

**DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH (NIH)
NATIONAL LIBRARY OF MEDICINE (NLM)
MINUTES OF THE BOARD OF REGENTS
September 12-13, 2023**

The 194th meeting of the Board of Regents (BOR) was convened on September 12, 2023, at 9:00 a.m. in Building 38A (Visitors Center), Lister Hill National Center for Biomedical Communication, National Library of Medicine (NLM), National Institutes of Health (NIH), in Bethesda, Maryland. The meeting was open to the public from 9:00 a.m. to 3:30 p.m., followed by a closed session that lasted until 4:15 p.m. On September 13, 2023, the meeting reopened from 9:00 a.m. to 12:00 p.m. The meeting adjourned at 12:00 p.m.

MEMBERS PRESENT (Appendix A)

Dr. James Cimino, University of Alabama at Birmingham
Dr. Kristi Holmes, Northwestern University [Chair]
Dr. Mitchell Katz, New York City Health + Hospitals
Ms. Jennie Lucca, The NIH Children's Inn
Dr. Omolola Ogunyemi, Charles R. Drew University of Medicine and Science
Mr. Philip Walker, Vanderbilt University

MEMBERS NOT PRESENT:

Dr. Nancy Smider, Epic Systems Corporation

EX OFFICIO AND ALTERNATE MEMBERS PRESENT:

Dr. Lauren Maggio, Uniformed Services University of the Health Sciences
Dr. Mary Mazanec, Library of Congress
Dr. Joseph Sterbis, United States Army
Mr. Paul Wester, National Agricultural Library, U.S. Department of Agriculture

EX OFFICIO AND ALTERNATE MEMBERS NOT PRESENT:

Col. Thomas Cantilina, United States Air Force
Dr. Michelle Elekonich, National Science Foundation
Dr. Susan Kirsh, Veterans Health Administration
Dr. Niels Olson, United States Navy

AD HOC CONSULTANT PRESENT:

Dr. Carmen Portillo, Yale School of Nursing

SPEAKERS AND INVITED GUESTS PRESENT:

Dr. Dana Bensinger, The Chartis Group
Ms. Jeane Garcia Davis, Office of the Surgeon General, U.S. Public Health Service
Dr. Andrew Gostine, Artisight, Inc.
Ms. Renate Myles, Office of Communications and Public Liaison, Office of the Director, NIH

MEMBERS OF THE PUBLIC PRESENT:

Mr. Glen Campbell, Friends of the National Library of Medicine
Ms. Heather Guith, Palladian Partners, Inc.
Ms. Loretta Jurnak, Technical Resources International, Inc.
Mr. Philip Spencer, Technical Resources International, Inc.

FEDERAL EMPLOYEES PRESENT:

Dr. Patricia Flatley Brennan, Director, NLM
Dr. Michael Huerta, Acting Deputy Director for Operations and Innovation, NLM
Ms. Mitzi-Ann Allen, Office of Financial Management, NLM
Ms. Stacey Arnesen, Division of Library Operations, NLM
Ms. Dianne Babski, Division of Library Operations, NLM
Dr. Olivier Bodenreider, Lister Hill National Center for Biomedical Communications, NLM
Mr. Todd Danielson, Office of the Director, NLM
Dr. Lisa Federer, Office of Strategic Initiatives, NLM
Dr. Anna Fine, National Center for Biotechnology Information, NLM
Dr. Valerie Florance, Office of the Director, NLM
Dr. Zoe Huang, Division of Extramural Programs, NLM
Ms. Christine Ireland, Division of Extramural Programs, NLM
Ms. Michelle Krever, Division of Extramural Programs, NLM
Dr. David Landsman, National Center for Biotechnology Information, NLM
Ms. Alison Lemon, Office of Communications and Public Liaison, NLM
Ms. Wei Ma, Office of Computer and Communications Systems, NLM
Ms. Jennifer Marill, Division of Library Operations, NLM
Ms. Elizabeth Mullen, Division of Library Operations, NLM
Ms. Jody Nurik, Office of Communications and Public Liaison, NLM
Dr. Richard Palmer, Division of Extramural Programs, NLM
Dr. Kimberly Pruitt, National Center for Biotechnology Information, NLM
Ms. Leigh Samsel, Office of Strategic Initiatives, NLM
Dr. Richard Scheuermann, Office of the Director, NLM
Dr. Valerie Schneider, National Center for Biotechnology Information, NLM
Dr. Stephen Sherry, National Center for Biotechnology Information, NLM
Ms. Samantha Tempchin, Division of Extramural Programs, NLM
Dr. Yanli Wang, Division of Extramural Programs, NLM
Dr. Teresa Zayas Cabán, Office of the Director, NLM

I. CALL TO ORDER AND INTRODUCTORY REMARKS

Kristi Holmes, PhD, Chair, BOR

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

II. REPORT FROM THE OFFICE OF THE SURGEON GENERAL, PHS

Jeane Garcia Davis, MSN/MPH, RN, Associate Director of Science and Policy, Office of the Surgeon General

Ms. Jeane Garcia Davis provided an update on the Office of the Surgeon General's (OSG's)

continuing efforts to support youth mental health and worker well-being, highlighting the Surgeon General's latest initiative on the impact of social media on youth mental health. Ms. Davis also described opportunities for public engagement and an upcoming Surgeon General's report on tobacco health disparities.

The latest Surgeon General's Advisory on Social Media and Youth Mental Health, launched in May 2023 with the overarching goals of providing current evidence on the impact of social media on the mental health of youth and adolescents, identifying the primary areas of concern, and noting opportunities for additional research. Ms. Davis described the widespread use of social media by youth and young adults and noted that many teenagers spend as many as 5 to 7 hours per day on social media. Research indicates that teenagers who spend more than 3 hours per day on social media face double the risk of poor mental health outcomes, including symptoms of depression and anxiety.

Ms. Davis also highlighted the HHS Interagency Task Force on Kids Online Health and Safety, a collaborative effort with the White House and other stakeholders to protect youth from online harm. The mission of the task force is to identify risks of harm to minors associated with online platforms, recommend measures and methods for assessing and mitigating such risks, and develop a targeted research agenda. The task force will compile recommended best practices and industry standards with a goal of developing voluntary guidance, policy recommendations, and a toolkit on safety-, health-, and privacy-by-design for developing digital products and services.

She also presented a brief history of the Surgeon General's reports on tobacco use dating back to 1964 and noted the upcoming 35th report on this public health issue. Expanding on the 1998 report from former Surgeon General Dr. David Satcher, which was the first Surgeon General's report to focus on tobacco-related health disparities among racial and ethnic groups, the next report highlights the disparities that continue to be observed among racial and ethnic groups, as well as differences by age, level of income, education, gender identity and sexual orientation, behavioral health, and geography. She noted that while the overall prevalence of tobacco use has decreased over the past 60 years in the U.S., the harmful impacts of tobacco persist and are driven by social and environmental factors, flavor and chemical additives, and tobacco industry influences that impact the appeal, availability, and addictiveness of commercial tobacco products.

Surgeon General VADM Vivek Murthy also continues to participate in ongoing collaborative activities with a variety of other stakeholders. Dr. Murthy recently traveled to Indiana with Dr. Jill Biden to visit Robbie's Hope and address teen mental health and suicide prevention. Dr. Murthy also traveled to the 2023 U.S. Open to address mental health and sports. Ms. Davis invited the BOR members to attend the upcoming Surgeon General's Medallion Awards hosted by the John F. Kennedy Center for the Performing Arts.

BOR members discussed additional recommendations for the use of social media to support mental health.

III. MAY 2023 MINUTES AND FUTURE MEETINGS

Kristi Holmes, PhD, Chair, BOR

Dr. Holmes noted the dates for future BOR meetings, including the addition of the Fall BOR Meeting on September 9-10, 2025. There were no objections or conflicts noted. She also noted that the February and May 2024 meetings, as well as the February and May 2025 meetings, are recommended to be held remotely. The September 2024 and September 2025 meetings are recommended to be held in person.

Motion: The BOR approved the motion to accept the minutes from the May 2023 meeting.

Motion: The BOR approved the motion to accept the Fall BOR meeting date of September 9-10, 2025.

IV. REPORT FROM THE NLM DIRECTOR

Patricia Flatley Brennan, RN, PhD, Director, NLM

Stephen Sherry, PhD, Associate Director for Scientific Data Resources, NLM

Richard Palmer, DrPH, JD, Acting Director, Division of Extramural Programs, NLM

Teresa Zayas Cabán, PhD, Assistant Director for Policy Development, NLM

Dr. Patricia Flatley Brennan welcomed and thanked the BOR for their attendance and continued support of NLM's work. She highlighted the work of the NLM Leadership Team, introducing its two newest members, Dr. Lisa Federer and Ms. Wei Ma. She also thanked the NLM Media Operations team for their work to facilitate this NLM BOR meeting. Dr. Brennan welcomed new BOR members, Dr. Mitchell Katz and Mr. Philip Walker, as well as BOR consultant Dr. Carmen Portillo.

Developed in 2017, the current NLM Strategic Plan, with three pillars focusing on accelerating discovery and advancing health through data-driven research, continues to guide NLM's support and development of new tools and technologies. Dr. Brennan presented a video highlighting NLM's investment in Artificial Intelligence (AI) to accelerate biomedical research; she noted that the video is also available on the NLM YouTube channel and website.

Dr. Brennan announced her retirement as NLM Director and shared reflections on her work with NLM; in particular, she highlighted the increased collaboration within NLM, fostered through the One NLM approach. As a result of its work around advancing data science in human health research, NLM has also emerged as a focal point for data-powered health discovery within NIH. Regarding NLM leadership transitions as of October 1, 2023, Dr. Stephen Sherry will assume the role of Acting NLM Director; Dr. Richard Scheuermann will assume his role as NLM's first-ever Scientific Director; and Dr. Valerie Florance, NLM's Acting Scientific Director from 2020 to 2023, will be stepping down from that role as of September 30, 2023. Pending leadership roles were also noted.

Dr. Sherry noted four priorities on which his role as Acting NLM Director will be focused. First, he will continue to cultivate organizational culture and synergy among NLM divisions. Second, he will continue to ensure responsible and fiscally conscious management at NLM. Third, NLM will continue to embrace continuous innovation. Fourth, NLM will continue to pursue excellence and high standards in research and public services.

Dr. Brennan noted NLM's accomplishments since May 2023. Regarding the continued pursuit of administrative resilience, NLM leadership implemented new efforts to promote staff

engagement. Based on results of the Federal Employee Viewpoint Survey (FEVS) Summer Sprint, NLM launched the “Creating a Culture of Continuous Innovation” leadership initiative. Work to implement the NLM Racial and Ethnic Equity Plan (REEP) is also proceeding, with collaboration from NIH. NLM has also continued to improve and sustain its public-facing resources; namely, ClinicalTrials.gov, Access Global Unique Device Identification Database (AccessGUDID), the Comparative Genomics Resource (CGR), and MedlinePlus.

Regarding the NLM budget, Dr. Brennan anticipated a continuing resolution and a FY24 budget of \$498 million – similar to the FY23 budget. Dr. Brennan requested BOR members’ guidance to help ensure the optimal direction and use of the budget. Personnel changes were noted, including the retirements of Mr. David Gillikin and Dr. Florance. Dr. Brennan also welcomed four new NLM Associate Fellows for 2023-2024.

Dr. Richard Palmer introduced the NLM Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs, which provide grants to small businesses working to advance health care and biomedical informatics. The programs also provide funding for different program phases with a variety of different topics of innovation. Over the last 10 years, NLM has supported 25 small businesses through the programs, primarily supporting small feasibility (Phase 1) studies.

Dr. Teresa Zayas Cabán provided policy and legislative updates. First, the NIH Public Access Plan, which would help increase public access to NIH-funded research results, was presented to the NIH Director in June 2023. Version 4 of the U.S. Core Data for Interoperability (USCDI) standard has also been released. Regarding FY24 appropriations, Dr. Cabán noted that NLM will continue to monitor the ongoing congressional appropriations process. NLM is also closely monitoring AI-related legislative activities.

The BOR thanked Dr. Brennan for her leadership and work at NLM to advance excellence, inclusion, and innovation in human health. BOR members also discussed considerations for improving the quality of and access to clinical observational data for research. In particular, the potential for improving the documentation and interpretation of patient outcomes was discussed. Dr. Brennan also noted the importance of delivering the learnings and information gained through research back to communities.

V. WORKING GROUP BREAKOUTS

BOR members divided into four breakout groups: Strategic Planning, Research Frontiers, Public Services, and Collections. Group representatives summarized their discussions later in the meeting.

VI. NIH VIRTUAL TOUR

*Renate Myles, MBA, Acting Director, NIH Office of Communications and Public Liaison
Heather Guith, MPH, Palladian Partners, Inc.*

Ms. Renate Myles presented an overview of the new NIH Virtual Tour, which was catalyzed by the COVID-19 pandemic shutdown that halted in-person visits and tours, resulting in increased use of virtual technology. Planning for the virtual tour began in June 2021 and involved working with NIH leadership, NIH institutes and centers, the Clinical Center Division

of Facilities, Operations, and Maintenance (DFOM), NIH security teams, and many others. Launched in June 2023 based on a platform developed by CampusTours Inc., the virtual tour allows people who may not have the resources to visit the NIH campus in person to learn about who we are and what we do.

The virtual tour was developed with a focus on four major audiences: patients and their families who want to learn more about clinical trials; members of the scientific community interested in exploring careers and research at NIH; Congress and advocates who want to understand the benefits of their investment in NIH; and members of the general public who have an interest in learning about NIH biomedical research and its impact on public health. Visitors have the option of either taking the full campus tour or following one of two additional specific tracks, one of which focuses on patients and caregivers and the other on those interested in science. Alternatively, users can navigate to the interactive map and select a building of interest to learn more. Ms. Myles provided a list of the 20 tour stops, noting the stops were selected to showcase the depth and breadth of NIH research on the Bethesda campus. Each stop includes pictures, narrated videos, and links to outside content. She also described the NIH interactive map which features 32 buildings on the NIH campus as well as information on transportation, security, facilities, accessibility, parking, and dining.

Ms. Myles described how accessibility, including Section 508 compliance, was a priority from the start and described the many ways the tour is being leveraged across NIH offices and centers. Ms. Myles noted that the tour's platform is scalable with future goals, including adding additional buildings on the main NIH campus, adding other campuses (such as the National Institute of Environmental Health Sciences in North Carolina), and adding a Spanish language tour option. Ms. Myles ended her presentation with a video, the NIH Virtual Tour at a Glance, which is found on the tour's website and provides an orientation for users.

Ms. Heather Guith conducted a demonstration of the virtual tour and the interactive map of the NIH campus including the available navigational tools, examples of video content, panoramic images, ways to connect with NIH, links to outside content, and ways to search for and share content. She also demonstrated the layering feature of the interactive map which helps highlight campus amenities and transportation.

BOR members discussed sharing the interactive map with community members and with delivery services, such as UPS and FedEx. Linking the interactive map to Google Maps, particularly for directions to the NIH Clinical Center, was also discussed. Members suggested including nearby neighborhood amenities, especially for families of patients at the NIH Clinical Center. Finally, in response to a question regarding current web traffic to the virtual tour, it was noted that 20,000 visits occurred within the past month.

VII. CREATING A CULTURE OF CONTINUOUS INNOVATION

Dana Bensinger, DNP, RN-BC, Senior Expert, Chartis Group

Dianne Babski, Associate Director for Library Operations, NLM

Dr. Dana Bensinger discussed the work NLM is undertaking to advance a culture of continuous innovation and to fulfill NLM's mission. He described a culture of innovation, a set of shared values and practices for which innovation is a core element of an organization's identity and strategy. In addition to innovation itself, a culture of innovation must be promoted within an

organization. Innovation can be incremental or disruptive and may occur in a variety of ways within a single organization. He emphasized that NLM is currently fostering innovation through AI, machine learning automation, its data science research portfolio, digital transformation, and the customer experience.

Dr. Bensinger outlined NLM's innovation priorities: assessing the culture of innovation at NLM, establishing an approach to foster innovation, developing a multi-year innovation roadmap and report, and enabling and implementing a future-state vision. To achieve these priorities, he presented an innovation model framework that will be used to guide the process.

The six components of the innovation model framework include Governance; Need Identification; Idea Generation; Design, Build, and Test; Organizational Readiness; and Development and Measurement. Governance guides decision making throughout the process and ensures alignment with NLM's vision, goals, and objectives. Need Identification accounts for NLM's needs and aspirations in the creation of innovative solutions. Idea Generation fosters a collaborative, inclusive process to generate creative ideas and foster continuous innovation. Design, Build, and Test employs an iterative approach that tests innovative ideas and refines the design through continuous learning and improvement. Organizational Readiness ensures people, processes, and culture are aligned to effectively implement innovative ideas. Finally, Development and Measurement enhances the implementation of innovation and measures performance against desired outcomes.

BOR members discussed leveraging the time and talents of individuals throughout the innovation process, and incentivizing individuals to collaborate and innovate. Examples of organizations with an innovative culture were shared and discussed. Ms. Dianne Babski presented an overview of a pilot project which used large language models and generative AI to increase efficiency in processes for six different use cases. She noted that individuals from NLM, NIH, and external stakeholders are participating in the project.

VIII. ARTISIGHT: AMBIENT INTELLIGENCE FOR OPTIMIZATION OF HOSPITAL OPERATIONS

Andrew Gostine, MD, MBA, CEO, Artisight, Inc.

Dr. Andrew Gostine presented the NLM-supported research project "Artisight: Ambient Intelligence for Optimization of Hospital Operations." He acknowledged the roles of NLM and other partners who supported this research. Dr. Gostine briefly discussed health care productivity and labor crises, noting that automation in health care is currently relegated to back-office Information Technology (IT) such as billing cycle management and cyber security threat detection. This leaves 69% of the health care labor force without automation tools to increase productivity. Simultaneously, the demand for health care is increasing due to the aging population while labor force participation in health care is decreasing. It was therefore asserted that increasing clinical staff productivity through automation is an important way to address this imbalance.

He presented an overview of the Artisight project, which aims to enhance human health care intervention through automation. The Artisight platform uses computer vision, voice activation, ultra-wideband, and radar sensor technologies in a variety of applications to support clinical staff.

Artisight's AI algorithm continues to undergo training for different sites, demographics, and times of day. In one example, the Artisight platform was incorporated in an operating room, supported by human telemonitoring and teleconsulting to passively train the algorithm and build datasets to optimize hospital operations and enhance doctor training.

Building on the success of the Artisight platform in the operating room, similar technology was introduced into patient rooms. Expanding on the traditional care team model, telemonitoring, teleconsultation, and AI-based automation were introduced to support the bedside nurse while tasks such as documentation and care coordination were shifted to a remote nurse. The AI algorithm was also trained to detect patient movement for fall prevention and to verify that patients were rotated for pressure ulcer prevention. Dr. Gostine described several other areas for potential automation through Artisight.

Dr. Gostine noted that patient outcomes and care costs can be ameliorated by incorporating automated solutions in health care processes. Improved patient satisfaction scores and an increase in nurse retention have already been observed.

BOR members discussed issues surrounding the use of AI as it relates to patient privacy and in unionized hospitals. They also discussed challenges in acquiring baseline metrics to analyze the impact of automation, resource constraints to creating evidence-based peer reviewed literature, and the limitations of real-world hospital datasets. Members also discussed the value added by incorporating AI into hospital processes and the effort necessary to retrain the algorithm to add additional tasks.

IX. CLOSED PORTION

The closed portion of the meeting took place from 3:30 p.m. to 4:15 p.m. on September 12, 2023. The Board reviewed and approved for further consideration during *en bloc* concurrence, a total of 283 applications with the requested direct cost amount of \$294,985,111.

X. FUTURE OF THE INTRAMURAL RESEARCH PROGRAM

Richard Scheuermann, PhD, Scientific Director, NLM

Dr. Scheuermann presented his emerging vision for the future of the NLM Intramural Research Program (IRP) in preparation for his role as NLM Scientific Director. He noted his previous experience developing tools and resources for data management and dissemination. Overall, the IRP must focus on maximizing impact through its research portfolio. In research areas such as personal genomics and AI, the IRP should foster growing expertise in new data science research. A future role for the IRP in bioinformatics, computational biology, and AI investigator development across NIH was also mentioned. In addition, Dr. Scheuermann noted that IRP investigators should emerge as leaders in global computational research initiatives. Ultimately, the IRP should focus strongly on the translation of data to computable knowledge.

Dr. Scheuermann also described his areas of focus in developing an NLM IRP Strategic Plan. To develop the plan, the IRP will evaluate the recommendations of the NLM IRP Blue Ribbon Panel and will engage key stakeholders across NIH. The plan will clearly define the NLM IRP Mission and its position within the NIH data ecosystem; it will also define both short- and

long-term objectives. The NLM IRP Strategic Plan is targeted to be presented to the BOR in summer 2024.

The NLM IRP Blue Ribbon Panel report, delivered in November 2018, endorsed the vision of NLM as a hub for informatics, data science, and knowledge management at NIH. The report emphasized the IRP as a critical element in fulfilling the NLM Strategic Plan and encouraged NLM to prioritize competitive recruitment of new staff. Dr. Scheuermann noted that he will work to assess and support the implementation of the panel's recommendations. In addition, he expressed the hope that the NLM IRP will continue to expand its unique research contributions into new areas, such as new data standards, computational methods, and data integration.

Finally, Dr. Scheuermann presented a real-world example of, first, the conversion of research data into computable knowledge; and second, the integration of that new knowledge with other new and/or existing knowledge sources. Still needed, however, is the development of accessible user interfaces that will enable public interaction with and understanding of the knowledge being generated in this manner.

XI. WORKING GROUP REPORTS AND DISCUSSION

Strategic Planning and Research Frontiers

Dr. James Cimino reported for the Strategic Planning and Research Frontiers Working Groups. The Working Groups reviewed the NLM Strategic Plan 2017-2027 and NLM's achievements since the plan's inception. Notable themes that emerged from a Request for Information (RFI) to collect feedback on the NLM Strategic Plan included calling for NLM to assume a leadership role and coordinating work across diverse organizations and stakeholder communities. Future NLM objectives will therefore include establishing open science best practices, coordinating library information science endeavors, developing and disseminating standards such as metadata, terminologies, and Fast Healthcare Interoperability Resources (FHIR), and guiding relevant training initiatives.

The Working Groups conducted a comprehensive review of NLM's activities and initiatives since the last RFI in 2021. They assessed new challenges and opportunities that have emerged since 2020, including issues related to public health surveillance, misinformation identification, and the rise of generative AI technologies. The discussions centered on optimizing the NLM Strategic Plan's effectiveness for the remaining four years of its tenure. This involved leveraging the BOR for plan implementation, exploring emerging research areas affecting NLM's mission, incorporating innovation into plan execution, and establishing efficient assessment and communication strategies.

Recommendations were made for NIH collaboration with Electronic Health Record (EHR) companies to facilitate researcher access to clinically generated data. The Working Group also deliberated on strategies for promoting the Sequence Read Archive (SRA) repository among research communities, emphasizing its importance in demonstrating the value of open-access public datasets.

The Working Group was also tasked with finding ways to align NLM's mission with the FY24 budget requirements. They discussed methods to engage stakeholders early in the budget

process and to communicate NLM's mission priorities as well as the need for customizing NLM's mission messaging to better foster common understandings of NLM's ongoing work. Suggestions were made to leverage existing NIH platforms such as MedlinePlus for conveying NLM's message across a range of audiences. At the same time, messaging should also be tailored to specific stakeholders to highlight how NLM's resources and tools can propel advancements in biomedical informatics, data science, and health care systems.

Public Services

Dr. Omolola Ogunyemi reported on the ClinicalTrials.gov Modernization on behalf of the Public Services Working Group, noting that the fourth year of the modernization effort is nearing completion. The modernized ClinicalTrials.gov site is now established as the primary landing page, with the option for users to still access the classic site for another year [before its retirement].

Dr. Ogunyemi also reviewed the Working Group's four-year efforts in supporting modernization since its inception in 2019. These efforts were guided by strategic goals, including preserving ClinicalTrials.gov's credibility as a trusted resource, optimizing the utility of the repository with expanding information, and actively engaging stakeholders to ensure their evolving needs are considered. Dr. Ogunyemi acknowledged the invaluable contributions of Working Group members through 16 Working Group meetings, numerous public events, as well as various interactions with NLM staff to gather feedback on the modernization effort's progress. Notably, two Summary Reports have been released with a third report for Year 4 scheduled for release in fall 2023.

Although the Public Service Working Group's work on the ClinicalTrials.gov Modernization is nearing completion, ongoing updates to the ClinicalTrials.gov website will continue. The Public Service Working Group is now seeking guidance from the BOR regarding future steps.

Collections

Mr. Philip Walker and Ms. Dianne Babski reported for the Collections Working Group. The Working Group discussed PubMed, which contains publication abstracts, and PubMed Central (PMC), which houses full text publications. The group highlighted issues surrounding the open access model and stressed the importance of connectivity between various resources and datasets.

The group discussed overlay journals and the need to link both pre- and post-peer review preprints to the database, noting that currently, only the revised versions are published. The Working Group also provided updates on auto-indexing of MEDLINE citations and the development of MTIX, a next generation algorithm using predictive modeling to address known issues in the current Medical Text Indexer Auto (MTIA) algorithm. Additionally, there is an ongoing collaborative project with the National Institute of Standards and Technology (NIST) which utilizes an AI risk management toolkit to review the PubMed's Best Match algorithm to identify potential biases in the indexing process.

Mr. Walker provided recent updates in the development of the Comparative Genomics Resource (CGR), a shared platform that facilitates reliable comparative genomics analyses for

all eukaryotic organisms in collaboration with the genomics research community. The Working Group highlighted the need for CGR, noting several challenges faced by investigators in fully harnessing the research potential of organism genomes: ensuring the reliability and high quality of public data (especially newly submitted data), collecting relevant gene- and genome scale sequence datasets that meet specific criteria, and expanding the scope of gathered data to include information beyond DNA sequences.

The CGR project is focused on delivering high-quality data and scalable analysis and enabling new discoveries through equitable access. Collaboration and connectivity within the research community were also emphasized. The CGR project has also been proactive in outreach efforts to stakeholders and the research community, with positive user feedback indicating an increasingly integrated experience across CGR resources and tools. Various engagement activities, such as feedback sessions, public meetings, blogs, social media interaction, and webinars, have collectively contributed to increases in awareness of CGR products. The Working Group identified medical librarians as a new potential stakeholder group to promote CGR products.

Ms. Babski introduced the NLM Data Catalog, a curated collection of biomedical datasets from NIH and public repositories. The initiative aligns with the goals of the NIH Strategic Plan for Data Science and the NLM Strategic Plan. Key objectives include enabling users to discover biomedical datasets across various repositories and standardizing metadata to support Semantic Web compatibility for broader data discovery. In addition, the NLM Data Catalog can assist in promoting the adoption and acceptance of the NLM standards within the research community. Underpinning the NLM Data Catalog, NLM developed a Dataset Metadata Model (DATMM), designed to describe biomedical research datasets to drive discoverability and re-use of shared research data. DATMM provides a unified framework for biomedical datasets, repositories, and discovery services, utilizing Resource Descriptive Framework (RDF) ontologies to simplify metadata harvesting and encourage widespread adoption. The catalog's design prioritizes a user-friendly experience and aligns with other NLM products' search functionalities.

The Working Group also discussed strategies for the BOR to initiate outreach activities aimed at soliciting initial feedback on the NLM products. The discussion extended to exploring ways in which BOR Working Groups can be leveraged to refine and promote other NLM products, with BOR members filling various roles, such as engaged stakeholders, domain experts, and connectors, as necessary. In addition, the Working Group expressed a preference for in-person meetings, noting that face-to-face interactions are more engaging and collaborative.

XII. PRESENTATION OF AWARDS

Patricia Flatley Brennan, RN, PhD, Director, NLM

Kristi Holmes, PhD, Chair, BOR

The NLM Director's Honors Award, recognizing the work of NIH employees who have made outstanding contributions to the NLM, was awarded to the following individuals:

- Ms. Mitzi-Ann Allen, Senior Budget Analyst in the Office of Financial Management. She was recognized for her leadership and work as a Budget Officer to improve the financial management of NLM.
- Ms. Alison Lemon, Supervisory Writer/Editor in the NLM Office of Communication and Public Liaison within the Office of the Director. She was recognized for her team

- leadership and efforts to improve internal communications within NLM.
- Ms. Leigh Samsel, NLM Planning & Evaluation Officer, Office of Strategic Initiatives. She was recognized for her reporting of NLM activities and her stewardship of NLM’s AIDS research portfolio.
 - Dr. Yanli Wang, Program Officer and Scientific Contact for Data Science, Bioinformatics, and the RADx-rad Data Coordination Center. She was recognized for her work to establish a central data resource and hub for NIH’s COVID-19 research data.

Dr. Brennan also presented the previously awarded NLM Director’s Honors Award to Mr. Todd Danielson.

Dr. Brennan presented the Regents Award for Scholarship or Technical Achievement, which recognizes scholarly and technical achievements that enrich biomedicine, to Ms. Stacey Arnesen, Deputy Chief of the Public Services Division of Library Operations. Ms. Arnesen was recognized for her scholarship and technical achievements; namely, an improved methodology for evaluating the veracity of information disseminated through social media.

Dr. Holmes presented the previously awarded Frank B. Rogers Award, which recognizes the work of NIH employees who have made significant contributions to NLM’s fundamental operational programs and services, to Ms. Renee Bougard and Ms. Elizabeth Mullen.

XIII. ADJOURNMENT

Dr. Holmes adjourned the BOR meeting at 12:00 p.m. on September 13, 2023.

Actions Taken by the Board of Regents:

- Approval of the May 9, 2023, BOR meeting minutes
- Approval of the September 9-10, 2025, meeting dates
- *En Bloc* Concurrence of Grants

Appendix A. Roster — Board of Regents

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

Stephen T. Sherry  Digitally signed by Stephen T. Sherry
-S Date: 2023.11.16 11:17:13 -05'00'

Stephen Sherry, PhD
Acting Director, National Library of Medicine

Kristi Holmes  Digitally signed by Kristi Holmes
Date: 2023.11.20 06:04:16 -07'00'

Kristi L. Holmes, PhD
Chair, NLM Board of Regents