A new vision for the National Library of Medicine

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This summer, with the retirement of Donald A.B. Lindberg, MD, after 31 years from the National Library of Medicine (NLM), the National Institutes of Health director, Francis Collins, MD, PhD, charged the NLM working group to articulate a new, strategic vision for the NLM. The NLM has been a tremendous supporter of informatics, and this new report provides insight into the role that NLM will play in the future. It articulates a vision for how the NLM can continue to be a trustworthy source of biomedical data and information, an advocate for open science, a proponent of the next generation of data scientists, a protector of the legacy of the past, and a vital partner for those who are generating biomedical knowledge for the future.

THE NLM IS AN INTERNATIONALLY RECOGNIZED ASSET OF THE NIH

The NLM working group put out a request for information (RFI) (see http://www.nlm.nih.gov/news/nih_rfi_nlm_working_group.html) and received over 650 responses both domestically and internationally. The training programs and programs that provided access to medical information such as PubMed and Clinicaltrials.gov were widely praised. It is clear that the NLM is often the most prominent, externally facing part of the NIH, and continued success at the NLM will benefit the NIH as a whole.

The working group, however, challenged the NLM to think strategically about how to evolve and maintain that leadership role. Creating an NLM that will become the “epicenter” of data science activities with a commitment to training and education is at the heart of the recommendations. The report also leaves room for NLM, along with external partners and allies, to help support a strategic vision that even goes beyond the recommendations. AMIA’s role is important in supporting both the near and far vision for NLM.

The report (Eric Green [co-chair], 2015) suggests a vision that will allow the new NLM director to assess the situation and to create a strategic path for the future. It is not prescriptive about how to reach that future. It suggests a functional review of the organization so that the resources and personnel are aligned to best evolve the organization.

THE FUTURE FOCUS WILL BE ON DATA SCIENCES

The report highlights the rising importance of data sciences in computational-based research and recommends that the NLM should become the epicenter for data sciences at the NIH. Specifically, it recommended that the NLM become the home for the Big Data to Knowledge (BD2K) program. It also suggested that the NLM should nurture leadership in the areas of data sciences and create a national talent pool of science and engineering of electronic health records (EHRs), analysis of biomedical text, the integration of diverse and multimodal datasets, the application of novel computational and statistical methods to extract knowledge, and future domains that involve extracting data and producing knowledge from digital health sources.

This suggests that data sciences, as defined by the NLM working group report, include many of the traditional research areas of informatics. In fact, the report defines data sciences as the overarching concept, with multiple contributing technical disciplines including computer science, statistics, bioinformatics, biostatistics, computational biology, medical informatics, information science, and quantitative biology.

TRAINING THE NEXT GENERATION OF DATA SCIENCE PROFESSIONALS REMAINS A PRIORITY

The public comments on the RFI confirmed the importance of training and education in biomedical informatics, data sciences, library sciences, and related disciplines. The report recommends efforts from high school students through post-doctoral programs, suggested both research and applied educational offerings, and emphasized interdisciplinary training.

The report suggests that training may be more widely distributed in the future—partnerships with other NIH institutes, federal agencies, and outside institutions are encouraged, and will likely be necessary if the expanded education and training charge are to be fulfilled.

AMIA CAN LEAD THE WAY

Data (data science) is important, but being able to translate that data into knowledge, and operationalize it, is even more important. We should think boldly not only about computational data, but also computational knowledge. Scientists take computational data sets, analyze them, and then report the knowledge gained through paragraphs and prose. We can do better. The informatics community should support computational ways to share the knowledge generated from this data and partner with the data scientists to meet this challenge. It is an opportunity for the informatics and data scientists to work together and the American Medical Informatics Association (AMIA) can provide that home as we continue to guide and support the NLM.

AMIA is a professional home for informatics professionals, and by embracing the NLM vision, it can also be a place for the people who call themselves data scientists. We should welcome them into the diversity that makes AMIA strong.

REFERENCES


The purpose of the Messages from AMIA section is to provide a forum for AMIA to inform and involve its current and potential members about the goals and directions of the association. These messages, which reflect the directions and opinions of AMIA leaders only, are intended to inspire members and readers to connect with the association on strategic objectives and activities. See also http://www.amia.org/presidents-page.