

National Institute of Dental and Craniofacial Research

National Advisory Dental and
Craniofacial Research Council

Minutes of Meeting
May 26, 2021

Via Videoconference

U.S. DEPARTMENT OF HEALTH
AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH

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NATIONAL INSTITUTES OF HEALTH
NATIONAL INSTITUTE OF DENTAL AND CRANIOFACIAL RESEARCH

MINUTES OF THE
NATIONAL ADVISORY DENTAL AND CRANIOFACIAL RESEARCH COUNCIL

May 26, 2021

The 227th meeting of the National Advisory Dental and Craniofacial Research Council (NADCRC) was convened on May 26, 2021, at 9:00 a.m., via video teleconference. The meeting was open to the public from 9:00 a.m. until 1:00 p.m.; it was followed by the closed session for Council business and consideration of grant applications from 1:30 p.m. until adjournment at 2:45 p.m. Dr. Rene D'Souza presided as Chair.

OPEN SESSION

Members Present

Dr. Kathryn Marie Albers
Dr. Joel Collier
Dr. David J. Couper
Dr. Nisha J. D'Silva
Dr. Frank Ebetino
Dr. Raul I. Garcia
Dr. Paul Krebsbach, *ad hoc member*
Dr. Daniel W. McNeil
Dr. Lee A. Niswander
Dr. Wenyuan Shi
Dr. Clark M. Stanford
Dr. Joel Strom
Dr. Axel Visel

National Institute of Dental and Craniofacial Research

Dr. Rene D'Souza, Director
Dr. Jonathan Horsford, Acting Deputy Director
Dr. Alicia Dombroski, Executive Secretary, and Director, Division of Extramural Activities (DEA)
Dr. Matthew P. Hoffman, Scientific Director, Division of Intramural Research (DIR)
Dr. Janice S. Lee, Clinical Director, DIR
Dr. Lillian Shum, Director, Division of Extramural Research (DER)
Dr. Lorena Baccaglini, DER, Center for Clinical Research (CCR)
Dr. Nisan Bhattacharya, DEA, Scientific Review Branch (SRB)
Dr. Thomas Bugge, DIR, Proteases & Tissue Remodeling Section (PTRS)
Dr. Latarsha Carithers, DEA, SRB
Dr. Preethi Chander, DER, Integrative Biology and Infectious Diseases Branch (IBIDB)

Mr. Starsky Cheng, OD, Office of Information Technology (OIT)
Ms. Jennifer Chi, OD, Office of Clinical Trials Operations and Management (OCTOM)
Ms. Alicia Chou, DER, Translational Genomics Research Branch (TGRB)
Mr. Kevin Chu, OD, OIT
Ms. Vickie Contie, OD, OCHE, SCDOB
Ms. Michelle Cortes, DER, IBIDB
Mr. Jimmy Do, OD, FMB
Dr. Olga Epifano, DEA, OD
Dr. Dena Fischer, DER, Director, CCR
Dr. Leslie Frieden, DEA, Research Training and Career Development Branch (RTCDB)
Dr. Margaret Grisius, DER, CCR
Dr. Marika Heinicke, OD, OCTOM
Ms. Jeannine Helm, DER
Mr. Gabriel Hidalgo, DEA, GMB
Mr. Tem Ibidapo, OD, OIT
Dr. Hiroko Iida, DER, CCR
Ms. Jennifer Jackson, DEA, SRB
Dr. Leila Khaki, DER, Behavioral and Social Sciences Research Branch (BSSRB)
Dr. Emir Khatipov, DER, TGRB
Dr. Jimok Kim, DEA, SRB
Dr. Lynn King, DEA, RTCDB
Dr. Orlando Lopez, DER, IBIDB
Ms. Amber Lowery, OD, OMB
Dr. Nadya Lumelsky, DER, IBIDB
Ms. Jayne Lura-Brown, DER
Ms. Susan Macharia, DEA
Dr. Kevin McBryde, DER
Dr. Tamara McNealy, DER, IBIDB
Ms. Susan Medve, DEA, GMB
Dr. Yun Mei, DEA, SRB
Dr. Amanda Melillo, DER, IBIDB
Ms. Amy Mhatre-Owens, OD, OCTOM
Mr. Ricky Moore, DEA, SRB
Ms. Mable Nee, OD, Financial Management Branch (FMB)
Ms. Suzanne New, OD
Mr. Paul Newgen, DEA, GMB
Ms. Lisa Peng, OD, OIT
Ms. Liz Perruccio, DEA, SRB
Ms. Debbie Pettitt, DEA, GMB
Mr. John Prue, OD, OIT
Dr. Elise Rice, DER, BSSRB
Dr. Melissa Riddle, DER, BSSRB
Ms. Diana Rutberg, DEA, GMB
Dr. Yasaman Shirazi, DEA, SRB
Mr. Jason Shockey, DEA, GMB
Dr. Ashley Smith, OD, OIT

Dr. Denise Stredrick, OSPA
Dr. Katie Stein, DER, TGRB
Ms. Kathleen Stephan, OD
Dr. Shoba Thirumangalathu, DEA, RTCDB
Mr. J.D. Ventura, OCHE
Dr. Jessica Walrath, OD, OSPA
Dr. Jason Wan, DER, IBIDB
Dr. Lu Wang, DER, Chief, TGRB
Dr. Marian Young, DIR

National Institutes of Health

Dr. Marie Bernard, Chief Officer for Scientific Workforce Diversity, NIH
Dr. Jon Lorsch, Director, National Institute of General Medical Sciences (NIGMS)
Dr. Thomas Boddie, Office of Science Policy
Dr. Zhigang Chen, Department of Laboratory Medicine, NIH Clinical Center
Mr. Scott McLean, Center for Information Technology

Guests

Dr. Christopher Fox, International Association for Dental Research
Mr. Matthew Miller, Neal R. Gross & Co.
Dr. David Yule, University of Rochester Medical Center

I. WELCOME AND INTRODUCTIONS

Dr. Rena D'Souza, Director, NIDCR, called the open session of the 227th Advisory Council meeting to order at 9:02 a.m. Dr. D'Souza opened the meeting by announcing that this will be the last Council meeting for Drs. Nisha D'Silva and Daniel McNeil and she thanked them for their hard work and participation throughout their terms. Dr. D'Souza welcomed Dr. Paul Krebsbach as an ad hoc Council member for this session. Dr. Alicia Dombroski, Executive Secretary to the Advisory Council, noted that the Council would be accepting questions and comments from the public via email (NIDCRcouncilmail@nidcr.nih.gov) through June 10th.

II. APPROVAL OF MINUTES FROM PREVIOUS MEETING

Dr. Dombroski asked Council members if there were corrections or comments to be made for the minutes of the January 27, 2021, Advisory Council meeting. There being no comments, the Advisory Council voted to unanimously approve the minutes.

III. REPORT OF THE DIRECTOR, NIDCR

Dr. D'Souza's written January 2021 Director's Report to the Council was provided to the Council members and is available on the NIDCR website (<http://www.nidcr.nih.gov>). Dr.

D'Souza opened her remarks by noting the retirement of Dr. Martha Somerman, former NIDCR Director, from her position at the National Institute of Arthritis and Musculoskeletal Diseases (NIAMS). Dr. Somerman will continue to serve as a Special Volunteer to NIDCR. Dr. D'Souza then reviewed the day's agenda, which focused on NIH and NIDCR's COVID-19 related activities and NIH-wide diversity and equity initiatives. The COVID-19 pandemic has resulted in many changes at NIH, NIDCR, and the biomedical research community at large, and has provided an opportunity for NIH and NIDCR to assess and reconsider its approaches to research going forward. Simultaneously, the social justice movement that arose after the death of George Floyd in 2020 spurred NIH to reassess how it regards minority populations, both patients and staff, in order to foster a more diverse, equitable, and inclusive biomedical research workforce.

COVID-19 Update

NIH Response. Dr. D'Souza reviewed the initiatives that have been launched at NIH in response to the pandemic. NIH continues to support intramural and extramural research efforts that attempt to shed light on the biology and pathogenesis of SARS-CoV-2, develop rapid home testing kits, and ongoing vaccine and therapeutic trials. NIH has published a 2021 Strategic Plan for COVID-19 Research. The plan provides five strategic priorities to guide these ongoing efforts to accelerate the development of therapeutic interventions, vaccines, and diagnostics. Further details can be found on the NIH website (<https://covid19.nih.gov/>). Dr. D'Souza briefly reviewed some of the major initiatives that have been underway at the NIH. The NIH-led Accelerating COVID-19 Therapeutic Interventions and Vaccine (ACTIV) partnership previously helped accelerate the mRNA-based vaccine developed by Moderna and NIAID that has been widely distributed to the public in recent months. ACTIV now has several large trials underway to evaluate vaccines to account for virus variants, look at the effectiveness of repurposed drugs (most notably remdesivir) to treat COVID-19 symptoms, and explore COVID-19 related blood-clotting treatments. The Rapid Acceleration of Diagnostics (RADx) program, which aims to accelerate innovation, development, commercialization, and implementation of COVID-19 testing technologies, is now working on testing to support in-person school re-openings, self-testing technologies, and efforts to improve testing among underserved and vulnerable populations (RADx-UP).

NIDCR COVID-19 Initiatives. Dr. D'Souza next discussed NIDCR's COVID-19-related activities. To date, NIDCR has funded approximately \$4M of high impact extramural research focused on ensuring the safety of personnel and patients in dental practices during the COVID-19 pandemic. These funds have gone towards studies examining the efficacy of personal protective equipment (PPE) in dental settings, aerosol and droplet transmission in dental settings, the acceptance and usability of teledentistry, oral healthcare and access for low-income urban families, sensors to detect SARS-CoV-2 in saliva, and vaccine readiness among dentists. Dr. D'Souza added that further rounds of COVID-19 funding are expected in the coming months. On the intramural side, NIDCR investigators have produced exciting and impactful studies. Dr. Blake Warner and colleagues found that SARS-CoV-2 infects cells in the mouth. The fact that the virus appears to infect humans via multiple parts of the body might explain the wide range of symptoms experienced by COVID-19 patients, as well as why some lose their senses of taste and smell. Dr. Peter Burbelo's lab modified an extant antibody detection method to be applied for studying and detecting SARS-CoV-2. Dr. D'Souza also highlighted two editorial articles that NIDCR leadership wrote for the Journal of Dental Research and the Journal of the American Dental Association (JADA) that

describe the Institute's response to the pandemic and its commitment to maintaining its mission during such challenging times. JADA has invited NIDCR to contribute further guest editorials on the Institute's continued efforts.

Strategic Planning at NIDCR

Dr. Souza's strategic planning efforts are building off of initial planning processes that began while Dr. Somerman was Director. Dr. Somerman had conducted stakeholder outreach and developed a framework, but the new post-pandemic reality offered an opportunity to take a fresh look while using the prior efforts as a launching pad. NIDCR's strategic planning is guided by an NIH wide strategic plan framework for fiscal years 2021-2025. Executive staff has held meetings and workshops with staff and has solicited input from the extramural community and the Advisory Council. The institute has drafted a new vision and amended mission statement. NIDCR's vision is to "aspire to transform human lives through scientific discoveries and innovations that advance dental, oral, and craniofacial health and overall well-being for all." NIDCR's mission is to "advance fundamental knowledge about dental, oral, and craniofacial tissues in health and disease and translate these findings into prevention, early diagnosis, and treatment strategies that improve overall health for individuals and communities across the life span." The Institute has also identified four guiding principles that Dr. D'Souza sees as foundational pillars for NIDCR: scientific excellence; diversity, equity and inclusion; stewardship; and embracing and managing change. Based on these principles, the Institute has proposed five strategic priorities, which Dr. D'Souza presented for Council consideration and feedback:

- Advance a cross-disciplinary and innovative research portfolio that characterizes the cellular and molecular determinants of dental, oral, and craniofacial (DOC) diseases, both unique and shared with other systems.
- Establish a foundation of scientific knowledge that can be used to develop precise and patient-centered approaches to detect, prevent, and treat DOC diseases.
- Support implementation research that uses evidence-based health interventions to identify and eliminate access and treatment inequities that adversely impact DOC health.
- Ensure that a diverse and vibrant DOC scientific community is nurtured and sustained for the future by an organizational infrastructure and culture that is inclusive, respectful, and free of systemic racism and biases.
- Leverage partnerships that advance the NIDCR research enterprise and increase its reach and impact.

The strategic plan outline will be released for public comment this summer and a draft strategic plan will be issued this fall. The goal is to publish the final plan by the end of this year or early 2022.

Director's Activities

Dr. D'Souza updated the Council on NIDCR leadership's legislative and stakeholder outreach efforts over the past several months. Dr. D'Souza has met with representatives of the congressional appropriations committees and Representative Mike Simpson, a former dentist and strong advocate on behalf of the Institute and NIH. Dr. D'Souza has also conducted several

dental public health listening sessions and outreach and collaboration planning meetings with local dental schools at the University of Maryland and Howard University. Internally at NIH, Dr. D'Souza has presented at many different trans-NIH committees and symposia and met individually with a number of her fellow ICO directors. Since January, Dr. D'Souza has also met with representatives from a wide array of external stakeholders and has taken part in a number of related virtual meetings and town hall events. Dr. D'Souza has also had the pleasure of speaking at over a half a dozen dental school events where she has been able to interact with faculty and students and spread the word about NIDCR programs. Dr. D'Souza also looks forward to participating in the World Health Organization World Health Assembly's virtual side event titled "Integrating Oral Health into Global Health: Vision and Roadmap for 2030" following the Council meeting.

Diversity, Equity, and Inclusion

Dr. D'Souza discussed NIH's recent efforts in its ongoing project to combat and end structural racism in biomedical research. NIH leadership has reaffirmed its commitment to identifying elements that may perpetuate structural racism in biomedical research, both within NIH and the extramural community, which lead to a lack of inclusiveness, equity, and diversity in the workforce. At the center of this project is the NIH UNITE Initiative, which "aims to establish an equitable and civil culture within the biomedical research enterprise and reduce barriers to racial equity in the biomedical research workforce." Dr. Marie Bernard, NIH's Chief Officer for Scientific Workforce Diversity, will discuss the UNITE Initiative at greater depth later in the meeting. Dr. D'Souza noted NIH Director Dr. Francis Collins' statement acknowledging and apologizing for the reality of structural racism on behalf of the NIH. Dr. D'Souza also released her own statement emphasizing her own personal commitment to addressing structural racism and inequity in biomedical research. Dr. D'Souza adheres to the "groundwater approach" rubric for understanding how structural racism works, developed by the Racial Equity Institute, which holds that racial inequity looks the same across systems, that socioeconomic differences do not explain racial inequity; and that inequities are caused by systems, regardless of people's culture or behavior.

Dr. D'Souza presented data from JAMA showing that dentistry is one of the professions with the lowest percentage of Black individuals, although the numbers are slightly higher for the Hispanic population. The same study shows that the pipeline for these demographics is weak. This state of affairs is confirmed in NIDCR's extramural researcher demographic data. The Institute has been working hard to address this problem and has created a number of training diversity opportunities designed to provide multiple pathways to obtain research and career development experiences for individuals from underrepresented populations. Further outreach is needed to attract more applicants to these programs, and others at NIH, in order to help strengthen the researcher pipeline. Dr. Jon Lorsch, Director of the National Institute of General Medical Sciences (NIGMS), will speak to the Council later about his Institute's many training diversity programs.

NIDCR has also supported industry and professional societies' efforts in this vein. Dr. D'Souza described AADR's Mentoring an Inclusive Network for a Diverse Workforce of the Future (AADR MIND the Future), which establishes a mentoring network in support of a diverse

pool of early career investigators in dental, oral and craniofacial research. The goal is to increase retention rates and improve career advancement of postdoctoral scientists and junior faculty while also developing professional skills.

While these programs are a good start, it is clear from the data that they are not sufficient. Dr. D'Souza hopes to enlist the research community and the Advisory Council in developing a groundwater approach for NIDCR's efforts to combat this problem. The first step of this process was the formation of the Equity, Diversity, and Inclusion Public-Private Partnership Taskforce. The taskforce convenes a broad range of professional organizations and industry partners in order to develop substantive mechanisms to significantly increase participation of individuals from underrepresented groups at every level of the dental, oral, and craniofacial biomedical research training pipeline.

Discussion

Dr. Clark Stanford pointed out that surveys have shown that half of dental professionals decided to enter the profession in middle school or earlier. This makes the role of mentors from diverse backgrounds even more crucial. Educators also need to emphasize how science is exciting; the research community can help facilitate this effort by opening its doors to young students. Dr. D'Souza agreed, adding that NIDCR's relationships with local dental schools can be one component of such an effort. The viability of virtual outreach efforts is one lesson from the COVID-19 era that can also be applied. Dr. Dan McNeil thanked Dr. D'Souza for her broad-ranging presentation and said that he found the groundwater analogy very helpful. Addressing the role of social determinants of health could be one way to improve the groundwater. In response to Dr. McNeil's comments, Dr. D'Souza announced that NIDCR has taken ownership of the federal report on the nation's oral health that was originally going to be published as the Surgeon General's Report on Oral Health. Given the exigencies of the presidential transition and demands on the Surgeon General's time caused by the pandemic, the report was delegated to NIDCR to oversee the final draft process and publication. The report will highlight social determinants of health in its conclusions and recommendations. NIDCR plans to have the report published this fall.

IV. CONCEPT CLEARANCE

Dr. Dombroski, Director, DEA, stated that NIDCR is required to present the purpose, scope, and objectives of proposed concepts for research initiatives to the Council in a public forum for the Council's review, discussion, and approval and for public comment. Concepts approved by the Council are posted on the NIDCR website ([future research initiatives](#)). NIDCR staff presented five concepts, and designated Council members led the discussion, as summarized below.

Conducting Dental Practice-Based Research in Dental Schools to Provide Clinical Research Experience and Educational Opportunities

Dr. Dena Fischer, Director, Center for Clinical Research, DER, presented the concept. The goal of this initiative is to support investigator-initiated, practice-based research conducted in dental school clinics. This concept would fund researchers to engage clinically oriented faculty and dental students in research activities in dental school clinics. Clinical research would be conducted with clinical faculty and student providers and their consenting patients. These experiences would provide clinical faculty and pre- and postdoctoral students with unique opportunities for patient-oriented clinical research and skills development while providing patient care. Dr. Fischer briefly described practice-based research networks (PBRNs) and the advantages and benefits of practice-based research. This concept aims to help address the decline in the dentist-scientist workforce by fostering a culture of research and collaborative science in U.S. dental schools, while also expanding dental school clinics and providing clinical research skills development.

The Council's lead discussants for the concept were Dr. Clark Stanford, Dr. Raul Garcia, and Dr. Joel Strom. Dr. Stanford said he supported the program. He highlighted the importance of the concept's potential to engage dental students, residents, fellows, and junior dental school faculty in clinical research. Conducting this research in the dental school setting has a number of advantages, such as the existing institutional training and regulatory oversight infrastructure, a natural focus on educational outcomes, and opportunities for leveraging research findings across disciplines. Dr. Stanford cautioned that good clinical research requires strong procedural controls overseen by an experienced clinical coordinator. This principle will be challenged under this concept due to its focus on researchers in training. In order to help provide this clinical research infrastructure, NIDCR should strongly encourage academic institutions to incorporate Clinical and Translational Science Awards (CTSA) Program Hub support into their proposals under this mechanism. Dr. Garcia agreed that CTSA resources are important, but was opposed to making such a partnership a requirement because it may disadvantage researchers who are not part of institutions that already have those linkages. Dr. Krebsbach noted that the size of the research teams will be something to monitor; it could be hard to standardize procedures across a large team of inexperienced providers.

The Council unanimously approved the concept.

Transformative Approaches to Developing a Dentist-Scientist Clinical Research Workforce

Dr. Lynn King, Chief, Research Training and Career Development Branch, DEA, presented the concept. There are currently limited NIDCR-supported research training opportunities for dental students and postgraduate dentists. The goal of this initiative is to provide clinical research experiences and training to this cohort of students and early-career dentists in order to stimulate interest in clinical research and research careers. The concept will support collaborative partnerships among lower-resourced dental schools and research-focused institutions to enhance research training under experienced mentors and investigators. Programs are encouraged to leverage national networks, including the National Dental PBRN and CTSA programs, to augment clinical research activities and training. Ultimately, NIDCR hopes that the

research experience programs described by the concept will inspire students to pursue research careers and thus encourage the development of a robust pipeline of dentist-scientists.

The Council's lead discussants for the concept were Dr. Nisha D'Silva, Dr. Joel Strom, and Dr. Paul Krebsbach. Dr. D'Silva said that she enthusiastically supported the concept. She suggested that NIDCR consider allowing private practitioners who are further along in their careers but may be interested in pivoting towards research to participate in this concept. Expanding the target population of this concept might help minimize overlap between this concept and the previous clinical research opportunity in dental school clinics using National Practice-Based Research Network (PBRN) infrastructure concept. Dr. D'Silva added that it might be worthwhile to allow for dental students to take a year off school to focus on their research obligations under this concept given the already heavy dental school workload. Dr. D'Silva also recommended the concept be expanded to include translational research components given that the costs of clinical research might be burdensome to lower-resourced institutions. Dr. Strom concurred with Dr. D'Silva's comments, particularly the recommendation to include dentists who have left academia. He also expressed the concern that research training programs are not well-known among the target population. Dr. Krebsbach seconded Dr. D'Silva's suggestion about allowing for dental students to take time off. NIDCR also needs to consider what the outcome measures for this concept will be.

The Council unanimously approved the concept.

NIDCR Mentored Career Development Award to Promote Diversity in the Dental, Oral, and Craniofacial Research Workforce

Dr. King presented the concept. This concept is a reissuance of NIDCR Mentored Career Development Award to Promote Diversity in the Dental, Oral, and Craniofacial Workforce (K01) program. This program is a key component of the Institute's commitment to diversifying the research workforce and providing funding opportunities for individuals from underrepresented groups to seek mentored research training and career development. The award provides a pathway for postdoctoral and early-career investigators seeking independent support and an opportunity for postdoctoral scientists and investigators developing independent research careers supported by diversity supplements to transition to independent research career development support. The three-to-five-year duration of the award provides flexibility for researchers who may need additional time for mentored research training to achieve research independence. Dr. King briefly reviewed the diversity supplement programs targeted to increase diversity in the research workforce that are offered by NIH and NIDCR, such the NIH Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research (Parent F31-Diversity) program and the NIDCR F99/K00 program, which this concept complements.

The Council's lead discussants for the concept were Dr. Kathryn Albers and Dr. Axel Visel. Dr. Albers indicated her full support for this reissuance. This award fills gaps in the suite of early career development support mechanisms offered by NIH and should help improve the pool of highly-trained investigators from underrepresented backgrounds. Dr. Visel lauded the proposal for its responsiveness to the Institute's priorities around diversity, equity, and inclusion.

He recommended that NIDCR explore ways of increasing awareness of this program among the research community. He also encouraged NIDCR to explore ways to incorporate sex and gender diversity into the concept.

The Council unanimously approved the concept.

NIDCR Dual Degree Dentist-Scientist Pathway to Independence Award

Dr. Leslie Frieden, Program Officer, Research Training and Career Development Branch, DEA, presented the concept reissuance. The purpose of this award is to support the transition of promising dual degree dentist-scientists from postdoctoral scholar to independent research faculty. This initiative targets a critical career transition point at which many individuals choose to leave the research workforce. This two-phase mechanism is modeled after the parent K99/R00 NIH Pathway to Independence Award but tailored to the unique dentist-scientist career trajectory. Since 2010, NIDCR Dual Degree Dentist-Scientist Pathway to Independence Awards have been granted to 15 individuals, five of whom selected the five-year R00 option to accommodate part-time dental clinical specialty training. Thirteen of the awardees have achieved independent tenure-track faculty positions, and ten of those awardees went on to receive subsequent NIH research project funding, including seven who received R01 grants.

The Council's lead discussants for the concept were Dr. Nisha D'Silva and Dr. Lee Niswander. Dr. Niswander expressed strong support for the reissuance of this concept given the strong outcomes noted by Dr. Frieden. The extension of the R00 period to five years to allow for specialty training has been particularly effective. Dr. D'Silva concurred with Dr. Niswander's comments.

The Council unanimously approved the concept.

NIDCR Dentist-Scientist Career Transition Award for Intramural Investigators

Dr. Frieden presented the concept reissuance. This initiative provides support for dentists conducting postdoctoral research at NIH intramural laboratories to successfully transition to research-intensive faculty positions. The NIDCR Dentist Scientist Career Transition Award for Intramural Investigators K22 mechanism provides two award phases. Phase I supports two years of mentored research training for individuals conducting research in NIH laboratories. During phase I, the awardee does not receive funding from the extramural K22 award but is supported by the NIH intramural program. On achieving a tenure-track faculty position at an extramural institution, the K22 awardee is eligible for the second phase of the award that provides three years of extramural research funding. Since the first funding opportunity announcement, issued in 2012, two individuals have been selected for awards through this program. One of the awardees did not activate Phase II after choosing to remain at NIH as an intramural investigator. The other awardee is in training.

The Council's lead discussants for the concept were Dr. Raul Garcia and Dr. Wenyuan Shi. Dr. Garcia expressed enthusiastic support for the program. While the small number of recipients indicates that this is a highly targeted program, it fills an importance niche that complements NIDCR's other career transition mechanisms. Dr. Shi seconded Dr. Garcia's strong support.

The Council unanimously approved the concept.

V. NIH UNITE INITIATIVE

Dr. D'Souza introduced Dr. Marie Bernard to the Council. Following a nationwide search, Dr. Bernard was recently named NIH's Chief Officer for Scientific Workforce Diversity, prior to which she served as Deputy Director at the National Institute on Aging.

Dr. Bernard opened her presentation by discussing recent events that led to the creation of the NIH UNITE Initiative this past February. The nationwide social justice movement that arose following the killing of George Floyd in Minneapolis revealed the stark reality of ongoing racial injustice in America and the need for a collective response. In response, NIH leadership convened a series of IC Director meetings and held consultations with two self-assembled affinity groups of NIH employees and the ACD Working Group on Changing the Culture to End Sexual Harassment. These gatherings revealed a shared commitment to addressing structural racism at NIH and in the biomedical workforce. The NIH UNITE Initiative was established as a result of this commitment. UNITE is comprised of committees focused on separate but related mission areas:

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

Dr. Bernard described the charge of each UNITE committee and briefly updated the Council on the activities that have come out of the committees' work so far. As one example, Committee N is working to develop an analytic budget tool that could be used both intramurally and extramurally to increase funding transparency by accurately reporting health disparity and minority health research funding. Committee I has gathered granular data on the NIH workforce based on position and supervisory status and will next devise the means to expand recruitment efforts for NIH positions, including tenure-track, among underrepresented groups.

The UNITE program released a list of initial recommendations, which Dr. Bernard summarized. These recommendations included, among others: developing a process to systematically gather and make public the demographics of the internal and external workforce; addressing the racial imbalance in R01 funding; launching a comprehensive Common Fund initiative focused on transformative health disparities research initiatives; implementing policy changes that promote anti-racism and remove barriers to professional growth for staff from diverse backgrounds; and appointing a diversity, equity, and inclusion (DEI) officer at every IC. Dr. Bernard then described NIH's responses to these recommendations so far. NIH Director Francis Collins immediately issued a statement acknowledging the impact of structural racism and affirming NIH's commitment to supporting DEI and combating policies and practices that run counter to that promise. On March 1, the Office of the Director issued a Request for Information (RFI) Inviting Comments and Suggestions to Advance and Strengthen Racial Equity, Diversity, and Inclusion in the Biomedical Research Workforce and Advance Health Disparities and Health Equity Research. NIH received over 1,000 responses, which are currently being reviewed. The NIH Common Fund has issued two Funding Opportunity Announcements (FOAs) devoting an initial commitment of \$24M for transformative research to address health disparities and advance health equity. Additionally, the National Institute on Minority Health and Health Disparities' FOA Understanding and Addressing the Impact of Structural Racism and Discrimination on Minority Health and Health Disparities (NIMHD) was recently issued. This program is co-sponsored by 25 other ICs and is supported by over \$30M in funding. The National Institute of General Medical Sciences (NIGMS) has also released a Notice of Special Interest (NOSI) on Understanding and Addressing the Impact of Structural Racism and Discrimination on Biomedical Career Progression and the Biomedical Research Enterprise. Dr. Bernard also described NIH's efforts to update the NIH Data Book with more granular demographic data and other initiatives to improve data transparency. Representatives are scheduled to meet with the Advisory Committee to the Director on June 11 to provide further updates and discuss next steps.

Dr. Visel asked Dr. Bernard to discuss how NIH might exert its leverage over extramural institutions to create accountability and encourage the extramural community to meet its standards. Dr. Bernard said a lot of thinking goes into this question and it does boil down to the classic "carrot versus stick" paradigm. In this context, NIH generally leans more to the carrot side. One pre-UNITE example is the Faculty Institutional Recruitment for Sustainable Transformation (FIRST) FOA that was released in December. The goal of this initiative is to motivate the extramural community to develop programs similar to the NIH Distinguished Scholar Program. Dr. Garcia said it is equally important that NIH holds its own Institutes and Centers accountable, particularly in regard to the racial disparities in R01 grants. Dr. Bernard said that, starting in October 2021, every IC Director will be required to include DEI metrics in their performance plans. Dr. D'Souza talked about her service on the UNITE Committee E and their discussions on this topic. One idea, which has been used at other institutions, was to incorporate some type of reward system for high performing ICs. Council members briefly described DEI efforts at their respective institutions and the important leadership role NIH plays in this arena.

VI. NIGMS' DIVERSITY AND CAPACITY BUILDING PROGRAMS

Dr. D'Souza introduced Dr. Jon Lorsch, NIGMS Director, to deliver his presentation on the capacity building and diversity initiatives funded out of his Institute. Dr. Lorsch serves as co-chair of the E Committee of the UNITE Initiative and has been Director of NIGMS since 2013.

Dr. Lorsch framed his talk by showing data that illustrates how biomedical research workforce diversity diminishes dramatically as the career pathway progresses. As of 2020, NIH directs approximately \$500M annually for programs that enhance diversity, over \$330M of which is administered by NIGMS. These programs are designed to target the entire educational and career lifespan, from elementary education to tenured faculty. Dr. Lorsch discussed in detail many of these programs in order to give the Advisory Council an appreciation for the breadth and depth of NIGMS' offerings and help inform NIDCR's efforts to complement these initiatives. Some programs are designed to span the entire career pathway. One such example is the Native American Research Centers for Health (NARCH) program, which supports research and career enrichment opportunities that meet the health needs prioritized by American Indian/Alaska Native tribes or tribally-based organizations. Uniquely, applications for this program are submitted by and awarded to the tribes themselves. Fifteen ICs have signed on as co-sponsors of this program, including NIDCR. Thus far, NARCH has issued 16 total awards representing over \$9M in awarded funds. The Institutional Development Award (IDeA) Networks of Biomedical Research Excellence (INBREs) and Diversity Program Consortium are other initiatives that target the entire career pathway. Dr. Lorsch then described NIGMS' PreK-12 and undergraduate programs, which include the Science Education Partnership Award (SEPA), Bridges to Baccalaureate, Maximizing Access to Research Careers (MARC), and the Undergraduate Research-Training Initiative for Student Enhancement (U-RISE). Engaging future researchers at the pre-collegiate level provides opportunities that otherwise might not exist for students from underserved communities to consider careers in basic or clinical research. NIGMS also has a program specifically focused on the postbac phase called the Postbaccalaureate Research Education Program (PREP), which is designed to increase the number of baccalaureates from underrepresented groups who enter doctoral degree programs. NIGMS also has several programs for master's and predoctoral trainees, including the Bridges to the Doctorate, which is focused on capacity building, and graduate diversity training programs like the Initiative for Maximizing Student Development (IMSD), and the Graduate Research Training Initiative for Student Enhancement (G-RISE). The goal of these programs is to develop a diverse pool of PhD-level scientists and give them the tools they need to transition to successful biomedical research careers. Overall, these NIGMS programs represent the largest source of graduate-level training grant funding at NIH.

Dr. Lorsch then discussed how NIGMS uses its leverage as a major funder of research training grants to boost diversity throughout the system. At the trainee level, NIGMS is focused on improving admissions, pedagogical methods, easing financial burdens, and developing role models. NIGMS also wants to see overall improvement in the climate and culture of biomedical research, improved mentoring networks, and optimizing the research incentive structure. Dr. Lorsch then described several of NIGMS' programs for postdoctoral fellows, early career researchers, and faculty. These include the Institutional Research and Academic Career Development Award (IRACDA) program and the trans-NIH Maximizing Opportunities for

Scientific and Academic Independent Careers (MOSAIC) initiative. Seventy-five percent of IRACDA alumni have full-time academic faculty appointments. While IRACDA was focused on teaching-based careers, MOSAIC was designed to perform a similar function for individuals seeking a research-based career. Dr. Lorsch described MOSAIC's two components: the Postdoctoral Career Transition Award to Promote Diversity (K99/R00) and the Institutionally-Focused Research Education Cooperative Agreement to Promote Diversity (UE5) grants. Thus far, 75% of MOSAIC K99/R00 applicants have been female and 76% are from underrepresented demographic groups. Finally, Dr. Lorsch discussed the Support for Research Excellence (SuRE) program, which supports research and capacity building at institutions that do not have a history of sustained NIH-funded biomedical research and enroll a significant number of students from underrepresented backgrounds. The goal of this program is to spur interest in research activities among students and faculty at minority-serving institutions. NIDCR is a participating IC in both MOSAIC and SuRE.

Dr. D'Silva recommended that NIGMS consider expanding the PREP program to two years to allow participants more time to earn a master's degree. Dr. Lorsch said Bridges to the Doctorate is designed to fill that role; PREP was targeted to students who need a shorter period of time to complete coursework or improve their graduate school resume. Dr. McNeil discussed how NIGMS programs have funded several of his students and helped launch their careers. Support from the IDeA program has also helped his research team expand their work to underrepresented populations. Dr. Albers said that it was great how many programs NIGMS offers, but noted that the sheer number can make it difficult to find the right program. Dr. Lorsch agreed and said this is an issue Committee E is trying to tackle. Dr. Collier said another aspect is improving awareness of the programs and doing more to encourage applications. Dr. D'Souza pointed to MOSAIC's engagement of professional societies as a successful example of building in outreach to a program.

CLOSED SESSION

This portion of the meeting was closed to the public in accordance with the determination that it was concerned with matters exempt from mandatory disclosure under Sections 552b(c)(4) and 552b(c)(6), Title 5, U.S. Code and Section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2).

VII. REVIEW OF APPLICATIONS

The Council considered 819 applications requesting \$295,037,719 in total costs. The Council recommended 480 applications for a total cost of \$197,131,968.

VIII. ADJOURNMENT

CERTIFICATION

I hereby certify that the foregoing minutes are accurate and complete.

/Rena D'Souza/

Dr. Rena D'Souza
Chairperson
National Advisory Dental and
Craniofacial Research Council

/Alicia Dombroski/

Dr. Alicia Dombroski
Executive Secretary
National Advisory Dental and
Craniofacial Research Council

ATTACHMENTS

- I. Roster of Council Members