PREPARED STATEMENT OF PATRICIA FLATLEY BRENNAN, RN, PhD DIRECTOR, NATIONAL LIBRARY OF MEDICINE

Madam Chairwoman and Members of the Subcommittee: I am pleased to have this opportunity to speak to you about the exciting work taking place at the National Library of Medicine of the National Institutes of Health (NIH).

ACCELERATING BIOMEDICAL DISCOVERY & DAT A-POWERED HEAL TH

The National Library of Medicine (NLM) plays an essential role in catalyzing
basic biomedical science through its cutting-edge data science and informatics research, comprehensive information systems, and extensive research training programs. As the world's largest biomedical library, NLM acquires, organizes, and delivers up-to-date biomedical information across the United States and around the globe. NLM operates some of the most heavily used Federal websites. Millions of data scientists, health professionals, and members ofthe public use NLM' s electronic information sources every day to translate research results into new treatments, products, and practices and
provide the foundation for clinical decision making by health professionals and patients.

Leveraging its 180-year history of organizing and disseminating biomedical
literature, NLM is committed to the application of emerging data science capabilities to
challenges in biomedical research and public health. It does this by enhancing its data
and information resources and providing leadership in both the acquisition and analysis
of data for discovery. It continues to expand the (data)Tj 0.0197 c 4d Millions provide0.0151 Tc 5.732 0 (in)j 0j 0.0102 Tc 0.921

medicine discoveries available and more understandable to patients. Biomedical informatics research is yielding advanced analytical methods and tools for use against large scale data generated from clinical care, leading to fuller understanding ofthe effects of medications and procedures as well as individual factors important in the prevention and treatment of disease processes.

Recognized as a leader in clinical information analytics, NLM supports and
conducts research in areas such as medical language processing, high-speed access to biomedical information, analysis and use of high quality imaging data, health data standards; and analysis of large databases of clinical and administrative data to predict patient outcomes and validate findings from clinical research studies. Leveraging extensive machine learning experience and field-based projects, NLM is now advancing analytical tools and deep learning techniques for application in image analysis research.

NLM' s biomedical informatics research also addresses issues in computational biology. Research creates new ways to represent and link together genomic and biological data and biomedical literature and produces analytic software tools for gaining insights in areas such as genetic mutational patterns and factors in disease, molecular binding, and protein structure and function.

Last year, NLM established a new partnership with the National Science Foundation to support research on advanced analytical methods specifically applied to health.

BIOMEDICAL INFORMATION SYSTEMS FOR RESEARCH AND HEALTH

NLM develops and operates a set of richly linked databases that promote
scientific breakthroughs and play an essential role in all phases of research and innovation. Every day, NLM receives up to 15 terabytes ofnew data and information, enhances their quality to

NNLM partners with local, state, and national disaster preparedness and
response efforts to promote more effective use of libraries and librarians and ensure access to health information in disasters and emergencies. NNLM also plays an important role in increasing the capacity of research libraries and librarians to support data science and improve institutional capacity in management and analysis of biomedical data.

CONCLUSION

To conclude, through its research, information systems and public engagement, NLM supports discovery and the clinical application of knowledge to improve health. Its programs provide important foundations for the field of biomedical informatics and data science, bringing the methods and concepts of computational, informational, quantitative, social, behavioral, and engineering sciences to bear on problems related to basic biomedical and behavioral research, health care, public health, and consumer use of health-related information.

Patricia Flatley Brennan, RN, PhD Director,