DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
NATIONAL LIBRARY OF MEDICINE
MINUTES OF THE BOARD OF REGENTS MEETING
(VIRTUAL MEETING)
May 11, 2021

The 187th meeting of the Board of Regents (BOR) was convened on May 11, 2021, at 10 a.m. remotely. The meeting was open to the public from 10 a.m. to 4:15 p.m., followed by a closed session until 4:45 p.m. The meeting adjourned at 4:45 p.m.

MEMBERS PRESENT (Appendix A)
Dr. Lourdes Baezconde-Garbanati, University of Southern California
Dr. Suzanne Bakken, Columbia University
Dr. Kristi Holmes, Northwestern University
Dr. Carlos Jaén, University of Texas Health Science Center at San Antonio (Chair)
Dr. S. Claiborne Johnston, The University of Texas at Austin
Ms. Jennie Lucca, The NIH Children's Inn
Mr. Neil Rambo, NYU School of Medicine (retired)
Dr. Heidi Rehm, Massachusetts General Hospital
Dr. Nancy Smider, Epic Systems Corporation

EX OFFICIO AND ALTERNATE MEMBERS PRESENT
Col. Thomas Cantilina, United States Air Force
Col. Kent DeZee, United States Army
Dr. Joseph Francis, Veterans Health Administration
Dr. Mary Mazanec, Library of Congress
Dr. Brent Miller, National Science Foundation
RADM Joan Hunter, Office of the Surgeon General, U.S. Public Health Service
Dr. Dale Smith, Uniformed Services University of the Health Sciences
Dr. Hassan Tetteh, United States Navy
Mr. Paul Wester, National Agricultural Library, U.S. Department of Agriculture

CONSULTANTS
Ms. Jane Blumenthal, University of Michigan (retired)

MEMBERS OF THE PUBLIC PRESENT
Mr. Afsah Afzal, Technical Resources International, Inc.
Mr. Glen Campbell, Friends of the NLM
Ms. Loretta Jurnak, Technical Resources International, Inc.
Dr. Barbara Redman, Friends of the NLM
Ms. Joyce Wanga, Technical Resources International, Inc.

FEDERAL EMPLOYEES/CONTRACTORS PRESENT
Dr. Patricia Flatley Brennan, Director, NLM
Mr. Jerry Sheehan, Deputy Director, NLM
Ms. Dianne Babski, Division of Library Operations, NLM

Dr. Dennis Benson, National Center for Biotechnology Information, NLM
Dr. Olivier Bodenreider, Lister Hill National Center for Biomedical Communications, NLM
Dr. James Rodney Brister, National Center for Biotechnology Information, NLM
Ms. Annmarie Carr, Division of Extramural Programs, NLM
Ms. In Hye Cho, Division of Library Operations, NLM
Ms. Janet Coleman, Office of the Director, NLM
Mr. Todd Danielson, Office of the Director, NLM
Mr. Ivor D'Souza, Office of Computer and Communications Systems, NLM
Dr. Nancy Fallgren, Division of Library Operations, NLM
Dr. Anna Fine, National Center for Biotechnology Information, NLM
Dr. Valerie Florance, Office of the Director, NLM
Ms. Kathryn Funk, National Center for Biotechnology Information, NLM
Dr. Elisa Golfinopoulos, National Center for Biotechnology Information, NLM
Ms. Rebecca Goodwin, Office of Strategic Initiatives, NLM
Dr. Zoe Huang, Division of Extramural Programs, NLM
Dr. Michael Huerta, Office of Strategic Initiatives, NLM
Ms. Christine Ireland, Division of Extramural Programs, NLM
Ms. Michelle Krever, Division of Extramural Programs, NLM
Dr. Melissa Landrum, National Center for Biotechnology Information, NLM
Dr. David Landsman, National Center for Biotechnology Information, NLM
Mr. Quang Le, Lister Hill National Center for Biomedical Communications, NLM
Mr. Harold Lindmark, Office of Administration, NLM
Ms. Jennifer Marill, Division of Library Operations, NLM
Dr. Clement McDonald, Office of the Director, NLM
Dr. Virginia Meyer, Office of the Director, NLM
Dr. Ilene Mizrachi, National Center for Biotechnology Information, NLM
Ms. Mindy Nicolas, Division of Extramural Programs, NLM
Dr. Kim Pruitt, National Center for Biotechnology Information, NLM
Ms. Queenmoore Okeke, Office of the Director, NLM
Dr. Richard Palmer, Division of Extramural Programs, NLM
Dr. Jeffrey Reznick, Division of Library Operations, NLM
Ms. Dominique Rothrock, Office of the Director, NLM
Ms. Leigh Samsel, Office of Strategic Initiatives, NLM
Ms. Mary Sanders, National Center for Biotechnology Information, NLM
Dr. Valerie Schneider, National Center for Biotechnology Information, NLM
Dr. Stephen Sherry, National Center for Biotechnology Information, NLM
Dr. Hua-Chuan Sim, Division of Extramural Programs, NLM
Ms. Samantha Tempchin, Division of Extramural Programs, NLM
Ms. Kimberly Thomas, Office of Strategic Initiatives, NLM
Dr. Lauren Topper, Division of Library Operations, NLM
Ms. Victoria Townsend, Division of Extramural Programs, NLM
Dr. Tony Tse, National Center for Biotechnology Information, NLM
Dr. Alan VanBiervliet, Division of Extramural Programs, NLM
Dr. Yanli Wang, Division of Extramural Programs, NLM
Dr. Rebecca Williams, National Center for Biotechnology Information, NLM
Dr. Teresa Zayas Cabán, Office of the Director, NLM

I. CALL TO ORDER AND INTRODUCTORY REMARKS

Dr. Carlos Jaén, Chair, BOR

Dr. Jaén called the meeting to order, welcoming attendees. The meeting was broadcast to the public via streaming video available at: https://videocast.nih.gov.

II. REPORT FROM THE OFFICE OF THE SURGEON GENERAL

RADM Joan Hunter, Director of the Public Health Service Division of Commissioned Corps Personnel and Readiness, Office of the Surgeon General U.S. Public Health Service

RADM Hunter provided an update regarding the Office of the Surgeon General's (OSG) efforts on the current coronavirus pandemic and other public health efforts. The COVID-19 Community Corps was established to increase vaccine confidence with assistance from trusted leaders within the communities, leveraging several resources, including social media tools, infographics, webinars, and live event series. As part of this initiative, primary healthcare providers were provided with tools to help educate patients on the importance of vaccinations. The OSGs also continues to address misinformation and provide evidence-based information regarding COVID-19 using national, local, and social media; listening sessions will be conducted to promote vaccinations among the youth and address mental health and wellbeing in healthcare workers.

RADM Hunter highlighted efforts of the United States Public Health Service (USPHS) Commissioned Corps towards COVID-19 relief and the 2021 Unaccompanied Children (UC) Support Mission. PHS officers have been deployed to assist with health screenings across the country, provide COVID-19 alternate and long-term care, and support community-based testing sites and initiatives. Approximately 400 PHS officers were deployed to support the 2021 UC Support Mission, in collaboration with the Administration for Children and Families (ACF) and Assistant Secretary for Preparedness and Response (ASPR).

The OSG will promote evidence-based approaches using tools such as, advisories, calls to action, and reports and publications, in line with its aim to help the nation heal after the pandemic. The OSG is determined to combat mental health and substance abuse challenges associated with the pandemic; and address health and medical misinformation. An article addressing social isolation will be published in the public health reports in collaboration with the Administration for Community Living (ACL). Finally, to better prepare for future pandemics and biological threats, the OSG will develop a subgroup tasked with achieving a sustainable public health workforce and further expanding the Department of Health and Human Services' (DHHS) capacity. This subgroup will have representation from various divisions of the OSG and DHHS.

The BOR members discussed the importance of primary care providers in responding to the pandemic and implementing vaccinations. The members also emphasized the need to assess readability of educational materials for all literacy levels and providing materials in multiple languages.

III. FEBRUARY 2021 MINUTES AND FUTURE MEETINGS

Dr. Carlos Jaén, Chair, BOR

Dr. Jaén noted the listed dates for future BOR meetings, including the addition of the spring 2023 BOR meeting on May 9-10, 2023. There were no objections or conflicts noted.

Motion: The BOR approved the motion to accept the May 9-10, 2023, meeting date.

Motion: The BOR approved the motion to accept the minutes of the February 9, 2021, meeting.

IV. REPORT FROM THE NLM DIRECTOR

Dr. Patricia Flatley Brennan, Director, NLM

Dr. Brennan noted the passing of Dr. Milton Corn in early February 2021. The group observed a moment of silence to honor of his service and contributions to the NLM for over 30 years.

Dr. Brennan presented a video highlighting NLM's effort in helping prepare nurses for participation in public policy and discourse. NLM assists nurse scholars in shaping public discourse by facilitating open access to literature and data, conducting research to use information collected at the point of care, and implementing training.

As part of the review of the NLM Strategic Plan, Dr. Brennan noted the major reinvestment in the Network of the National Library of Medicine (NNLM), progress with the Data Science @ NLM Training, and Michael E. Debakey Fellows programs, as well as the initiation of the One NLM initiative, which will consist of partnerships across NLM with the goal of achieving modernization of NLM resources including ClinicalTrials.gov and Research Organism Data Resource (RODR) initiative, as well as improvement of the Value Set Authority. In 2021, a new MEDLINE website was launched to increase transparency of the journal evaluation and selection process and to improve accessibility of MEDLINE journals and statistics and the 50th anniversary of MEDLINE was celebrated. The website will be updated in 2022 to further improve indexing, literature access, and data integration. Updates on the Intramural Research Program were noted, including the addition of more dedicated staff to support the activities of the intramural research program. Dr. Valerie Florence along with the National Center for Biotechnology Information (NCBI) Communications Group developed a website to provide information about the program's investigators and their accomplishments and offer training opportunities to further expand the workforce.

Renovations to the NLM building and the data center have continued during this time. The renovation of the 9th floor of Building 38 – the newly designated for the Intramural Research Program is complete. As part of the NLM reorganization plan, the Lister Hill Center branches were also retitled to the Computational Health Science Research branch, Applied Informatics Branch, and the Scientific Computing Branch.

The NLM budget for FY2021 was $462 million, which included a $10 million bolus of COVID-specific funds received in Spring 2020. Dr. Zayas Cabán, Assistant Director for Policy Development, provided updates on policy and legislative matters. There has been no new legislative activity and no appropriations or bills introduced into Congress; the release of the FY2022 budget remains pending. With the release of the FY2022 Discretionary Funding Request allocating $51 billion for the NIH, $6.5 billion will be used to establish Advanced

Research Projects Agency-Health, which will leverage basic science to develop a new model of innovation and provide a technology boost to healthcare. This agency will initially focus on cancer, diabetes, and Alzheimer's disease. The White House issued an executive order to ensure a data driven response to public threats, particularly the COVID-19 pandemic. For the implementation of this order, the NLM will lead the innovations in public health data and analytics aspects in collaboration with the CDC and the White House Office of Science Technology and Policy.

Dr. Brennan reviewed new NLM appointments and departures. Kimberly Thomas was appointed as NLM Strategic Evaluation Officer, Mitzi Diley was appointed as Deputy Executive Officer, and Dr. Richard Palmer was appointed as the Acting Director of Extramural Programs. NLM retirees include Diane Boehr and Stephen Greenberg. Members leaving the BOR after this meeting included Dr. Carlos Jaén and Dr. Dale Smith.

The BOR discussed the importance of data governance and ensuring that the appropriate security and privacy provisions are in place. Dr. Brennan highlighted several NIH efforts for data governance, including development of a single sign on authorization service to control access to data resources, assessing risk of reidentification of patient data when merging multiple repositories, and efforts to improve consent so that research participants are aware of how their data is utilized. The NIH also has upcoming workshops on the ethics of data sharing and privacy, as well as reidentification challenges and opportunities.

V. WORKING GROUP BREAKOUTS

BOR members divided into four breakout groups. Representatives from each group summarized their discussions later in the meeting.

VI. WORKING GROUP REPORTS AND DISCUSSION

Strategic Planning

Dr. Holmes reported for the Strategic Planning Working Group. The group discussed various initiatives for building institutional awareness across NLM. These initiatives include the NLM Portfolio Analysis tool, which offers a view of all NLM activities and programs; the Evaluation Coordinating Committee, which coordinates activities across NLM; and the Strategic Plan Implementation Council, which ensures that all strategic initiatives are identified and prioritized. The group also discussed NLM's initiatives for increasing institutional awareness regarding its COVID-19 efforts. Currently, 89 COVID-related projects are ongoing under the NLM Strategic Plan and the NIH and Data Science Strategic Plan. The Office of Evaluation, Performance, and Reporting is responsible for collecting, organizing, and evaluating information from these activities as aligned with the Evidence Act of 2018. The group also addressed the personnel and time commitment for collecting and tracking data to inform strategic priorities at NLM. Currently, such reporting activities occur three times a year and are facilitated by existing templates to reduce the burden of reporting. An update on the RODR Working Group was also provided. With the charge for the RODR initiative already approved, invitations will be extended to identified candidates in the next month for participation in the Working Group in anticipation

of their first virtual meeting.

Research Frontiers

Dr. Johnston reported for the Research Frontiers Working Group. The group discussed the key roles and elements of the Intramural Research Program and produced four critical attributes for addressing any gaps within the program:

- Focus on the development of tools and resources that are shared broadly as opposed to advancing knowledge in specific areas.
- Remain at the meta-level and take an interdisciplinary approach by weaving together expertise from all disciplines and allowing methodologists to dive deeply into specific areas when necessary.
- Improve interconnection between NIH and Intramural investigators.
- Promote high-risk/high-impact research work.

BOR members noted that the current size of the investigator team should be expanded to meet the growth in research frontiers. The group emphasized the need for balance between the work done by NLM investigators to pursue basic science versus improving NLM resources that are utilized by the scientific community. It was further noted that accepting new ideas and turning them into tools is a bidirectional pipeline, whereby the investigators that use the tools can continuously improve them.

Collections

Dr. Smith reported for the Collections Working Group. Dr. Smith noted that the collections policy was updated to include new types of collections. Primarily, two new resources were included, the Single Nucleotide Polymorphism Database and the database of Genotypes and Phenotypes, that were developed to promote genomic sequencing and clinical genetics. The group highlighted the challenge of separately growing collections and the need to integrate them with help from technical services. There is also a need to determine how the existing clinical and systemwide data will be streamlined to further drive research. The group further discussed the need for the BOR to become familiar with the collections material to provide technical expertise to the stakeholders and community. This integration and standardization of collections will require significant funding, the exact amount of which is currently unknown.

Public Service

Dr. Jaén reported for the Public Service Working Group. The group continues to focus on the implementation of the modernization roadmap, prioritizing user and stakeholder engagement as part of the ClinicalTrials.gov Modernization Working Group. Public webinars were conducted to keep the stakeholders informed on the modernization progress and the public was invited to participate in user feedback and visibility testing. The beta version of the website is scheduled for public release in fall 2021. The new Protocol Registration and Results System (PRS) front end and application programming interface build will occur in parallel to the development of the website, with the aim to improve user experience and workflow without disrupting functionality.

The PRS homepage and dashboard release are also estimated for September 2021. In terms of next steps, the Working Group is engaged with stakeholders to determine the components that are necessary to be maintained by clinicaltrials.gov. Per the current communications plan for fall releases, additional meetings are scheduled for late August 2021. The progress updates from these meetings will be shared at the next BOR meeting in September 2021. Moving forward, Dr. Lourdes Baezconde-Garbanati will serve as the Chair of the ClinicalTrials.gov Modernization Working Group.

VII. NIH UNITE INITIATIVE TO STRENGTHEN DIVERSITY, EQUITY, AND INCLUSION

Dr. Marie Bernard, Deputy Director, National Institute of Aging, NIH

Dr. Bernard provided a brief overview of the NIH UNITE Initiative. As a result of Institute and Center Director meeting discussions to identify initial issues and candid discussions with NIH leadership, the UNITE initiative was created with the shared commitment to delineate elements that may perpetuate structural racism in biomedical research both within NIH and the extramural community leading to a lack of personnel inclusiveness, equity, and diversity.

Initial issues identified included the assurance that biomedical research, and the administrative system that supports it, is devoid of hostility grounded in race, sex, and other federally protected characteristics; all ideas must be given an equal and fair review, without regard to current dogma, precedents, or who presents the ideas; and the redress of fundamental causes of health disparities/inequities and identification of research programs that could devise effective interventions.

Five interacting committees were established based on these initial themes with coordinated objectives focused on racism and discrimination in science. The committees worked on developing and implementing strategies to promote diversity and inclusion. Dr. Bernard presented the charge, current efforts, and next steps for the five committees.

Recent NIH UNITE actions included:

- A Request for Information to the NIH community inviting comments and suggestions to advance and strengthen racial equity, diversity, and inclusion in the Biomedical Research Workforce, resulting in over 1000 responses.
- The launch of the NIH Common Fund Initiative, with two Funding Opportunity Announcements issued in March 2021 focused on transformative research to address health disparities and advance health equity.
- The development of the Anti-Racism Steering Committee, open to all members of the NIH workforce.

BOR members discussed potential pathways to create networking environments to discover diverse applicants and develop and track talent pools. It was noted that it will take time to resolve current barriers and that multiple levels of intervention are needed. Members also discussed information distribution to stakeholders and potential approaches that NLM can take to improve upon diversity and inclusion. It was agreed that NLM should consider reaching out within their external ecosystem, as NLM already plays a large role in providing tools and

resources to the scientific community at large. Members also discussed the significance of reflecting diversity through the scientific literature curated.

VIII. EVOLUTION OF VIRUSES INCLUDING SARS-CoV-2

Dr. Eugene Koonin, Evolutionary Genomics Group, National Center for Biotechnology Information, NLM

Viruses are the most numerous and diverse biological entities found on Earth. There are approximately 10^6-10^9 virus particles per cm^3 of seawater and 10-100 virus particles per cell in most environments, with Earth-wide numbers totaling more than bacteria. Dr. Koonin noted that with the consideration of the Baltimore classification of viruses, organized based on their manner of mRNA production, it is hypothesized that virus-like entities may have served as the original genetic test system proceeding cells. However, there is no common ancestry for all viruses, with no single universal gene in existence. As viruses in the different Baltimore classes drastically differ in host range, how these classes fit into the big picture of virus origins and evolution is still unknown.

Dr. Koonin described the emergence of metaviromics, using metagenomic sequence data to categorize virus isolates, resulting in an evolving understanding of virus evolution, as based on the environment. The examination of the metavirome has become the most current dominant strategy for identifying viruses. Initial studies examining RNA virus diversity revealed RdRP, the only protein universally conserved among all RNA viruses. With additional computational analysis, five stable major RNA branches were identified, with four branches associated with identified human pathogens, including coronavirus. The four major virus realms recently discovered and approved by the International Committee for Taxonomy of Viruses were also presented.

With the noted evolutionary trend of RNA genome complexification, Dr. Koonin noted that coronaviruses, including SARS-CoV-2, currently contain the largest and most complex genomes. During the coronavirus pandemic, with the availability of over ~300,000 SARS-CoV-2 genomes, a whole-genome phylogenetic SARS-CoV-2 tree was constructed. As most of the SARS-CoV-2 genome evolves under purifying selection, a small subset of sites experiences recurrent mutations through positive selection. An increased rate of evolution in these gene sites has been observed. A steady diversification and possible speciation of SARS-CoV-2 have been observed regionally and globally, at least prior to mass vaccination.

The subsequent discussion focused on the evolution of SARS-CoV-2, its impact on the effectiveness of the current vaccines available, and changes in the metaviromic field due to the coronavirus pandemic.

IX. ANNOUNCEMENT OF OUTGOING BOR, FRANK B. ROGERS AWARDS, AND NLM DIRECTORS' AWARDS

Dr. Patricia Flatley Brennan, Director, NLM

Dr. Brennan presented the NLM Director's Honors Award, recognizing the work of NIH employees who have contributed outstanding achievements to NLM to the following

individuals:

- Dr. James Rodney Brister, Chief of NCBI Virus Resources Group, recognized for his leadership role within the NIH Science and Technology Research Infrastructure for Discovery, Experimentation, and Sustainability Initiative.
- Dr. Nancy Fallgren, Metadata Librarian under the Cataloging and Metadata Management Section in the Division of Library Operations, for innovations and improvements to the NLM metadata in the support of data-driven research and discovery of library resources.
- Mr. Quang Le, a member of the Scientific Computing Branch under the Lister Hill National Center for Biomedical Communications, for his work in the development of an NLM-wide strategy for IT asset inventory management, as required by the Health and Human Services Office of the Inspector General.
- Mr. Harold Lindmark, under the Office of Administration, for his leadership and support of the on-site collections' management for the Preservation and Collection Management Section during maximum telework due to the coronavirus pandemic.

The Frank P. Rogers Award, recognizing the work of NIH employees who have made fundamental, significant contributions to the library's operational programs and services, was presented to the following individuals:

- Ms. Annmarie Carr, Chief Administrative Officer in the NLM Division of Extramural Programs, recognized for her outstanding performance, leadership, and contributions with the NLM Extramural Program, especially during this time of maximum telework due to the coronavirus pandemic.
- Dr. Lauren Topper, Unit Head under the Collection Development and Acquisitions Section in the Division of Library Operations, recognized for her substantial contributions to the modernization and streamlining the Literature Selection Technical Review Committee and MEDLINE journal section processes.

X. REPORT OF THE NOMINATING COMMITTEE FOR THE NEXT BOR CHAIR

Dr. Dale Smith, Uniformed Services University of the Health Sciences

Dr. Smith noted the committee's Chair of the Board nomination of Mr. Neil Rambo, highlighting his accomplishments as a former curator with New York University and extensive knowledge of the NLM's role as a clinical resource to the scientific community.

Motion: The BOR approved the motion to appoint Mr. Neil Rambo as Chair of the Board.

XI. CONCEPT CLEARANCE FOR EXTRAMURAL INITIATIVES

Dr. Alan VanBiervliet, Program Officer, Division of Extramural Programs, NLM

Dr. VanBiervliet notified the BOR of the proposal to change the funding mechanism for the current NNLM *All of Us* Program from UG4 Administrative Supplements to a single U24 cooperative funding mechanism, for 2022-2026.

Focusing on community engagement and training, the partnership initiated in 2017 consisting of two associated Centers, the Training and Education Center and the Community Engagement Center, with awards issued to NNLM in support of regional activities. With the agreement to

extend the current program to 2026, a combined National Program Center will be established.

Dr. VanBiervliet noted the benefits of a combined program including improved coordination and efficiency of NNLM *All of Us* programming and services; and the opportunity to expand NNLM capabilities by providing opportunities for new NNLM partnerships across the country. A single cooperative funding mechanism is intended to ease/promote participation in national and federal initiatives, with a thorough integration into the NNLM system.

Per NIH guidelines, a UG4 administrative supplement cannot be issued where the program budget is larger than the host or parent award. Therefore, with the BOR approval, a Funding Opportunity Announcement utilizing the U24 funding mechanism will be issued in July 2021 and applications in support of the National Program Center will be solicited. After peer-review of applications in late fall 2022 and additional Board review in February 2022, it is anticipated that this new initiative will begin May 1, 2022.

The subsequent discussion focused on the need for a combined program due to the program's evolution and changing priorities, shifting towards engagement to maintain existing partnerships.

Motion: The BOR approved the motion to proceed with the above recommendation.

XII. CLOSED PORTION

The closed portion of the meeting took place from 4:15 p.m. to 4:45 p.m. The Board of Regents approved by en bloc vote 179 grant applications in the amount of $153,639,371.

XIII. ADJOURNMENT

Dr. Jaén adjourned the BOR meeting at 4:45 p.m. on May 11, 2021.

Actions Taken by the Board of Regents:

- Approval of the February 9, 2021, BOR meeting minutes.
- Approval of the May 9-10, 2023, meeting dates.
- Approval of the recommendation to form the Research Organism Ecosystem Working Group to the Board of Regents.
- Approval of the concept clearance to change the NNLM All of Us program from UG4 administrative supplements to a single U24 cooperative funding mechanism.

Appendix A. Roster — Board of Regents

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

Patricia Flatley Brennan, RN, PhD	Carlos Jaén, MD, PhD
Director, National Library of Medicine	Chair, NLM Board of Regents