Council: *The NIH is limited to a certain number of Institutes and Centers. Has there been any discussion of how the ARPA-H would be structured within the NIH overall governance?*

Dr. Rodgers answered that the idea is in the early stages. Dr. Collins and his staff are eager to learn more about what the President envisions and the level of support from appropriate congressional leadership. Congressional input is required to add or subtract from the current 27 institutes. At the moment, the premise would be that ARPA-H would be an office within the director's office that would then work with the various ICs; this would not require the creation of a new institute.

Dr. Rodgers also mentioned that despite only receiving a 0.8 percent increase in the NIDDK budget last year, the Institute was able to maintain a robust payline, both for established investigators and early-stage investigators, as well as launch a few new initiatives. He noted, however, that the increase hasn't provided much flexibility for dealing with the COVID crisis and the financial implications of restarting lab and clinical research activities. Many of the disorders and comorbidities that impact the outcome of COVID-19 are in the NIDDK purview—including diabetes, obesity, and others—representing additional research opportunities.

VI. COUNCIL FORUM (PART 3)

Underrepresented Investigators and Underrepresented Science

Dr. Gregory Germino, Dr. Eliseo Pérez-Stable, Dr. Marie Bernard, Dr. Rob Rivers

Dr. Germino hosted part three of the Council Forum on Underrepresented Investigators and Underrepresented Science. He explained that this series started in September 2020 in the middle of the COVID-19 pandemic, which tested health and social systems and highlighted

health inequities that result from a long history of racism and the structures that continue to deny justice and equal opportunity for all. What COVID-19 and many of the diseases in the NIDDK portfolio have in common is that their prevalence and severity are greatly impacted by the social determinants of health—zip code more than genetic code. During this time of racial reckoning, NIDDK has been challenged to look at who we hire, who we fund, what we fund, and to ask the question of whether we are doing enough to achieve racial and health equity.

The Forum kicked off with a focus on NIDDK's extramural workforce. Black applicants make up only 1 to 2.3 percent of all R01 applicants per year for NIDDK. This group receives too few awards per year to report the exact number because of privacy rules. Staff from the NIDDK Office of Minority Health Research Coordination reviewed the history of NIDDK's efforts to promote a diverse workforce, pointing out ways NIDDK could continue to help build bridges to keep trainees in its pipeline, especially through mentoring.

The Forum continued at the January 2021 Council meeting with an examination of the related issue of supporting health disparities research. Black researchers are more likely to propose research on topics—such as health disparities—that have lower award rates. These topics tend to be funded by ICs, such as the National Institute of Minority Health and Health Disparities, that have smaller budgets and lower award rates overall.

NIDDK is making support for health equity research a cross-cutting theme of its Strategic Plan that will be ready for public comment this summer. NIDDK is also establishing a working group of Council Members to help identify opportunities in this area.

The third installment in the Forum series included three parts:

- Dr. Eliseo Pérez-Stable, Director of the National Institute of Minority Health and Health Disparities (NIMHD), presented on some of the initiatives his Institute is leading or co-leading.
- Dr. Marie Bernard, Deputy Director of the National Institute on Aging and acting NIH Chief Officer for Scientific Workforce Diversity, talked about NIH-wide efforts to promote diversity, equity, and inclusion in biomedical research.
- NIDDK's Dr. Rob Rivers provided an overview of initiatives developed by the NIH UNITE Committee.

NIMHD-Led/Co-led Initiatives

Dr. Pérez-Stable started by reviewing the populations of focus for NIMHD. These include racial and ethnic minorities as defined by the U.S. Census, people of any race with less privileged socio-economic status, underserved rural residents, and sexual and gender minorities. The first three categories are outlined in the legislation that established NIMHD; the fourth category was added in 2016.

He also reviewed concepts central to this topic:

- A health disparity is a health outcome that is worse in one population compared to a reference group.
- Discrimination, racism, and being underserved in healthcare lead to social disadvantage.
- Race, ethnicity, and socioeconomic status are fundamental factors that influence health and health outcomes.

For example, African Americans have more strokes when compared to Whites, even among those with similar systolic blood pressure readings. Most chronic diseases—including diabetes—are more common among those who are poor. Among people with diabetes, those from minority groups had fewer heart attacks but more end-stage renal disease than Whites.

He pointed out that social determinants of health (SDOH) have gotten a lot of attention recently, especially during the COVID-19 pandemic. SDOH are the conditions in which people are born, grow, live, work, and age. They include:

- Demographics, including family background
- Geographic region of resident (urban/rural)
- Cultural identity, religion
- Language proficiency, literacy, and numeracy
- Structural determinants, such access to housing, green space, broadband, economic opportunity, transportation, schools, healthy foods, and public safety.

NIMHD led an NIH-wide effort to develop the PhenX toolkit of high-quality standard SDOH measures that investigators can use in their studies. NIMHD has also developed a research framework that can help investigators identify potential research projects that look at the domains that influence health and the different levels of influence, from the individual level to interpersonal, community, and societal influences. Most research focuses on biological factors on the individual level, but NIMHD funds research that looks at all levels and domains of influence.

Racial and ethnic minorities have been disproportionately affected by the pandemic: more than 50 percent of COVID-19 cases and 45 percent of deaths have affected Latinos, American Indian/Alaskan Natives, and African Americans—groups that make up about one-third of the U.S. population. Underlying factors include long-standing disparities and disadvantages, higher proportions of public-facing jobs, and crowding in housing and communities. Higher rates of co-morbid conditions (especially diabetes) and less access to care also result in more advanced disease and higher mortality rates in all age groups within these populations. This illustrates the imperative to implement prevention and healthcare strategies to address the effects of the pandemic as well as underlying inequities.

NIH has responded with cross-cutting initiatives focused on social, behavioral, and economic issues launched through a joint effort with NIMHD and the National Institute on Mental Health, the Office of Behavioral and Social Research, and the National Institute on Aging. So far the effort has funded 52 supplements to existing grants in Fiscal Year 2020. The initiative has also included a number of R01 grants with several application deadlines still pending. Most projects have focused on adding COVID-specific surveys to existing cohorts of populations or patients, including nursing home residents and pregnant women who gave birth. It also included developing digital and community-engagement interventions to address COVID transmission through behavioral change and evaluate the social and mental health impacts of the pandemic and analyze the excess morbidity/mortality burden. Some of these analyses have shown that life expectancy may have decreased by as much as 2 or 3 years in African Americans and Latinos, although there is some expectation that some of the deaths in these groups are underreported.

With a congressional allocation in 2020, NIH launched the Rapid Acceleration of Diagnostics, or RADx, program to enhance COVID-19 testing among underserved and

vulnerable populations in the U.S. through a consortium of community-engaged research projects. The program's goals are to strengthen available data on disparities in infection rates, disease progression, and outcomes and to identify strategies to reduce disparities in COVID-19 diagnostics.

Phase 1 of the program took place from September to November 2020 with $300 million in funding. Phase 2 will continue from early 2021 to Summer/Fall 2021 to integrate new advances and expand studies and populations with $189 million in funding. The program funded 53 testing interventions in 33 states, the District of Columbia, and Puerto Rico, as well as 16 social and behavioral research studies and a coordination and data collection center at Duke-UNC. The goals of RADx are to:

- Accelerate COVID-19 community implementation science.
- Amplify and disseminate community best practices for successful implementation of intervention testing strategies.
- Support data collection, integration and sharing while preserving necessary data protections.

The structure of the program requires investigators to work as team members as part of the consortium. For example, researchers at Stanford are working with the Lakota Sioux in South Dakota, and researchers at Johns Hopkins are working with the White Mountain Apache and Navajo Nations. In addition, the Coordinating Center is setting up infrastructure to continue this work through NIMHD.

The most public-facing RADx activity is the Community Engagement Alliance (CEAL) against COVID-19 disparities, which started as part of an effort to ensure participation of diverse populations in the clinical trials for COVID-19 vaccines. The program is based on the principle of building partnerships between academic health centers and trusted community leaders and organizations that can deliver a science-based message. The National Medical Association, National Hispanic Medical Association, and other professional organizations as well as civil rights organizations like the NAACP and *Unidos U.S.* have gotten involved and supported the efforts.

The December appropriations bills also included funding for the Chronic Disease and Health Disparities Centers, which builds on a Fiscal Year 2020 initiative to address chronic diseases and health disparities in diabetes, kidney disease, and obesity. With this latest funding, NIMHD will work with NIDDK, NHLBI, NCI and NCATS to establish a comprehensive center initiative. NIMHD will receive $45 million to support regional multi-institutional consortia that produce collaboration, research, and translational science on a wide scale, targeting more than one chronic disease.

This has led to a new funding opportunity announcement and request for applications to support new Centers that integrate prevention, intervention testing, and management strategies for chronic and co-occurring conditions as well as co-occurring risk factors for chronic diseases that lead to health disparities. These will include efficacy studies with some observational components related to prevention and management. Each proposal will include at least two chronic diseases and involve two institutions as well as a community-engagement core. Centers will also be required to set aside a minimum amount for an investigator development core that will be an engine for diversification of the workforce.

He pointed out that race is a difficult topic that people tend to avoid, but the murder of George Floyd has brought it into the forefront and opened up conversations about racism. A 2015 survey by the Kaiser Family Foundation asked respondents if they had been treated unfairly in the past 30 days because of their racial or ethnic background in the following places or scenarios: in a store while shopping; in their place of work; in a restaurant, bar, theatre, or other entertainment place; in dealings with the police; and while getting healthcare for themselves or a family member. The study found that more than a third of Latinos and more than half of African Americans said that they had been treated unfairly in the past 30 days because of their racial or ethnic background, as compared to only 15 percent of White Americans. In healthcare-specific scenarios, 12% of African Americans and 14% of Latinos reported being treated unfairly, relative to only 5 percent of Whites.

The majority of research on racism has focused on the interpersonal arena, and researchers have developed measures of association between racism and various outcomes, such as behavior, substance use, mental health issues, and cardiovascular reactivity.Other examples of racism as a research construct have included studies on internalized racism, perceived societal discrimination and second-hand effects of racism

Most recently, research has focused on the construct of structural racism, which is defined as the history, culture, institutions, policies, and codified practices that perpetuate inequity by promoting an ideology of inferiority. This includes organized systems that categorize, rank, devalue, disempower, and differentially allocate resources. Residential segregation—an outcome or effect of policies—is the cornerstone of these systems. NIMHD held a workshop on this topic in 2017 and has published a funding opportunity for research on Understanding and Addressing the Impact of Structural Racism and Discrimination on Minority Health and Health Disparities. The May 2021 issue of the journal Ethnicity & Disease contains an NIMHD-sponsored special supplement on this topic as well.

NIH IC Directors recently held two 3-hour sessions on racial equity as part of the UNITE Initiative (the subject of the next presentation). One of the lessons learned from this was a sociological definition of diversity and –that well-meant claims of “colorblindness” actually perpetuate the status quo. It’s not a matter of blame or guilt, but actually something more profound.

He pointed out that the number of American Indian physicians went down in the years 2013 to 2018. And while the percentage of African-American and Latino/Hispanic medical students has increased to 15 percent, it falls far short of the 33 percent these groups make up of the U.S. population. The numbers for Ph.D. recipients in STEM fields are also similar, with Blacks and Latinos in distressingly low numbers, and American Indian recipients actually declining. NIDDK and other ICs at NIH are trying to address this challenge, and the NIH Office of Scientific Workforce Diversity will play a critical role in the next several years.

NIMHD initiated in 2016 an annual week-long intensive training in minority health for early-stage investigators and postdoctoral fellows with an interest in health disparities research. The sessions include lectures by leading scientists in this area, mock grant-review sessions using real applications, and meetings with NIMHD and other NIH scientific program staff. The program has had 270 participants over the past five years, 60 percent of whom were from underrepresented minority groups, and 20 percent physicians. Program participants

have successfully applied for R01 and K awards.

The Faculty Institutional Recruitment for Sustainable Transformation (FIRST) program was established by Dr. Hannah Valantine during her tenure as Chief Diversity Officer at NIH. This is a Common Fund program designed to foster sustainable institutional culture change and inclusive excellence, encourage hiring of diverse faculty, and support faculty development, mentoring, sponsorship and promotion across NIH ICs. NIMHD will house the coordination and evaluation center while NCI will house the faculty cohort.

He also introduced the NIH-wide Minority Health and Health Disparities Strategic Plan, which charts the way forward to advance the science of minority health and health disparities research from 2021-2025. This report includes "leap" goals for 2030, two of which relate to NIDDK's mission and the higher rates of renal disease and diabetes among minority populations:

- Identify differences in factors that cause progression to end stage renal disease (ESRD), and find informative subpopulations, among African Americans or Blacks; Hispanics or Latinos; American Indians and Alaska Natives, Pacific Islanders and Asians with chronic kidney disease by 2030.
- Identify factors contributing to the disparity between Whites and African Americans or Blacks; Hispanics or Latinos; American Indian and Alaska Natives; Pacific Islanders and Asians in control of hemaglobin A1C and target those factors through rigorous clinical trials and adaptive population-based interventions by 2030.

He closed by bringing the Council's attention to a special issue of the *American Journal of Public Health* that included articles on NIMHD research strategies and their visioning process. He also explained that a new book, *The Science of Health Disparities*, has been produced by NIMHD, NIH and extramural scientists. The book is intended as a methods manual for fellows and junior faculty and others who want to get involved in this field.

Council Questions and Discussion

Comment from Council: *Will the Chronic Disease and Health Disparities Centers be looking at racial bias as it may impact ongoing complications following COVID-19 as well as to the incidence of COVID-19?*

Dr. Pérez-Stable explained that the Chronic Disease and Health Disparities Centers will look at all chronic diseases—including diabetes, kidney disease, and obesity—as they relate to health disparities. These Centers are not focused on COVID-19 specifically, although these chronic diseases do play a role in COVID outcomes.

Comment from Council: *What role does the Center for Scientific Review (CSR) and Study Sections play in enabling researchers from underrepresented groups to get funding? Are the right reviewers looking at the applications?*

Dr. Pérez-Stable agreed that this is an important question. He referenced a recent study that showed how topic choice accounts for part of the funding gap between minority and non-minority researchers and that the funding gaps originated in the CSR review process. But across the board, too few underrepresented minority investigators apply for funding. Currently, Dr. Noni Byrnes is addressing this issue. One approach may be to have standing committees do more of the reviews. Up to 20 percent of NIH principal investigators are not involved in reviewing grants, so there is also room to expand the pool of reviewers.

Comment from Council: *Does NIMHD have plans to increase training in this area of research so that more investigators are well versed in the methods required to rigorously study and address problems of health disparities?*

Dr. Pérez-Stable explained that NIMHD currently doesn't have the plans or the budgetary flexibility to do more in this area. UCSF developed a course for clinical research training that included an elective on health disparities research methods as well as qualitative research and population health methods, which is a model that could be generalized through the existing networks of CTSA.

Comment from Council: *This problem requires more "groundwater" solutions that focus on the way society is structured and how that flows through all our institutions, rather than "fish-level" solutions that focus on the individual or "lake-level" solutions that focus on systems. How do we drive progress toward groundwater solutions?*

Dr. Pérez-Stable admitted that this is a challenge. The general paradigm in public health science was that disparities are based on social class, and if we decrease economic inequality, these differences will go away. We've moved away from that to understanding more about the roles that race, ethnicity, and cultural identity play in variances. It will take multi-sector interventions and the collaboration of health scientists with people in the housing, planning, food delivery, and environmental areas. So much of disparity is generated through chronic disease management. We have just begun these efforts to address structural racism. We plan to do more in Fiscal Year 2023.

Comment from Council: *A lot of institutions are doing great work in methods training for researchers into health disparities and minority health. What training is provided to reviewers to ensure that they are not continuing to look at race and ethnicity through the same indoctrinated lens of white supremacy?*

Dr. Pérez-Stable acknowledged the issue and assured Council that the director of CSR and others are doing their best to address it directly. Pointing out egregious examples is one way to move the needle further. Reviewers have certain expertise in different areas of research—clinical research, molecular biology, population science—and research methods. It may not be necessary to have a demonstrated expertise to be able to recognize the potential impact of a topic to be an effective reviewer.

Comment from Council: *Underrepresented minorities—particularly African Americans—are actually overrepresented in military populations. Is there a role for data from the Department of Defense to answer some of these questions? When we control for access to care, it mitigates some of the health disparities but does not completely remove the effect.*

Dr. Pérez-Stable said that the DoD is interested in this area, and there is a military representative on the NIMHD Council. Looking at data from the U.S. Department of Veterans Affairs (VA), African Americans have better outcomes than both non-veteran African Americans and White Americans served by the VA. Dr. Pérez-Stable provided the caveat that some of this data may be confounded by the demographics and circumstances of those who enlist.

Comment from Council: *Studies of cardiovascular outcomes and mortality, as well as kidney disease, by the VA have shown improved outcomes under the military healthcare system, which is a more "universal" system than standard American healthcare.*

NIH UNITE Initiative

After a brief recess, Dr. Germino introduced Dr. Marie Bernard, Deputy Director of the National Institute of Aging and Acting NIH Chief Officer for Scientific Workforce

Diversity to report on NIH efforts to promote diversity, equity and inclusion in biomedical research.

Dr. Bernard explained that the UNITE Initiative, presented at a special meeting of the Advisory Committee to the Director of NIH in February 2021, is the result of a lot of thought and deliberation. The events of 2020 brought into sharp focus the ongoing reality of racial injustice in our country and the responsibility of all of us to address it. The directors of the NIH Institutes and Centers had a series of intense meetings from June 2020 onward at which these issues were identify and discussed. Two self-assembled affinity groups at NIH—Eight Concepts for Racial Equity (8CRE) and African-American and Black Senior Scientists (AA/B Scientists), as well as the Anti-Harassment Steering Committee, gave candid input and informed next steps.

The directors agreed that NIH must address structural racism and must ensure that biomedical research and the administrative system that supports it are devoid of hostility grounded in race, sex, or other federally protected characteristics. With the UNITE initiative, NIH commits to delineate elements that may perpetuate structural racism in biomedical research both within NIH and the extramural community and lead to a lack of personnel inclusivity, equity, and diversity. The group committed to give all ideas equal and fair review without regard to current dogma, precedents, or who presents the data. As COVID-19 made clear, health disparities and inequities continue to contribute to morbidity and mortality in our country, and we must redress fundamental causes and identify effective interventions.

The UNITE Initiative unveiled on February 26, 2021 represents five interacting committees:

- U: Understanding stakeholder experiences through listening and learning
- N: New research on health disparities/minority health/ health equity
- I: Improving the NIH culture and structure for equity, inclusion, and excellence
- T: Transparency, communication, and accountability with our internal and external stakeholders
- E: Extramural research ecosystem: Changing policy, culture, and structure to promote workforce diversity

Dr. Bernard then elaborated on the charge and projects of each of the committees. For example, the **U Committee** will perform a broad, systematic self-evaluation to delineate elements that perpetuate structural racism and lead to a lack of diversity, equity, and inclusion within the research community. This committee has already published a request for input on ways to improve racial and ethnic inclusivity and diversity in research environments. They have also embarked on a project to collect qualitative data through a comprehensive assessment across stakeholders in listening sessions, focus groups, town halls and anonymous submissions. This evaluation is expected to be completed sometime in

summer 2021.

The **N Committee** will address long-standing health disparities and issues related to minority health to advance health equity and ensure transparency, accountability, and sustainability of resources in this area. Dr. Rob Rivers, Program Director in the NIDDK's Office of Minority Health Research Coordination (OMHRC), is co-chair of this committee. Their foundational efforts include a concept approved on February 26 to use Common Fund resources to fund innovative and transformative health disparities research. Funding opportunity announcements for this were published in March. They also plan to examine the portfolios of NIH stakeholders to take a full inventory of existing efforts in this area. The current tracking system cannot track these research topics automatically, so this must be done manually.

The **I Committee** is looking at the racial and ethnic demographics of NIH's total workforce of 44,000 individuals—comprised of 18,000 federal employees, as well as contractors and trainees—relative to the breakdown by job classifications: overall, scientific, health and research, and infrastructure. Dr. Bernard noted differences in diversity between direct support roles and infrastructure roles; among senior leadership particularly, there is a clear need for more racial diversity. This committee is looking at expanding recruitment efforts for NIH investigators from underrepresented groups, setting up an anti-racism steering committee to coordinate with Institute-level anti-racism plans, and establishing a campaign to make NIH staff aware of options for reporting racist actions. They will also work with NIH senior leadership to appoint a diversity, equity, and inclusion officer in every IC, with direct access to the IC director to track, advance, and coordinate IC-specific diversity, equity and inclusion efforts and actively participate in NIH-wide diversity efforts.

The **E Committee** is charged with evaluating NIH extramural policies and processes to identify and change practices and structures that perpetuate a lack of diversity and inclusion. This committee is focused on race and ethnicity data about applicants and funding rates. Dr. Bernard noted that after a 2011 paper found found significant disparities in application and success rates for African-American/Black scientists applying for R01 equivalent grants, her position of Chief Officer for Scientific Workforce Diversity was established to address those findings.By 2020, the identified trend is improving—almost double the number and success rate of African American and Black applicants—but there is still a lot of work to do. This committee is looking at more transparency with grant demographic data as well as career pathways, institutional culture, NIH processes, and collaboration with minority-serving institutions.

She explained the **T Committee** last, noting that it focuses on transparency and accountability and has the following responsibilities:

- Maintaing the committee's website (nih.gov/endingstructuralracism)
- Raising awareness both within NIH and with the public
- Working to diversify the portraiture around NIH to reflect the Institutes' goal for recruitment and retention.

The T committee is also committed to identify and correct any NIH policies or practices that may have helped to perpetuate structural racism and continue to implement approaches to enhance portfolio diversity. The committee will also launch a multi-phased, -tiered, and -integrated Common Fund initiative focused on transformative health disparities research initiatives to reduce health disparities/inequities and ensure an NIH-wide commitment to the

NIMHD structural racism funding opportunity announcement described by Dr. Pérez-Stable. Furthermore, the committee will also develop a sustainable process of gathering and publicizing demographic data on the NIH workforce and implement policy changes that promote anti-racism and remove barriers to professional growth for staff from diverse backgrounds. Another effort will focus on expanding the NIH intramural Distinguished Scholars program that has led to greater diversity among tenure-track investigators.

Dr. Bernard then reported on progress toward the goals set out by the committee:

- As a sign of NIH's commitment to this issue, NIH Director Dr. Francis Collins issued a public apology "to those individuals in the biomedical research enterprise who have endured disadvantages due to structural racism."
- NIH has committed $24 million to the two FOAs issued—one for transformative research to address health disparities and the other focusing on minority-serving institutions. Other funding devoted to these efforts include $60 million of Common Fund resources and $30.8 million from 25 NIH ICOs.
- The NIH BRAIN Initiative has published the first FOA that considers diversity in its review process—each applicant must explain the diversity plan for their project.
- The Office of Extramural Research published an update to their databook that now includes grantee data by race, ethnicity and disability status. The NIH Office of Equity, Diversity, and Inclusion is preparing to publish internal NIH staffing data by race, ethnicity, and other parameters.
- The Anti-Racism Steering Committee has held its first meeting and total membership is now above 460 individuals.

Dr. Bernard closed by acknowledging the efforts of the more than 80 members of the UNITE Initiative. In addition to Dr.Rivers, co-chair of the N committee, she also credited Dr. Larry Tabak, NIH Principal Deputy Director, and Dr. Alfred Johnson, NIH Deputy Director for Management, who serve with her as co-chairs of the overall UNITE Initiative.

Council Questions and Comments

Before opening up the floor to questions and comments from the Council, Dr. Germino pointed out that the actions of the UNITE Initiative align well with NIDDK's actions both in terms of funding initiatives and also internal evaluation of the workforce dynamic.

Comment from Council: *How rigorous do you feel the metrics are for evaluating the success of these initiatives? Will you be able to measure success?*

Dr. Bernard answered that this initiative is a marathon—maybe an ultramarathon—and the mile markers along the way will inevitably change as we get a clearer sense of the journey. For this first part, metrics include deadlines for accomplishing certain tasks and regular progress reports. The Advisory Committee to the Director already has a working group on diversity and that group has been consulted and has made recommendations. The NIH community has also made it clear that they will be watching and expecting progress.

Comment from Council: *What are we offering in terms of leadership development opportunities, especially for people from underserved populations?*

Dr. Bernard agreed that leadership opportunities are important and acknowledged that she has benefitted from training programs in this area. She agreed that broader dissemination of these programs may hold some benefit.

Comment from Council: *Institutional racism is rooted in maintenance of power by the privileged. How can we use both negative and positive reinforcements to force some unwilling people to give up power or to share it?*

Dr. Bernard agreed that this is an important point to consider. If NIH is going to continue as the global leader in science, it must take advantage of diverse perspectives. The future workforce is a diverse workforce. Some approaches may include the Faculty Institutional Recruitment for Sustainable Transformation funding opportunity that was released before UNITE was unveiled. Ten institutions will receive funding to recruit cohorts of underrepresented faculty and develop a program of mentoring, networking, and additional training. Institutional culture will be measured by how welcoming it is for people from underrepresented groups. Early data from the intramural Distinguished Scholars Program was impressive enough that NIH committed $250 million over the next 9 years from the Common Fund to replicate it. Additionally, every IC must have a diversity plan and approach in place, and the directors' performance evaluations will be tied to those metrics. She also noted that the IC directors are on board with the effort.

Comment from Council: *We all have a role to play in this by being willing to get uncomfortable and get closer to race and racism and how deeply embedded and rooted it is. We all have a part to play in dismantling the power structure this society is built on.*

Comment from Council: *Will the UNITE Initiative, especially the E committee, include efforts to recruit diverse populations into science, medicine, and research?*

Dr. Bernard credited Dr. Collins and Dr. Tabak for the thoughtful configuration of the UNITE Initiative, especially in terms of the co-chairs of each committee. One of the chairs of the E committee is Dr. Jon Lorsch, Director of the National Institute of General Medical Sciences (NIGMS). NIGMS funds many training opportunities at NIH, and they want to provide pathways by which underrepresented groups can join the scientific workforce, as well as offer solutions to help keep people on those pathways (i.e., to remove barriers). They will present their ideas at the January meeting of the Advisory Committee to the Director.

Comment from Council: *What efforts have been made to seek research mechanisms and accountability tools to force institutions to look at the painful reality of racism?*

Dr. Bernard responded that she would like to have more money to put towards these types of efforts, but she believed that as the project goes forward successful strategies will emerge, so that their principles can be applied in other areas.

UNITE Common Fund Concepts

Dr. Rivers gave an update on the Common Fund initiatives aimed at transformative research to address health disparities and advance health equity. He thanked the Council members for their active interest in this area of research.

Dr. Rivers explained that the Common Fund is funded by the Office of the Director to support trans-NIH scientific programs and foster innovative ideas that have potential to transform and benefit the broader biomedical research community. The idea is to move the

NIH mission of improved health for all people forward faster by supporting bold programs that catalyze discovery. As part of the UNITE Initiative, the Common Fund is working both within NIH and across the country to rethink cultural and societal structures and focus on how certain thoughts and ideologies in the biological sciences have dehumanized others and lead to poor health outcomes.

To that end, the Common Fund is supporting two funding opportunity announcements with the goal to develop, implement, and disseminate innovative and effective interventions and strategies that prevent, reduce, or eliminate health disparities and increase health equity. One of the initiatives, RFA-RM-21-021, is open to the entire research community. The companion initiative, RFA-RM-21-022 is designed specifically to spur increased investigation and resources for minority-serving institutions. Projects eligible for this funding must:

- Include an intervention component to make sure ideas are placed into action.
- Reflect transformative ideas that differ from what has been done for the past 20-30 years.
- Focus on one or more of the NIH-designated populations that experience health disparities.
- Document or demonstrate meaningful collaborations and partnerships with local community-engaged leaders.

He explained that the goal is for the community to actively participate in the research and contribute ideas based on their experiences and first-hand knowledge. Projects are encouraged to include community-prioritized research questions and address cross-cutting issues such as determinants of health and priorities of multiple NIH ICs. For example, a research opportunity that investigates metabolic disorders and obesity—which are focus areas for both NHLBI and NIDDK—would be prioritized because they address issues that crosscut several institutes and involve multilevel interventions and real transdisciplinary intersectional collaborations.

Dr. Rivers shared the project's website (https://commonfund.nih.gov/healthdisparitiestransformation) and email address (CFHealthDisparities@mail.nih.gov) for more information. Before turning to new questions, Dr. Rivers responded to a previous question from a Council member about pathway programs to encourage biological and biomedical research. He pointed out that at the January 2021 Council meeting he presented a program called STEP-UP (http://stepup.niddk.nih.gov/), which provides research opportunities for juniors and seniors in high school as well as undergraduates.

Comment from Council: *In nephrology and medicine in general, when we consider clinical algorithms and race and research race and ethnicity as they relate to outcomes, there is the potential to conclude we can look at a person and tell their biology, to assume that race and biology are related, when actually gene prevalences are extremely variable and interact with their environment. We need a better understanding of these aspects and the differences between minority health and health disparities.*

Dr. Pérez-Stable agreed with the comment. Race and ethnicity are social constructs that are self-identified but have biological components. There has been a backlash against that, with some saying that adjusting glomerular filtration rate (GFR) by race is racist. Some clinical systems have now abandoned that practice. Studying whether metabolic or biological

measures differ by the self-identified construct of race or ethnicity are part of discovery science and the multi-faceted nature of health and health outcomes. He pointed out that racism and differences among various groups also present issues in other countries, even if people there deny that race plays a role in health separate from social class and don't collect racial and ethnic data.

Comment from Council: *What is NIH's experience in sustaining relationships with local communities when grant cycles end? Researchers can spend a lot of time and energy assembling investigators and building community relationships with people outside biomedical research and then those relationships dissolve when you run out of funds. Are there ways to encourage commitments that extend beyond the usual five-year cycle?*

Dr. Rivers agreed this is a concern and an area where NIH and NIDDK are open to innovative solutions and creative ways that universities and other institutions can increase support for community engagement beyond the study cycle.

Comment from Council: *Arecommendation to extend grant cycles to 7 years with certain funds tied to the continuation of the community relationship as well as matching funds from the institutions involved. This kind of structure may help communities understand that someone beyond the institution is committed to supporting ongoing partnerships rather than letting one partnership go and starting a new one from scratch.*

Comment from Council: *Asuggestion that applicants should be encouraged to formally identify and involve partners within the institution and community during grant writing of the grant to help develop the project. This would help build commitment and institutional memory and develop a sustainable model.*

Comment from Council: *Could this be an area of opportunity for public-private partnerships in which NIH supports the grant for 5 years, but then industry partners step in to sustain the program? For example, the food industry may be interested in supporting access to healthy foods.*

Comment from Council*: Concerning the debate about GFR and inappropriate metrics and conversions applied generally to diverse populations, can precision medicine give us a better standard for applying medical care?*

Dr. Star said that using GFR as a population metric works only in the populations where the data came from, but not in other populations, which has led to problems. He explained that the Kidney Precision Medicine Project and other DEM and DDN projects are using a precision medicine approach to treat each individual. These projects may lead to answers in the long-term.

Dr. Germino wrapped up this last session in the series of Council Forums on underrepresented investigators and underrepresented science, but assured Council members that the discussion of this topic will continue. These are prominent themes in the NIDDK Strategic Plan currently being developed, and Council will hear from the working group on health equity some time in the next year.

VII. CONCEPT CLEARANCE

Dr. Rodgers then turned to Concept Clearance by Council, a step required before ICs can publish funding opportunity announcements, or FOAs. To streamline this process, summaries of the concepts were supplied to Council members for their review before the meeting. Concepts for re-competitions or continuations of existing programs were shown as part of a list to save time. Cleared concepts will be made publicly available on the NIDDK website.

Division of Digestive Diseases and Nutrition Concepts
Members of the DDN staff presented three concepts on behalf of the division.

- **Support for the Development of R01 or R01 Equivalent Projects by Investigators from Underrepresented Populations in Biomedical Research:** Dr. Peter Perrin presented a new initiative, the purpose of which is to provide support for the development of innovative research projects led by faculty members from underrepresented populations in biomedical research and facilitate competitive R01or R01 equivalent applications to the NIDDK within the mission of the Division of Digestive Diseases and Nutrition. Underrepresented populations in the U.S. biomedical, clinical, behavioral research enterprise are described in NOT-OD-20-031, "Notice of NIH's Interest in Diversity." Leveraging opportunities available through Biomedical Research Cores and Enrichment Activities at the Silvio O. Conte Digestive Diseases Research Core Centers or other appropriate Centers is a key aspect of this initiative.

- **Investigator Award to Support Mentoring of Diverse Early Career Researchers:** Dr. David Saslowsky presented this initiative, which notes that effective mentoring is critical for successful career advancement in academic biomedical research, particularly at early career stages where budding investigators begin to formulate their research focus, develop insights, and needed scientific skill sets. Researchers from underrepresented groups (URGs) typically receive less mentoring than non-minority peers (Beech et al. 2013) and augmentation of mentoring programs is needed to help overcome challenges faced by URG students, trainees, and faculty. A need for increased mentoring of early career stage URG researchers to sustain their career pathway(s) has also been highlighted at the NIH special ACD meeting on racial equity (2021), at NIDDK Advisory Council Meetings, in NIDDK Strategic Plan Working Groups, in the NIDDK Office of Minority Health and Research Coordination (OMHRC), and among thought leaders external to NIH. This new initiative would fill a current gap in NIDDK programs by supporting dedicated effort for established investigators conducting research within NIDDK's missions to provide effective mentoring for URG scholars.

- **Discovery Science Research to Improve Understanding of Risk and Causal Mechanisms for Obesity in Early Life:** Dr. Voula Osganian presented this concept, which notes that obesity in children remains a major public health problem, with the most recent prevalence among youth ages to 2-19 years estimated at 20%. Research suggests that high-risk growth trajectories emerge during infancy and early childhood and tend to persist, suggesting this is a critical period in the development and prevention of obesity. The goal of this initiative is to stimulate innovative, discovery research to better understand interindividual variability in risk and underlying causal mechanisms for accelerated weight gain and the development of obesity during infancy and early childhood. This initiative proposes to establish a diverse, prospective cohort of pregnant women early in pregnancy to systematically and intensively study mothers and their offspring. Focusing research

efforts to better understand early causal determinants of pediatric obesity may yield targeted, more effective, and durable obesity prevention and treatment interventions.

Next, Dr. Stephen James presented a list of four continuing concepts:

- **Continuation of the Drug Induced Liver Injury Network (DILIN)**
- **Lymphatics in Health and Disease in the Digestive System**
- **Improving Medication Adherence in Children who had a Liver Transplant (iMALT)**
- **Bioinformatics for ChiLDReN genomics**

Dr. Rodgers then took back the floor to preside over Council questions and comments on the DDN concepts.

Council Questions and Comments

Comment from Council: *What magnitude of financial support is proposed for the R01 Development Support project?*

Dr. Perrin noted that R03 grantees could receive $50,000 per year for two years, positing that these awards are structured to give sufficient resources for an early-career researcher to be able to obtain good preliminary data and, if need be, resubmit for funding the following year.

Comment from Council: *Should the research question for the Pediatric Obesity Prevention Discovery concept be more targeted? Is the aim to examine obesity risk in the general population and look at interactions that might lead to increased risk for obesity, or is it to compare the risks between people at lower risk and people at high risk?*

Dr. Osganian assured Council members that all details will be accounted for during the planning and implementation phases if this concept is funded, and that people at both average and high risk for obesity will be included.

Division of Diabetes, Endocrinology and Metabolic Diseases Concepts

Members of the DEM staff presented a total of twelve concepts on behalf of the division, including one group of concepts from the Special Diabetes Program and another group of concepts from the division.

Special Diabetes Program

- **Characterization of Islet-derived Extracellular Vesicles for Improved Detection, Monitoring, Classification, and Treatment of Type 1 Diabetes:** Dr. Olivier Blondel presented a concept for an initiative, which will support the development of tools and experimental platforms for the purification and characterization of Extracellular Vesicles (EV) originating from the human pancreatic islet and its broader tissue environment in healthy individuals, and individuals with type 1 diabetes (T1D) or at-risk of developing the disease. It will also support the exploration of the contribution of pancreatic EV biology to islet function, dysfunction and T1D disease initiation; the development of EV-based diagnostic tools for disease monitoring and classification; and the use of pancreatic EV biology to identify novel therapeutic targets.

- **High-Resolution Exploration of the Human Islet Tissue Environment [HIRN Human**

Pancreas Analysis Consortium (HPAC)]: Dr. Xujing Wang presented an initiative addressing the on-going need to support teams of investigators to propose studies that will contribute to a higher resolution understanding of the organization of the human pancreatic tissue environment by describing the composition and function of important components of the pancreatic islet and peri-islet tissue architecture, the cell-cell relationships and means of communications used by cell types and cell subtypes within the pancreatic tissue ecosystem, and the contribution of adjacent tissues to islet cell function and dysfunction. Successful projects will integrate the Human Pancreas Analysis Consortium (HPAC) that is part of the Human Islet Research Network or HIRN. HIRN's overall mission is to support innovative and collaborative translational research to understand how human beta cells are lost in T1D, and to find innovative strategies to protect and replace functional beta cell mass in humans. New studies should have a primary focus on increasing our understanding of human tissue structure and function, and human disease biology, as opposed to exploring the biology specific to any animal models.

- **Pilot and Feasibility Studies to Improve Technology Adoption and Reduce Health Disparities in Type 1 Diabetes Mellitus:** Dr. Miranda Broadney presented this concept, the overarching goal of which is to reduce health disparities in type 1 diabetes mellitus (T1D) through improving technology usage within individuals from minority racial and ethnic backgrounds. Significant disparities exist in both health outcomes and health technology usage within T1D. Health outcomes data indicate that T1D patients from underrepresented backgrounds have worse glycemic control and increased morbidity and acute complications from their diabetes than peers of non-underrepresented backgrounds. Furthermore, data indicate that the rate of technology use (most commonly defined as the use of insulin infusion pump and/or continuous glucose monitoring) is significantly lower within patients of underrepresented backgrounds comparatively. These disparities are likely interconnected and there is a need to develop effective interventions to improve technology adoption in minority populations. This initiative will fund investigator-initiated research proposals aimed at improving technology use in patients with T1D of underrepresented backgrounds. The goals will be to identify, develop, determine feasibility, and pilot efficacy of interventions designed to improve technology adoption, glycemia and patient reported outcomes including quality of life in individuals from underrepresented backgrounds with T1D.

- **Expansion of the National K12 Program for the Career Development of Clinician-Scientists in Diabetes Research (Diabetes-DOCS):** Dr. Lisa Spain discussed a concept for a national career development program for physician scientists, modeled on programs developed at other NIH institutes. The purpose of the Development Of Clinician-Scientists in Diabetes research (Diabetes-DOCS) Program is to support the development of physicians committed to a career in diabetes research. The Diabetes-DOCS program is intended to remedy the dearth of pediatric endocrinologists and physicians from other specialties who conduct outstanding, innovative research into the causes and consequences of diabetes. Diabetes-DOCS will be a single national program, implemented by one or more PD/PIs, together with an advisory committee composed of basic and clinical investigators who have a strong record of funded research and successful training of physician-scientists. Although there will be one national administrative center awardee, scholars are expected to be appointed and supported at their home institutions around the country. The program will start with a focus on Type 1 Diabetes (T1D) research, with funding from the Statutory Special Diabetes Program. This expansion (based on limited competition review) will fund additional slots to support the career development of

physicians whose research focuses on NIDDK emphasis areas in type 2 diabetes and metabolic diseases. The program is expected to deliver on goals to increase the diversity of physician scientists with independent research careers in the mission of NIDDK.

Next, Dr. William Cefalu briefly presented **Support for Small Business Innovation Research (SBIR) to Develop New Methods and Technologies for Assessment of Risk and for Early Diagnosis and Prognosis of Type 1 Diabetes**. As this is a continuation of an existing initiative, he limited his remarks but noted that this initiative's goal is to develop innovative technologies and biomarkers to provide early identification of T1D risk and the onset of autoimmunity.**Division of Diabetes, Endocrinology and Metabolic Diseases**

- **DDEMD Stakeholder Engagement Innovation Center:** Dr. Pamela Thornton presented a concept from the DEM Stakeholder Engagement Work Group with the goal to improve health equity and health disparities research within the division. DDEMD has prioritized health equity research. A fundamental approach for tackling health disparities and promoting equity involves meaningful stakeholder engagement with individuals and communities that are 'hardly reached' yet central to research that involves them. Stakeholders may be incorporated across the research process from idea generation, design, execution, and oversight, to dissemination of results. Evidence indicates that stakeholder engagement can result in powerful outcomes such as trust building, enhanced recruitment and retention, and maximizing uptake and sustainability of successful interventions. Although engagement activities with community may require additional research time, the opportunity to promote health equity and reduce disparities outweighs this potential challenge. DDEMD investigators often lack expertise in stakeholder engaged methodologies. To accelerate this important area, strategic investments are required. Thus, this initiative will establish a novel Stakeholder Engagement Innovation Center to provide research resources to educate investigators in stakeholder and community engaged research and develop a community of diverse, multidisciplinary researchers with expertise in critically-needed methods to improve diabetes prevention and treatment interventions in health disparities populations. The proposed initiative is informed by a DDEMD 2020 seminar series and complements current NIDDK strategic planning efforts to achieve health equity.

- **Integration of Medical and Social Care Clinical Trial Interventions:** Dr. Thornton also presented a concept from the Trans-NIDDK Work Group, which notes that. exposure to health-impeding social determinants of health (SDOH) contributes to poor obesity, diabetes, and kidney disease outcomes. Adverse SDOH disproportionately affect economically disadvantaged and minority populations and contribute to the avoidable health inequities that characterize NIDDK disease areas. In the wake of the COVID 19-fueled economic crisis—and co-occurring sociopolitical events that have driven growing awareness of systemic racism—it is critically important to accelerate strategic efforts to address SDOH and advance the science of health equity. The United States is currently experiencing a transition to value-based payment models that incentivize health settings to treat the "whole person," including SDOH and related social risks. This transition represents an opportunity to effectively address SDOH through novel healthcare delivery models that extend medical care beyond clinic walls into community contexts. However, evidence for how to address social risks via healthcare settings is lacking and current implementation strategies vary across healthcare delivery contexts. The proposed initiative would establish a NIDDK pilot program as the Institute's initial steps to systematically advance the science of medical and social care interventions to address patients' social

risks through linkages with community partners. This program is complementary with existing NIDDK efforts in health equity to strategically move toward advancing the field.

- **Integrated Physiology of the Exocrine and Endocrine Compartments in Pancreatic Diseases:** Dr. Norann Zaghloul presented a trans-DK concept aimed at understanding how the exocrine and endocrine compartments of the pancreas may be interacting in the context of diseases relevant to both compartments. Islet dysfunction is a hallmark of both type 1 and type 2 diabetes. Because of this, decades of study have produced an extensive understanding of islet biology, the vast majority focusing on beta-cells specifically or on islets as independent units distinct from the exocrine pancreas in which they are embedded. The two compartments of the pancreas have traditionally been viewed as discrete non-interacting tissues, despite their shared contribution to regulation of postprandial nutrient absorption. This has resulted in a divide in the study of the pancreas between regulation of digestion (exocrine) and hormonal regulation of metabolism (endocrine) with little overlap between the two. Compelling evidence, however, has challenged this separation and supports the possibility of a greater interaction than previously appreciated. These observations suggest that achieving a more complete understanding of the pancreas as a whole will significantly advance understanding of diseases of both compartments. To target this need, this initiative proposes to solicit applications aimed specifically at characterizing interactions between exocrine and endocrine pancreas. The goal of these projects will be to: 1) elucidate the nature of cross-compartment interactions within the pancreas, 2) understand coordinated regulation of exocrine and endocrine tissues/cells, and 3) define mechanisms by which exocrine-derived cells and/or signaling molecules can contribute to islet function and vice versa.

Next, Dr. Cefalu presented a list of four continuing DEM concepts:

- **National Centers for Metabolic Phenotyping in Live Models of Obesity and Diabetes (MPMOD)**
- **Expansion of the National K12 to Include T2D Physician-Scientists**
- **Diabetic Foot Consortium**
- **Trial to Assess Chelation Therapy 2 (TACT2)**

Council Questions and Comments

Comment from Council: *Regarding the Characterization of Islet-derived Extracellular Vesicles for Improved Detection, Monitoring, Classification, and Treatment of Type 1 Diabetes program (three questions total):*
Will there be enough islets available to support this ambitious research project?

Dr. Blondel responded that there are many existing platforms that can be used to initiate this research. Investigations should start with an examination of islet extracellular vesicles in general and then move to the differences in the pathological state. A few research groups have already started to work in that space, leading to expectations of some strong projects.

Comment from Council: *Is there a way to know from which cell type the extracellular vesicles will be derived?*

Dr. Blondel responded that there will not be a way to isolate microvesicles or extracellular vesicles from beta cells using a single protein. However, the Division has encouraging data

from pilot studies that show that switching to two or three cell surface markers lets the researcher reach cell specificity. For example, one protein may be common to beta cell and kidney and heart cells. But by adding another for sorting that is not found in kidney or heart with just two proteins, the researcher can achieve a highly purified beta cell fraction.

Comment from Council: *Will this be a cooperative U mechanism, or is it a mechanism by which individual investigators would apply to access samples?*

Dr. Blondel responded that this program will award R01 grants.

Comment from Council: *Regarding Pilot and Feasibility Studies to Improve Technology Adoption and Reduce Health Disparities in Type 1 Diabetes Mellitus*:
Is the increase in incidence of T1D overall and across different racial ethnic groups thought to be a change in gene environment that's occurring differentially, or might we in fact be missing an intermediate form or variant of diabetes that has arisen due to changes in societal conditions?

Dr. Cefalu responded that there is no indication that the genes have changed. He noted that not everyone who is genetically at risk develops T1D. The Division has taken a great interest in other subtypes of diabetes, particularly since the endotypes differ in presentation in both type 1 and type 2 disease, he said. Additionally, Dr. Spain noted that scientists have recorded increases in most other autoimmune diseases.

Comment from Council: *We are seeing more cases of T1D being diagnosed in children who are overweight. This is not the classic pattern. Could something different be driving this change?*

Dr. Rodgers believe that is a correct observation. As incidence of overweight and obesity increases in the population at large, insulin resistance may play a part in what would be considered classical T1D.

Comment from Council: *Regarding the National Centers for Metabolic Phenotyping in Live Models of Obesity and Diabetes (MPMOD)*: *How will this next phase centers be structured? Will these be funded as supplements to existing centers, or will there be open competition for more smaller, discrete phenotyping?*

Dr. Cefalu responded that the centers will continue and may consolidate over time, focusing more on live models. The unique aspect of this concept is a coordinating center to help ensure that URM scientists get support and resources. DEM will institute metrics and milestones to ensure equity.**Division of Kidney, Urologic, and Hematologic Diseases Concepts**

- **Interventions to Address Structural Racism and Improve Outcomes in Kidney Disease Patients:** Dr. Paul Kimmel presented this initiative, which examined how marginalized racial and ethnic groups who have been subject to structural racism experience disparate health outcomes relative to more privileged groups. Structural racism affects access to and quality of care, as well as access to social determinants of health, contributing to poor kidney health outcomes. Chronic stress and associated elevation in allostatic load induced by perceived discrimination and navigation of adverse social determinants of health are also associated with adverse health outcomes. Relatively few interventions have been tested to address the effects of racism in the lives of chronic

kidney disease (CKD) and end stage renal disease (ESRD) patients. This initiative will invite applications that will develop and implement interventions targeting aspects of structural racism and/or perceived discrimination, to improve outcomes of patients with CKD or ESRD. Successful applicants will include a multidisciplinary and diverse principal investigator team and will involve community representatives in all aspects of the study. A Coordinating Center will provide statistical, methodological, and clinical trials support and will convene awardees annually to share progress and ideas. This initiative will provide a long overdue opportunity to address important and under-addressed contributors to racial and ethnic disparities in CKD and ESRD and will help develop an emerging research area in kidney disease.

Next, Dr. Star presented the KUH renewals:

- **Chronic Kidney Disease in Children Study (CKiD) limited re-competition**
- **Pragmatic Trial of Higher vs. Lower Serum Phosphate Targets in Patients Undergoing**
- **Hemodialysis (HiLo) limited re-competition**
- **Chronic Renal Insufficiency Cohort (CRIC) Study limited re-competition**
- **Stimulating Urology Interdisciplinary Team Opportunity Research (SUITOR) expansion**
- **Predoctoral to Postdoctoral Fellow Transition Award (F99/K00) continuation**
- **Multidisciplinary Urologic Research (KURe) Career Development Program (K12 Clinical Trial optional) continuation**

Dr. Star also presented three trans-NIDDK concepts currently up for renewal:

- **CareerTrac Tracking System**
- **High-Impact, Interdisciplinary Science in NIDDK Research Areas (RC2 Clinical Trial Optional)**
- **Early-Stage Preclinical Validation of Therapeutic Leads for Diseases of Interest to the NIDDK (R01 Clinical Trial Not Allowed)**

Council Questions and Comments

Comment from Council: *Could this initiative be a model for other studies for other diseases? Do you know if a similar initiative is being planned elsewhere in NIDDK or other Institutes and Centers?*

Dr. Kimmel explained that this initiative is similar to the Common Fund initiative and may also be similar to initiatives being put forth by NIMHD. KUH wanted to focus on interventions, rather than disease pathways, and hopes that this could become a model for other institutes to follow.

Comment from Council: *Could the F99/K00 program be a trans-NIDDK initiative?*

Dr. Robert Star answered that, yes, this program could become a trans-NIDDK initiative once various challenges are met. For example, part of the program's attractiveness rests on bringing in researchers like engineers and bioethicists who have never worked on kidney disease before. That is challenging to organize and publicize so that KUH receives the desired type and caliber of proposals.

Dr. Rodgers added that NIDDK often prefers to treat promising trans-NIDDK initiatives as a pilot project within the Division, then expand as success warrants it.

Comment from Council: *Will basic scientists in this program know where to reach out for preclinical support and advice on what they should do next?*

Dr. Star pointed out that this issue applies to all NIDDK research, not just a specific program. All NIDDK researchers should know and feel comfortable reaching out to their assigned program officer at any time, whether the project is going well or not, he said.

Comment from Council: *Has NIDDK considered making T99/K00 transition grants so people on T32s move on to K Awards?*

Dr. Star responded that a review of KUH and NIDDK data shows that very few investigators to date have progressed from T to F to K to R funding, unfortunately. He shared that KUH is currently formulating a replacement for the T32 program that should do a better job of providing career development and mentoring support. Details were to be shared in closed session on the following day.

Office of Minority Health Research Coordination Concepts

Evaluation of the NIH/National Medical Association (NMA) Travel Award Program and the Network of Minority Health Research Investigators (NMRI): Dr. Katrina Serrano presented a review of the NIH/National Medical Association (NMA) Travel Award Program and the Network of Minority Health Research Investigators (NMRI), two longstanding programs within the NIDDK Office of Minority Health Research Coordination (OMHRC) that are designed to build capacity and promote outreach. Both programs are intended to diversify the scientific workforce and aim to support investigators who are underrepresented in biomedical research. Although preliminary data suggest program success, a comprehensive independent evaluation of both programs has not been conducted. This proposed contract aims to better understand the components that allow for success of the programs, as well as identify areas for improvement. Lessons learned from this evaluation can be leveraged to the NIH community as a "how-to" model for developing and sustaining programs that train and promote a steady and diverse pool of talented investigators.

Next, Dr. Serrano presented one OMHRC concept for renewal:

- **Promoting Organ and Tissue Donation Among Diverse Populations**

Dr. Rodgers acknowledged that Council members had no questions or comments about the OMHRC concepts.

VIII. ADJOURNMENT DAY ONE

Dr. Rodgers

The first day of the 216th meeting of the NIDDK Advisory Council was adjourned at 3:08 p.m on May 12, 2021.

IX. OPEN SESSION OF SUBCOMMITTEE MEETINGS

See Minutes posted on NIDDK Council Minutes Website.

X. CLOSED SESSION OF THE SUBCOMMITTEE MEETINGS

A portion of the meeting was closed to the public in accordance with the determination that it concerned matters exempt from mandatory disclosures under Sections 552b(c)(4) and

552b(c)(6), Title 5, U.S.C. and Section 10(d) of the Federal Advisory Committee Act as amended (5 U.S.C. Appendix 2).

Members absented themselves from the meeting during discussion of and voting on applications from their own institutions, or other applications in which there was a potential conflict of interest, real or apparent. Members were asked to sign a statement to this effect.

XI. CLOSED SESSION OF THE FULL COUNCIL

This portion of the meeting was closed to the public, in accordance with the determination that it concerned matters exempt from mandatory disclosure under 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).

CONSIDERATION OF REVIEW OF GRANT APPLICATIONS. A total of 1540 grant applications (637 primary and 903 dual), requesting support of $628,464,707 were reviewed for consideration at the May 12-13, 2021, meeting. An additional 1254 Common Fund applications requesting $2,075,026,551 were presented to Council. Funding for these applications was recommended at the Scientific Review Group recommended level. Prior to the Advisory Council meeting, 1113 applications requesting $398,445,265 received second-level review through expedited concurrence. All of the expedited concurrence applications were recommended for funding at the Scientific Review Group recommended level. The expedited concurrence actions were reported to the full Advisory Council at the May 12-13, 2021, meeting.

XII. ADJOURNMENT

Dr. Rodgers

Dr. Rodgers expressed appreciation on behalf of the NIDDK to the Council members, presenters, and other participants. He thanked the Council members for their valuable input. There being no other business, the 216th meeting of the NIDDK Advisory Council was adjourned at 1:45 p.m on May 13, 2021.

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

Griffin P. Rodgers, M.D., M.A.C.P.
Director, National Institute of Diabetes and Digestive and Kidney Diseases, and
Chairman, National Diabetes and Digestive and Kidney Diseases Advisory Council