DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
NATIONAL LIBRARY OF MEDICINE
MINUTES OF THE BOARD OF REGENTS MEETING
(VIRTUAL)
February 7, 2023

The 192nd meeting of the Board of Regents (BOR) was convened virtually on February 7, 2023, at 10 a.m. EST. The meeting was open to the public from 10 a.m. to 4:30 p.m., followed by a closed session that lasted until 5:00 p.m. The meeting adjourned at 5:00 p.m.

MEMBERS PRESENT (Appendix A):
Dr. Lourdes Baezconde-Garbanati, University of Southern California
Dr. James Cimino, University of Alabama at Birmingham
Dr. Kristi Holmes, Northwestern University
Ms. Jennie Lucca, The NIH Children's Inn
Dr. Omolola Ogunyemi, Charles R. Drew University of Medicine and Science
Dr. Heidi Rehm, Massachusetts General Hospital
Dr. Nancy Smider, Epic Systems Corporation

CONSULTANTS:
Dr. Andrew Clark, Cornell University
Dr. Mitchell Katz, New York Health + Hospitals
Mr. Philip Walker, Vanderbilt University

EX OFFICIO AND ALTERNATE MEMBERS PRESENT:
Col. Thomas Cantilina, United States Air Force
Ms. Jeane Garcia-Davis, Office of the Surgeon General, U.S. Public Health Service
Col. Kent DeZee, United States Army
Dr. Michelle Elekonich, National Science Foundation
Dr. Joseph Francis, Veterans Health Administration
Dr. Lauren Maggio, Uniformed Services University of the Health Sciences
Dr. Mary Mazanec, Library of Congress
Mr. Paul Wester, National Agricultural Library, U.S. Department of Agriculture
Dr. Hassan Tetteh, United States Navy

MEMBERS OF THE PUBLIC PRESENT
Mr. Glenorchy Campbell, Friends of the National Library of Medicine
Ms. Loretta Jurnak, Technical Resources International, Inc.
Ms. Barbara Redman, Friends of the National Library of Medicine
Ms. Joyce Wanga, Technical Resources International, Inc.
Dr. Chris Winchester, Oxford PharmaGenesis

FEDERAL EMPLOYEES/CONTRACTORS PRESENT

Dr. Patricia Flatley Brennan, Director, NLM
Mr. Jerry Sheehan, Deputy Director for Policy & External Affairs, NLM
Dr. Michael Huerta, Acting Deputy Director for Operations and Innovation, NLM
Mr. Terry Ahmed, Division of Library Operations, NLM
Ms. Stacey Arnesen, Division of Library Operations, NLM
Dr. Stacey Arnold, National Center for Biotechnology Information, NLM
Ms. Dianne Babski, Division of Library Operations, NLM
Ms. Annice Bergeris, National Center for Biotechnology Information, NLM
Dr. Olivier Bodenreider, Lister Hill National Center for Biomedical Communications, NLM
Dr. Noni Byrnes, Center for Scientific Review, NIH
Dr. Vera Cherkasova, Division of Extramural Programs, NLM
Mr. Todd Danielson, Office of the Director, NLM
Ms. Kathryn Funk, National Center for Biotechnology Information, NLM
Ms. Donna Davis, Division of Extramural Programs, NLM
Dr. Allison Dennis, Division of Extramural Programs, NLM
Dr. Nachiket Dharker, National Center for Biotechnology Information, NLM
Dr. Anna Fine, National Center for Biotechnology Information, NLM
Dr. Lisa Federer, Office of Strategic Initiatives, NLM
Dr. Valerie Florance, Acting Scientific Director, NLM
Dr. Elisa Golfinopoulous, Lister Hill National Center for Biomedical Communications, NLM
Dr. Lynda Hardy, Division of Extramural Programs, NLM
Dr. Zoe Huang, Division of Extramural Programs, NLM
Ms. Christine Ireland, Division of Extramural Programs, NLM
Ms. Natalie Johnson, Lister Hill Center for Biomedical Communications, NLM
Ms. Catherine Kihara, Office of the Director, NLM
Dr. David Landsman, National Center for Biotechnology Information, NLM
Dr. Zhiyong Lu, National Center for Biotechnology Information, NLM
Dr. Wei Ma, Office of Computer and Communications Systems, NLM
Ms. Jennifer Marill, Division of Library Operations, NLM
Dr. Clement McDonald, Office of the Director, NLM
Ms. Margaret McGhee, Division of Library Operations, NLM
Dr. Virginia Meyer, Office of the Director, NLM
Mr. James Mork, Lister Hill National Center for Biomedical Communications, NLM
Mr. Thomas Murphy, National Center for Biotechnology Information, NLM
Ms. Hibah Nazir, National Center for Biotechnology Information, NLM
Ms. Jody Nurik, Office of Communications and Public Liaison, NLM
Dr. Niels Olson, U.S. Department of Defense (Navy)
Dr. Richard Palmer, Division of Extramural Programs, NLM
Ms. Amie Park, Division of Extramural Programs, NLM
Ms. Alison Powell, Lister Hill National Center for Biomedical Communications, NLM
Dr. Kimberly Pruitt, National Center for Biotechnology Information, NLM
Dr. Veerasamy Ravichandran, Division of Extramural Programs, NLM
Ms. Christina Robinson, Lister Hill National Center for Biomedical Communications, NLM
Ms. Angela Ryder, National Institute of Allergy and Infectious Diseases, NIH
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. Meryl Sufian, Division of Extramural Programs, NLM
Ms. Samantha Tempchin, Division of Extramural Programs, NLM
Ms. Aida Tessema, Office of the Director, NLM
Ms. Kimberly Thomas, Office of Strategic Initiatives, NLM
Dr. Lauren Topper, Division of Library Operations, NLM
Dr. Tony Tse, National Center for Biotechnology Information, NLM
Dr. Yanli Wang, Division of Extramural Programs, NLM
Dr. Jeremy Weiss, Lister Hill National Center for Biomedical Communications, NLM
Ms. Amanda Wilson, Division of Library Operations, NLM
Dr. Teresa Zayas Cabán, Office of the Director, NLM

I. CALL TO ORDER AND INTRODUCTORY REMARKS

Dr. Heidi Rehm, Chair, BOR

Dr. Heidi Rehm 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/watch=48731

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

Ms. Jeane Garcia-Davis, Associate Director, 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 confront health misinformation, support efforts aimed at protecting youth mental health, and address health worker burnout, highlighting the Surgeon General's latest initiative focusing on workplace health and well-being.

The Surgeon General's Framework for Workplace Mental Health and Well-Being was launched in October 2022 with the goal of reimagining the workplace as an engine of well-being, as well as giving organizations a basis for reviewing institutional programs, practices, and policies that can best support the mental health and well-being of their workers. Ms. Garcia-Davis noted the framework was developed using evidence-based research combined with input from workers, workplace leaders, researchers, practitioners, associations, unions, and community-based organizations throughout the country who shared their stories and insight on workplace mental health.

The framework, based on universal human needs, consists of the Five Essentials necessary to support the mental health and well-being of workers: "Protection from Harm," based on the need for safety and security; "Connect and Community," based on the need for social support and belonging; "Work-Life Harmony," based on the need for autonomy and flexibility; "Mattering at Work," based on the need for dignity and meaning; and "Opportunity for Growth," based on the need for learning and accomplishment. In 2022, an American Psychological Association (APA) survey found that 81% of workers will be searching for future workplaces that support mental health. The Five Essentials in this framework can empower workers and guide leaders, managers, and supervisors to evaluate existing organizational programs and policies and identify areas of opportunity. Ms. Garcia-Davis also presented some of the downloadable graphics, toolkits, information and resource pages, videos, and reflection question slide decks available on the OSG website that can be used by organizations to enhance their employee mental health and wellness programs.

Ms. Garcia-Davis also mentioned some of the ongoing activities in partnership with the White House

and other federal agencies and organizations in the areas of youth mental health and access to health information. She highlighted the continued collaboration with the National Academy of Medicine (NAM) on health worker burnout and well-being. Engagements on loneliness and social isolation linked to these efforts are also forthcoming. House Calls, a bi-weekly podcast, was also recently launched. Finally, there are ongoing efforts to address other urgent public health issues such as tobacco use, other substance use, and gun violence.

BOR members discussed methods to evaluate the impact of the Surgeon General's framework on workplace wellness activities for agencies and organizations with large workforces such as NLM. Members also discussed the need for equitable access to culture- and language-based mental health resources, referrals, and services throughout the country.

III. SEPTEMBER 2022 MINUTES AND FUTURE MEETINGS

Dr. Heidi Rehm, Chair, BOR

Dr. Rehm noted the dates for future BOR meetings, including the Spring BOR Meeting which will be virtual and occur on May 9, 2023, and the addition of the Winter BOR Meeting date of February 4-5, 2025. There were no objections or conflicts noted.

Motion: The BOR approved the motion to accept the Winter BOR Meeting dates of February 4-5, 2025.

Motion: The BOR approved the motion to accept the minutes from the September 2022 meeting.

IV. REPORT FROM THE NLM DIRECTOR

Dr. Patricia Flatley Brennan, Director, NLM

Dr. Patricia Flatley Brennan welcomed and thanked the BOR, NLM senior leadership, and guests for their attendance. She introduced members of the NLM Leadership Team and noted the ongoing progress along all three pillars of the NLM Strategic Plan through the addition of new pathways and public outreach. Dr. Brennan presented a video interview with Dr. Eugene Koonin as an example of how NLM is harnessing the power of video to display and disseminate the work of NLM.

Across NLM, ongoing endeavors are focused on preparing for the future by promoting a nimble and secure NLM and pioneering new approaches to scientific communication. The Library Operations Long Range Plan for 2036 has been developed with a focus on collecting, connecting, and curating information resources. NLM is also a key contributor to the 2023 Federal Year of Open Science, led by the White House Office of Science and Technology Policy (OSTP), through its established public services and data repositories.

Dr. Brennan highlighted recent research advances, including intramural work focused on artificial intelligence (AI), automation, and data-powered health. She also reported on an updated Funding Opportunity Announcement (FOA) to support extramural research in biomedical informatics and data science and an updated Notice of Special Interest (NOSI) to stimulate new computational methods to enhance discovery from health data. NLM also continues to support NIH research programs, including through implementation of an modern, intuitive interface for the Science Experts Network Curriculum Vitae (SciENcv) that is used for grant submissions and partnering with the *All of Us* research program.

Dr. Brennan noted continued enhancements to several NLM resources. As of February 2023, the NLM Digital Repository includes 300 oral histories. The SARS-CoV-2 Variant Calling Pipeline was released by NCBI as part of the Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) initiative to facilitate analysis of SARS-CoV-2 in the cloud. NLM made improvements to the Sequence Read Archive (SRA) for data distribution and public engagement, and to the NIH Comparative Genomics Resource (CGR), which has added features and functions.

NLM presented an executive summary of NLM's Racial and Ethnic Equity Plan (REEP), developed to ensure Diversity, Equity, Inclusion and Accessibility (DEIA) within NLM operations and research, to an NIH-wide group on February 6, 2023. Dr. Brennan highlighted the bottom-up, grassroots approach being taken by NLM to both develop and implement the REEP. Specialized training on anti-racism are being made available to NLM staff. Efforts are ongoing to increase staff buy-in as the implementation of the REEP continues.

Dr. Brennan illustrated NIH's contributions to key milestones in the development of vaccines, therapeutics, diagnostics, and public outreach in response to the COVID-19 pandemic. NLM played a valuable role, making the SARS-CoV-2 sequence publicly available in 2020, and supporting pandemic research via its tools, data repositories, and literature resources.

Regarding the NLM budget for FY23, Dr. Brennan reported the annual appropriation of $497 million, an $18 million increase from FY22. As NLM nears the end of its 3-year building renovation project, the increased flexibility in the NLM budget is targeted to be used to implement new and innovative proposals.

Dr. Brennan also announced personnel changes, including new hires aimed at increasing evidence-based decision making and fiscal stewardship among NLM leadership. She also announced the retirement of Dr. Dennis Benson, Deputy Director of NCBI, after 42 years of Federal service.

Dr. Teresa Zayas Cabán described recent policy and legislative updates. The NIH Data Management and Sharing Policy went into effect on January 25, 2023. NLM staff played significant roles in developing the policy and associated supplemental materials. NLM also contributed to the World Health Organization (WHO) Guiding Principles for Pathogen Genome Data Sharing, promoting the broad global sharing of genome sequence data. The PREVENT Pandemics Act, included in the Consolidated Appropriations Act, signed in December 2022, aims to improve public health data standards and surveillance. NLM will seek opportunities to engage in its implementation.

BOR members discussed the NIH Preprint Pilot, which transitioned into Phase 2 in early 2023 and will include in PubMed Central preprints reporting on the full breadth of NIH-funded research, with an associated citation in PubMed. As the Pilot continues, NLM will continue to evaluate the utility of preprints as a tool for providing context for research data as it is made publicly available. NLM is sharing its experience with other government agencies. BOR members also discussed engaging with younger audiences through various social media platforms. Dr. Brennan highlighted "Musings from the Mezzanine," a blog hosted on the NLM website to disseminate health information and present the work of NLM.

V. WORKING GROUP BREAKOUTS

BOR members divided into four breakout groups. Representatives from the groups reported out on the discussions under section VI of the agenda.

VI. WORKING GROUP REPORTS

Strategic Planning

Dr. Joseph Francis reported for the Strategic Planning Working Group. The Working Group discussed the Strategic Plan framework with a focus on program evaluation, driven by the need to ensure NLM is using evidence to support and inform actionable decision-making. Regarding areas the Office of Strategic Initiatives (OSI) should prioritize and consider in refining the Strategic Plan framework and criteria, the Working Group categorized three potential areas for consideration: products/platforms unique to NLM (e.g., PubMed, ClinicalTrials.gov); areas where NLM is a contributor, but is not primarily involved (e.g., publishing, data sharing policies); and areas where NLM is not currently involved, but should consider.

The Working Group noted the importance of incorporating a feedback loop throughout the strategic evaluation process, including lessons learned from the past and future opportunities. Regarding areas that should be prioritized, the group discussed capabilities unique to NLM including communication and engagement with the public and conducting evaluations within the constraints of authority, culture, tradition, budget, and politics. The group discussed strategic evaluation questions that NLM should consider, including how NLM can be more innovative and educational in the products produced, how to incorporate innovation as a management strategy (and how to incorporate it into a valid evaluation strategy), the components of a trusted information source, and how NLM can ensure that resources are being used.

Research Frontiers

Dr. James Cimino reported for the Research Frontiers Working Group. Working Group members discussed the benefits and implications of generative AI, causal inference, and the incorporation of "big knowledge" in key health decisions. Regarding generative AI, or AI that produces new content (i.e., ChatGPT), issues related to ethics, plagiarism, and misinformation were noted. There is a need for a broader framework for the use of these programs and the way the biomedical community interacts with them. The group also discussed the impact on publications and current NLM tools, including whether NLM should serve as a repository for generative AI artifacts.

Regarding causal inference, the process used to differentiate between causation and correlation, the group discussed the potential use of identified tools to test existing data (rather than collecting new data) to reject and narrow down hypotheses. Examples and key publications were noted. The Working Group also discussed the incorporation of "big knowledge" (the knowledge derived from "big data") into health decisions. With the increased availability of personalized data (i.e., individual genome mapping), the ability to correlate phenotypes and potential recommendations based on machine learning was noted. The Working Group suggested that NLM determine how to represent this type of knowledge and integrate it into current workflows, with the goal to help and not overwhelm clinicians with too much data. It was also discussed how "bad data," especially if included in a publication, can be removed or discredited.

BOR members discussed NLM's potential role in the collection and use of "big knowledge," noting the potential use of NLM's intramural and extramural research programs. With the recent implementation of the NIH Data Sharing Policy, the role of external observational datasets and the tools required to share data were noted. Regarding the potential of generative AI to create and

promote inaccurate data, BOR members discussed NLM's role in promoting trust within the biomedical community. NLM is examining different aspects of promoting trust, noting the importance of reproducibility and NLM's role as a repository, not a fact-checker. The importance of electronic health records (EHRs) and case reports in promoting rare diseases and symptoms was also noted, as they provide real-life evidence currently missing in literature.

Public Services

Dr. Lourdes Baezconde-Garbanati reported for the Public Service Working Group. Dr. Baezconde-Garbanati thanked Working Group members and ClinicalTrials.gov staff for their continued support and participation in the ClinicalTrials.gov modernization effort, including Dr. Kent DeZee, who will be stepping down from the BOR and Working Group. With 16 Working Group meetings to date, recent progress was noted, including availability of the latest ClinicalTrials.gov and Protocol Registration and Results System (PRS) beta releases in January 2023. Beta releases have been smaller and more frequent to allow for, and incorporate, user feedback on new features. Per the Modernization Strategic Plan, the current ClinicalTrials.gov beta website will become the primary website by June 2023. A summary of the progress report for 2021-2022, which details updates during the past year, is currently available to the public.

Discussion of feedback regarding a proposal to give data submitters the option to provide access to Data Monitoring Committee (DMC) charters on ClinicalTrials.gov was also noted. More than half of Working Group members saw value in the linking of DMC charters posted on other websites to ClinicalTrials.gov records, should NLM decide to move forward with this proposal. Upcoming Working Group activities include a virtual public meeting anticipated for April 25, 2023, providing the opportunity to share and discuss features of the beta sites.

Collections

Mr. Paul Wester reported for the Collections Working Group. Several topics were discussed including: PMC Language Expansion Program and Spanish language journals; monitoring of publication changes for MEDLINE and PMC journals; and recent advances on the NIH Comparative Genomics Resource and NIH Preprint Pilot.

In general, the Working Group was supportive of these efforts and discussed the need for NLM to prioritize these activities in relation to and in support of the NIH-wide DEIA Framework. The importance of transparency, trust, and sustainability was noted, along with the need for data-driven approaches to information analysis underlying these activities.

Regarding the PMC Language Expansion Program and Spanish language journals, the introduction of the Spanish language journals in PMC is anticipated to begin as a pilot project in March 2023. Working Group members discussed standards for inclusion and how these products relate to the overall NLM collection. They also discussed the analysis of underrepresented journals and how journals will be evaluated.

For monitoring of publication changes for MEDLINE and PMC journals, the group appreciated the data-driven approach to understanding the relationship between included in these resources and the changes that can occur in their scope and practices.

Working Group members were provided with an update on discussions during the NIH CGR

Working Group sessions, including functionality exercises performed to determine ways to improve the tool overall. Both the collection and analysis of stakeholder feedback was also discussed.

With the launch of Phase 2 of the NIH Preprint Pilot in early February 2023, Working Group members discussed the changing notions of first-class research objects and their categorization and relationships within the different tools and processes at NLM.

VII. REPORT FROM THE CENTER FOR SCIENTIFIC REVIEW, NIH

Dr. Noni Byrnes, Director, Center for Scientific Review, NIH

Dr. Noni Byrnes provided an update on the NIH Center for Scientific Review's (CSR's) initiatives to strengthen peer review with an emphasis on study section evaluation, reviewer training, a mechanism for direct bias reporting, proposed changes to the review framework for Research Project Grants (RPGs) and National Research Service Award (NRSA) fellowships, and strategies to broaden and diversify the pool of reviewers. These initiatives help to make progress towards the five overarching goals of CSR's 2022-2027 Strategic Plan relating to study sections, reviewers, CSR staff, peer review process, and operational principles, noting that the plan was built on an existing strategic framework from 2019. All five goals advance CSR's mission to ensure NIH grant applications receive fair, independent, expert, and timely scientific review free from inappropriate influences so that NIH can identify and fund the most promising research. She also discussed the scope of CSR operations, noting the types of reviews provided specifically to NLM, including Research Project (R01), Small Business Innovation Research (SBIR), and Small Business Technology Transfer (STTR) grant applications, and fellowship applications, and acknowledged the work of the numerous working groups necessary in achieving these CSR initiatives.

Evaluation of study sections follow a systematic, data-driven, and continuous process. Launched in 2019, the Evaluating Panel Quality in Review (ENQUIRE) process involves an assessment of CSR study sections, evaluating approximately 20% of CSR study sections each year, with the goal that each section will be evaluated every five years. Dr. Byrnes described the two stages of the review process; Stage 1 which involves a scientific review, and Stage 2 which involves a process review. Together, the stages will ensure study sections are relevant and adequate to identify the highest impact research, with special attention on emerging areas of science. She also described the multiple step process for implementing new or restructured study sections.

The reviewer training program was centralized in 2022, with the establishment of the Office of Training and Development within the CSR Office of the Director. Dr. Miriam Mintzer was named the director of the new office overseeing various aspects of training and development, including reviewer training, extramural administrative staff training, new Scientific Review Officer training, continuing education, systems and tools, and policy resources/handbook. Dr. Byrnes described several specific trainings, including CSR's Bias Awareness and Mitigation Training for Reviewers, Chair Orientation Sessions, and CSR's Review Integrity Training Module, which was updated in August 2022. Both the Bias Awareness and Review Integrity Training will be made mandatory for all NIH reviewers in the future.

A direct bias reporting mechanism, established in 2021, is available to applicants, reviewers, and NIH staff. All allegations of bias or unfair review are investigated by CSR; if CSR agrees with the allegation, the application will be re-reviewed. An appeals process, including follow-up with the reviewer, exists for those allegations with which CSR is not in agreement.

Dr. Byrnes also reviewed the proposed changes to the review framework for RPGs focusing on reducing administrative burden on the reviewer and mitigating reputational bias in the peer review process. She described the current RPG review criteria and scoring method, noting that the proposed changes to the review framework will allow the evaluation of the investigator and the environment to occur within the context of the proposed research project. The current status of the framework was discussed including a Request for Information (RFI) on the proposed changes, which is open until March 10, 2023.

The proposed changes to the NRSA fellowship review framework reflect NIH's concern that reputational bias in the review process is leaving out highly promising young scientists due to a process that heavily favors a small number of elite academic institutions. The first proposed change is to revise the fellowship application section by eliminating grades, revising the Sponsors, Collaborators, and Consultants section to emphasize the sponsor's training/mentorship approach and plans for the student, revising the framework for the letters of reference to discourage boilerplate language, and allowing an optional statement of special circumstance. The second proposed change is to revise the review criteria with the focus on highlighting the potential of the applicant, strength of science, and quality of training plan and resources. These proposed changes were approved by the full CSR Advisory Council, endorsed by NIH leadership, and are currently undergoing further development and implementation.

Finally, Dr. Byrnes described the strategies being implemented to broaden the pool of reviewers including the development of the CSR Reviewer Finder Tool to find lesser known, qualified reviewers and the expansion of the Early Career Reviewer (ECR) Program. The need to diversify review panels, promote the critical need for NIH to hear diverse perspectives in the peer review process, the structure of the current study sections and special emphasis panels, and the availability of supporting data were also discussed.

BOR members discussed the importance of identifying quality reviewers that are familiar with the health care safety net and the issues surrounding health disparities. Members also discussed the issues surrounding the optional statement of special circumstances and asked questions regarding the process for considering the investigator's data sharing history when awarding grants and assessing the impact of changes to the CSR peer review process.

VIII. AUTOMATED INDEXING OF MEDLINE CITATATIONS

Ms. Dianne Babski, Associate Director for Library Operations, NLM
Mr. James Mork, Acting Chief, Applied Clinical Informatics Branch, Lister Hill National Center for Biomedical Communications, NLM

Ms. Dianne Babski and Mr. James Mork presented an overview of NLM's transition to automated indexing for MEDLINE citations, a process which supports the first goal of the NLM Strategic Plan to accelerate discovery and advance human health by providing the tools for data-driven research. MEDLINE, a bibliographic database containing over 30 million citations, is the largest subset of PubMed. MEDLINE citations are indexed with Medical Subject Headings (MeSH) and other metadata to better facilitate search, discovery, and navigation through the database. Historically, the indexing of citations was done manually; however, substantial growth in the number of citations revealed a need for a different solution to index new citations more efficiently, and NLM began work on computer-assisted indexing. In 2017, NLM launched a five-year development plan, the MEDLINE 2022 Initiative, to utilize AI and machine learning resources of NLM along with human expertise to fully automate MEDLINE indexing.

Mr. Mork presented the NLM Medical Text Indexer (MTI) algorithm, developed in collaboration with MEDLINE indexers, to automate indexing and extract metadata. Since its introduction in 2002, MTI has been refined and trained over time to achieve a more active role in the indexing process. Notably, in 2011, MTI was used as the first-line indexer for some scientific journals; by 2020, MTI Automatic (MTIA) performed fully automatic indexing of 8 journals with select human review. As of April 2022, all journals which publish citations to MEDLINE are indexed by MTIA. Looking to the future, NLM will continue to develop and refine MTI Next Generation (MTIX), thereby accelerating the indexing of new submissions with the inclusion of machine and deep learning. Because of increased efficiency with the transition to automated indexing, Ms. Babski noted that the backlog of citations has been eliminated and MeSH indexing of new citations can now be completed within 24 hours. Next, NLM aims to apply automated curation to chemical and gene information and is researching whether to also apply automation to data review.

BOR members discussed additional potential applications for the MTI to other NLM tools; Mr. Mork noted that diverse stakeholders have already expressed interest in using MTI, and a web-based Application Programming Interface (API) of MTI is available for public use. Members also discussed the ongoing role of MEDLINE staff in refining the MTI algorithm and performing quality assurance checks on the automated indexing. Ms. Babski noted the annual release of MeSH. She also commented on the 2023 release, which was updated through our MeSH review team and incorporated a review of population terms based on public feedback in collaboration with the NIH Office of Behavioral and Social Sciences Research (OBSSR).

IX. NLM INFORMATION RESOURCE GRANTS TO INCREASE HEALTH EQUITY - CONCEPT CLEARANCE

Dr. Lynda Hardy, Division of Extramural Programs, NLM

Dr. Lynda Hardy presented on the proposed reissue of NLM's Information Resource Grants to Increase Health Equity (G08). The goal of this mechanism is to provide accurate, understandable health information to empower populations that experience health disparities. Projects funded by this funding opportunity are encouraged to use information technology to ensure the dissemination of accurate and unbiased information to individuals and their providers.

Consistent with current Healthy People 2030 recommendations that encourage the elimination of health disparities by achieving health equity, the G08 funding opportunity focuses on health equity through focused efforts to address avoidable inequalities, historical and contemporary injustices, and social determinants of health to eliminate disparities in health and health care. The program addresses the impact of the digital divide for these populations using improved information technology methods.

Examples of G08 funded research were noted including a CONSENT-ASL Toolkit for deaf and hard of hearing people and the development of user-friendly and easily accessible resources to advance library and academic medical center partnerships to navigate wellness and scale preventive services. Historically, academic institutions submitted the bulk of G08 applications (82%), followed by public health, health services, research, and other departments (18%).

The proposed G08 program reissue will continue to provide resources for projects to disseminate accurate, useful, usable, and understandable health information to health disparity populations and their providers. Proposed changes include the inclusion of an evaluation plan, evidence or a plan for resource sustainability, and an increase of the application funding level from $150,000 to $200,000

to ensure sustainability and cover the cost of evaluation.

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

X. NLM GRANTS FOR SCHOLARLY WORKS IN BIOMEDICINE AND HEALTH - CONCEPT CLEARANCE

Dr. Veerasamy Ravichandran, Division of Extramural Programs, NLM

The NLM Grants for Scholarly Works in Biomedicine and Health (G13) supports grant applications for the preparation of book-length manuscripts and other academic and/or public health works of value to U.S. health professionals, public health officials, biomedical researchers, and historians of the health sciences. The G13 program supports major critical reviews, state-of-the-art summaries, historical studies, and other useful organizations of knowledge in clinical medicine, public health, biomedical research, and the informatics/information sciences relating to them. The resulting works may be prepared for publication in print, electronic media, or both.

Dr. Ravichandran noted a wide range of topics covered by the program, including but not limited to public health, life sciences, bioethics, bioinformatics, health communications, and health sciences librarianship. The grant program currently provides support up to $50,000 per year for up to 3 years. Between 2013 and 2022, NLM received 365 applications responding to the G13 FOA. The 39 applications funded produced nine monographs, two scholarly articles, two e-resources, and one textbook. Additional secondary outcomes included monographs, a website, scholarly articles, and e-books.

With the reissue, to further boost the impact of the G13 program, NLM proposes the following changes to current operations:

- Provide support only the writing phase and no longer any archival research to ensure that works are completed;
- Require applicants to provide milestones for producing their scholarly work to ensure completion in a timely manner;
- Limit awards to one per person to broaden support to a more diverse set of investigators, particularly Early-Stage Investigators and those with no prior published works;
- To ensure sufficient time to complete the project, provide support to cover 50% of the PI's effort per year for two years, instead of the current three years of support at $50,000 per year maximum.

BOR members discussed timelines for applicants to finish projects, applicability to international research. Per BOR request, a listing of scholarly works previously funded will be provided for review.

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

XI. APPOINTMENT OF NOMINATING COMMITTEE FOR NEXT BOR CHAIR

Heidi Rehm, PhD, Chair, BOR

Drs. Lauren Maggio, Mary Mazanec, and Joseph Francis agreed to serve on the nominating committee for the next BOR chair. They will review eligible candidates and report to the BORat the next meeting.

XII. CLOSED PORTION

The closed portion of the meeting took place from 4:30 p.m. to 5:00 p.m. The Board of Regents reviewed and approved for further consideration during *en bloc* concurrence, a total of 204 applications with the requested direct cost amount of $216,495,004.

XIII. ADJOURNMENT

Dr. Rehm adjourned the BOR meeting at 5:00 p.m. on February 7, 2023.

Actions Taken by the Board of Regents:

- Approval of the September 13, 2022, BOR meeting minutes
- Approval of the February 4-5, 2025, meeting dates
- Approval of Concept Clearance for NLM Information Resource Grants to Increase Health Equity
- Approval of Concept Clearance for NLM Grants for Scholarly Works in Biomedicine and Health
- Approval of Revised Grant Operating Procedures
- *En Bloc* Approval of Grants

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
Director, National Library of Medicine

Heidi L. Rehm, PhD
Chair, NLM Board of Regents