

**DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
NATIONAL LIBRARY OF MEDICINE
MINUTES OF THE BOARD OF REGENTS MEETING
(VIRTUAL MEETING)
February 9, 2021**

The 186th meeting of the Board of Regents (BOR) was convened remotely on February 9, 2021, at 10 a.m. The meeting was open to the public from 10 a.m. to 4:15 p.m., followed by a closed session that lasted 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)
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

MEMBERS NOT PRESENT

Dr. S. Claiborne Johnston, The University of Texas at Austin

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 Susan Orsega, 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

Ms. Loretta Jurnak, Technical Resources International, Inc.
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
Mr. Todd Danielson, Office of the Director, NLM
Dr. Dina Demner-Fushman, Lister Hill National Center for Biomedical Communications, NLM
Mr. Ivor D’Souza, Office of Computer and Communications Systems, NLM
Dr. Heather Dobbins, National Center for Biotechnology Information, NLM
Dr. Anna Fine, National Center for Biotechnology Information, NLM
Dr. Valerie Florance, Division of Extramural Programs, NLM
Ms. Kathryn Funk, National Center for Biotechnology Information, NLM
Ms. Rebecca Goodwin, Office of Strategic Initiatives, NLM
Mr. Slava Gorelenkov, National Center for Biotechnology Information, NLM
Dr. Michael Huerta, Office of Strategic Initiatives, NLM
Mr. Nick Ide, National Center for Biotechnology Information, NLM
Ms. Christine Ireland, Division of Extramural Programs, NLM
Dr. Xiaofang Jiang, National Center for Biotechnology Information, NLM
Ms. Melanie Johnson, Lister Hill National Center for Biomedical Communications, NLM
Ms. Brandi Kattman, National Center for Biotechnology Information, NLM
Ms. Chianti Kight, Office of the Director, NLM
Dr. David Landsman, National Center for Biotechnology Information, NLM
Mr. Matthew Lesko, National Center for Biotechnology Information, NLM
Ms. Jennifer Marill, Division of Library Operations, NLM
Dr. Clement McDonald, Office of the Director, NLM
Dr. Ilene Mizrahi, National Center for Biotechnology Information, NLM
Dr. Virginia Meyer, Office of the Director, NLM
Ms. Hibah Nazir, National Center for Biotechnology Information, NLM
Ms. Jody Nurik, Office of Communications and Public Liaison, NLM
Dr. Kim Pruitt, National Center for Biotechnology Information, NLM
Ms. Christina Robinson, National Center for Biotechnology Information, 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. Steve Sherry, National Center for Biotechnology Information, NLM
Dr. Hua-Chuan Sim, Division of Extramural Programs, NLM
Ms. Anagha Sridhara, Office of the Surgeon General, U.S. Public Health Service
Ms. Samantha Tempchin, Division of Extramural Programs, NLM
Dr. Lauren Topper, Division of Library Operations, 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
Ms. Amanda Wilson, Division of Library Operations, NLM

I. CALL TO ORDER AND INTRODUCTORY REMARKS

Dr. Carlos Jaén, Chair, BOR

Dr. Jaén called the meeting to order, welcoming attendees. Dr. Jaén welcomed two new board

members:

- Dr. Nancy Smider, Director of Research Informatics, Epic Systems Corporation
- Dr. Joseph Francis, Executive Director of the Office of Analytics and Performance Integration, Veterans Health Administration

The meeting was broadcast to the public via streaming video at <https://videocast.nih.gov>.

II. REPORT FROM THE OFFICE OF THE SURGEON GENERAL

RADM Susan Orsega, Acting Surgeon General, Office of the Surgeon General U.S. Public Health Service

RADM Orsega provided an update regarding the Office of the Surgeon General's (OSG) efforts on the current coronavirus pandemic and other public health efforts. Since January 2020, the U.S. Public Health Service (USPHS) Commissioned Corps has been deployed to provide care to multiple care sites in fighting the coronavirus pandemic. Their current focus is on delivering vaccinations across the country under the National Strategy for COVID Response and Pandemic Response issued by the White House in 2021, with a goal of committing to the administration 100 million vaccinations in 100 days.

Reports and publications from the Office of the Surgeon General are widely viewed for their evidence-based approach to our nation's most urgent public health issues. These influential documents bring together the expertise of scientific, medical, and public health professionals nationwide on a wide variety of topics. They are often influential in identifying and shaping the science and culture of our public health. Calls to action are science-based summary documents intended to stimulate action on urgent public health problems. Surgeon General's advisories are public statements of recommendations on public health issues. A previously published OSG document focused on Community Health & Economic Prosperity, examining social determinants of health and their consequences within the community. Calls to action were also published, for maternal health, hypertension, and suicide prevention.

BOR members discussed the importance of documenting and learning from this level of deployment. RADM Orsega noted that less than 300 USPHS Commissioned Corps officers contracted coronavirus; and that physical and mental health care services are available to all officers as needed. The group also discussed the role of the scientific community to help make information accessible and understandable to the public. It was noted that reaching out to vulnerable and underserved populations is a focus of the OSG.

III. SEPTEMBER 2020 MINUTES AND FUTURE MEETINGS

Dr. Carlos Jaén, Chair, BOR

Dr. Jaén noted the listed dates for future BOR meetings, including the addition of the winter 2023 BOR meeting on February 7-8, 2023. There were no objections or conflicts noted.

Motion: The BOR approved the motion to accept the February 7-8, 2023, meeting date.

Motion: The BOR approved the motion to accept the minutes of the September 15, 2020 meeting.

IV. REPORT FROM THE NLM DIRECTOR

Dr. Patricia Flatley Brennan, Director, NLM

Dr. Brennan noted that NLM staff are still on maximum telework due to the COVID-19 pandemic. She noted that offices have been moved out of the main NLM building in preparation of the upcoming renovations.

Dr. Brennan noted NLM's involvement in Rapid Acceleration of Diagnostics (RADx), a program which arose out of the need for accessible and reliable COVID-19 testing that would also be able to detect asymptomatic individuals. As part of NLM's support for the NIH's COVID-19 efforts, Dr Brennan reported on three RADx projects funded to NLM supported investigators, including wastewater surveillance of infectious disease, making data from RADx-funded projects available, and examining testing reluctance.

Dr. Brennan noted progress towards the advancement of the Strategic plan (2017 – 2027) goals, including the newly appointed Michael E. DeBakey fellows program, along with new support for web collections and archiving, and continued support for the Network of the National Library of Medicine through the *All of Us* Research Program. Dr. Huerta provided an update regarding the Request for Information (RFI) on opportunities and challenges that have emerged since the NLM Strategic Plan was launched in 2017, noting that most responders were researchers, professional societies, and librarians. He also noted that respondents provided comments in the following categories: library functions; the library's perspectives, practices, and policies (including diversity, equity, and inclusion, as well as policies focused on data sharing and open science); science, technology, and workforce needs. Many responses were related to issues in line with the strategic plan, including the NLM's ability to convene and lead across organizations and stakeholder groups, in addition to the importance of diversity and equity. Based on the responses, NLM will work with leadership to consider the NLM's role as an exemplar, a research institution, and a convener, in addition to addressing its mission to collect and make available the biomedical literature and related data resources.

Dr. Brennan provided an overview of the NIH COVID-19 extramural research survey, which asked researchers and institutions about the impact of COVID-19. The most common concerns were related to the financial stability of research institutions, research productivity, and career trajectories. It was noted that under-represented groups and early and mid-career researchers were most negatively impacted. In response, the NIH has granted extensions to early-career investigator funding and is also considering the long-term implications.

The budget increased 1.5% in the last year – the lowest increase in the past five years. Dr. Brennan noted that the NLM is well-positioned to garner additional support for key resources through other sources, such as NIH partnerships, and will continue to meet its commitments.

Dr. Brennan reviewed new appointments and departures from the NLM. Dr. Valerie Florance

was appointed the Acting Scientific Director of Intramural Research, and Dr. Hua-Chuan Sim was appointed the Acting Director of Extramural Research. An overview of legislative updates is available in the BOR book.

The BOR members discussed the renovations to the NLM building, noting that an integrated reading room will be available during the construction, and physical security measures are in place to protect collections during this time. The group also discussed the NIH COVID-19 survey, highlighting the greater impact on groups that are already under-represented in research.

Dr. Brennan noted NLM will continue to have a robust training program and will include guidance on increasing diversity and welcomed suggestions from members on how to address this issue.

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 Working Group discussed the history of the strategic plan, including recalling stakeholder engagement at the time the plan was formed and its evolution as the plan continues to shift to align with emerging priorities. The group discussed takeaways from the RFI, including NLM's provision of trustworthy information and the role of stakeholders in guiding this process, and the role of NLM as a convener. The group discussed the relationship between NLM and journal publishers and editors and their roles in addressing biases that can be introduced in several ways, including how authors select publication outlets and unanticipated consequences of indexing choices. Members highlighted the importance of collaboration and the role NLM can play in bringing different parties together to examine these issues.

Research Frontiers

Dr. Bakken reported for the Research Frontiers Working Group. The group discussed the consolidation of the intramural research program, as well as intramural-extramural collaborations. It was noted that the consolidation of the intramural program was designed to reduce duplicative efforts and increase efficiency, with the goal of facilitating scientific advancement. In considering changes such as this, the group discussed the importance of re-engineering *vs.* restructuring, and factoring in the organizational culture when implementing successful changes to structure and processes. The Working Group discussed the NLM's roles in two RADx-funded projects: a collaboration with Arizona State University looking at wastewater surveillance for public health, and providing scientific oversight for the University of California, San Diego to create a data coordinating center for the RADx RAD program.

Collections

Dr. Smith reported for the Collections Working Group. The group discussed the new processes that MEDLINE and PubMed Central use to assess applications for journal review. A new qualitative system has been adopted, allowing for longer narratives from the reviewer. Comments are now returned to publishers providing guidance on what would be needed to meet selection criteria. The group expressed the challenges of ensuring that new publishers are included, while continuing to exclude journals who do not adhere to publications best practices. The group also discussed the NIH Preprint Pilot program, which posted over 1,700 NIH-funded COVID-19 research preprints. It was noted that because of the increased public discussion of research due to the COVID-19 pandemic, lay audiences are increasingly aware of preprints. The group highlighted that the goal of this program is to ensure that the inclusion of preprints in PubMed Central and their concomitant records in PubMed does not negatively impact public trust in NLM resources.

Public Service

Dr. Jaén reported for the Public Service Working Group. The group discussed the ClinicalTrials.gov modernization roadmap, recent and planned stakeholder engagement activities, and upcoming implementations, including the availability of a new cloud-based ClinicalTrials.gov website in fall 2021. The group also shared that all modernization goals to date have been met and discussed the importance of having external working group members involved, who have been keen insights into the experiences of key stakeholder groups and have supported engaging with stakeholders and soliciting their feedback during the implementation phase. The working group is preparing a summary of their activities to date in advance of the September 2021 BOR meeting. NLM and NCBI's overall cloud strategy was also discussed, and it was decided that a briefing on the move to cloud-based systems would be provided in an upcoming BOR meeting.

VII. WORKING GROUP FOR RESEARCH ORGANISM DATA RESOURCE INITIATIVE

Dr. Patricia Flatley Brennan, Director, NLM

Dr. Kim Pruitt, Chief, Information and Engineering Branch, National Center for Biotechnology and Medicine (NCBI), NLM

Dr. Brennan provided a brief history of the BOR, including an overview of the board's duties and the current working group structure. Based on key findings from the 2017-2018 BOR Self Study, four working groups were established in 2019 to focus on specific areas within NLM: collections, research frontiers, public service, and strategic planning. These groups demonstrate NLM's commitment to public engagement, providing a forum for stakeholders and enabling expert input into NLM activities. Sub-groups within the established working groups can be established to focus on new initiatives, strengthen existing services, and/or build new programs, that require additional oversight, public accountability, and/or community engagement. The formation of a working group focused on the Research Organism Data Resource (RODR) initiative was proposed.

Dr. Pruitt described the RODR initiative, including the creation of a novel biological genomic platform to provide public tools for scalable cloud computing and a modern intuitive approach to support accessing, analyzing, and downloading organism-focused data; the RODR platform will support new research needs for comparative and large-scale analysis. With an approved budget of \$47.3 million, provided by the NIH, and a 5-year timeline, it is anticipated that the extensive engagement of extramural research communities will result in the standardization and improvement of data submission and collections. Dr. Pruitt also presented expected deliverables and potential benefits of this initiative.

Dr. Holmes will serve as the BOR representative and Chair for this working group. Group members will include a liaison from the Trans-NIH Steering Committee, NLM staff, and a minimum of 4 external members from key stakeholder groups who will provide expertise in established initiative themes. The group will ensure overall objectives are aligned with NLM and NCBI goals, along with research community expectations for a research organism data resource.

BOR members agreed that establishing this working group would be a useful tool for public engagement. Members also discussed specific governance of this initiative and mechanisms for successful community engagement.

Motion: The BOR approved the motion to accept the recommendation to form the RODR Modernization Working Group.

VIII. CAN AI MAKE IT EASIER TO FIND RELIABLE HEALTH-RELATED INFORMATION?

Dr. Demner-Fushman, Biomedical Informatics Branch, Lister Hill National Center for Biomedical Communications, NLM

Dr. Demner-Fushman noted her group's research objective to enable easy access to reliable health-related information; the group is currently focused on developing approaches in the traditional area of artificial intelligence (AI) in question answering and natural language processing. There is a need for high-quality answers for both clinicians and the public that ask similar questions. With the continued development of the internet, consumers' behaviors have moved toward consulting online sources first in the search for health information, usually finding answers of varying degrees of quality that they are often unable to judge. Because of this, there is a need for consumer-health question answering research.

Dr. Demner-Fushman presented several examples of the different categories of queries presented by consumers, noting the typical question frame of traditional question analysis: determining what the question is about (theme, focus, topic; with the focus as the primary entity or event of interest) and the purpose of the query (intent, type). Ambiguous queries, along with misspellings and interspersed extraneous information, can make consumer queries difficult to understand. Despite the additional challenge of a lack of written answers and/or consumer-friendly answers, previous research indicated ~70% of queries could be answered within or linked to MedlinePlus.

A prototype system was developed consisting of two approaches: a traditional AI

question/answering approach executed by searching documents for the topic and intent within various NIH and government databases and a database of question/answer pairs using NIH Patient Frequently Asked Questions (FAQs). Results were merged to produce one answer list. Alternative approaches using deep learning techniques and answer summarization were also developed.

Regarding the COVID-19 pandemic, information needs for clinicians, researchers, and the public alike evolved rapidly, introducing new research opportunities. Dr. Demner-Fushman noted the Text Retrieval Conference COVID and Epidemic Question Answering community evaluations that her group co-organized and participated in, as well as detecting misinformation and providing specific answers to each question. Future research directions include continuing to explore approaches to question answering for experts and consumers, exploring visual question answering and multi-modal question answering, and contributing to resource and community building.

The subsequent discussion focused on clarifying current consumer resources, the trust deficit in relation to AI, providing consumer-facing explainable AI, and the effects of culture, language, and interests on the types of queries received and the answers provided.

IX. UPDATE ON REISSUED FUNDING ANNOUNCEMENTS

Dr. Hua-Chuan Sim, Division of Extramural Programs, NLM

Per NIH policy, new or continuing extramural initiatives must be presented to receive council input prior to renewal. Dr. Sim notified the BOR of the upcoming renewal of the NLM Institutional Training Program initiative, and updates on the reissuances of NLM Funding Opportunity Announcements.

As part of the NLM strategic plan, the NLM Institutional Training Program will support the continued funding of university-based training for predoctoral and postdoctoral fellows in biomedical informatics and data science. Dr. Sim provided an overview of the initiative's scope and objectives. At the request of current awardees, the funding announcement for this initiative will be issued this spring to provide an opportunity for feedback to applicants before the end of the current cycle and allow for the recruitment or retirement of associated programs. There are no major changes noted with the renewal of this initiative.

Dr. Sim also updated the BOR on several NLM funding opportunity announcements, including those for the NLM Information Resource Grants to Reduce Health Disparities, NLM Grants for Scholarly Works in Biomedicine and Health, the Regional Medical Libraries for the Network of the National Library of Medicine, and the Network of the National Library of Medicine Evaluation Center. It was clarified that no board motion was needed for reissuances, this was presented to the Board only for their information. Funding announcement links can be provided at the BOR members' request.

X. APPOINTMENT OF NOMINATION COMMITTEE FOR BOR CHAIR

Dr. Carlos Jaén, Chair, BOR

Drs. Smith, Mazanec, and Francis agreed to serve on the nominating committee for the next BOR chair. They will review eligible candidates and report to the BOR at the next meeting.

XI. CLOSED PORTION

The closed portion of the meeting took place from 4:15 p.m. to 4:45 p.m.

XII. ADJOURNMENT

Dr. Jaén adjourned the BOR meeting at 4:45 p.m. on February 9, 2021.

Actions Taken by the Board of Regents:

- Approval of the September 15, 2020, BOR meeting minutes
- Approval of the February 7-8, 2023, meeting dates
- Approval of the recommendation to form the Research Organism Ecosystem Working Group to the Board of Regents

Appendix A. Roster — Board of Regents

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



Digitally signed by Brennan,
Patti (NIH/NLM) [E]
Date: 2021.04.07 09:37:08
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Patricia Flatley Brennan, RN, PhD
Director, National Library of Medicine

Carlos Roberto
Jaén. MD PhD

Digitally signed by Carlos
Roberto Jaén, MD PhD
Date: 2021.04.06
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Dr. Carlos Jaén, MD, PhD
Chair, NLM Board of Regents