Chairman’s column: health informatics and healthcare transformation—entering the post-EMR era

One of my favorite cartoons by John Chase shows a drunk holding a bottle while sitting in an alley looking at a normal distribution curve on the wall with an ‘x’ marking a very early point on the curve; the caption says ‘You are here.’ It still feels that way at times in biomedical informatics. With respect to healthcare transformation and the contribution we all hope biomedical informatics will play, it nevertheless feels as though we are still early on—there have been many significant contributions from our field, but there are many more to go.

Certainly the healthcare environment is changing dramatically under our feet. The evolution from healthcare reimbursement based upon fee-for-service and maximizing volume of care delivered toward reimbursement based upon bundled (or at risk in any form) payments and maximizing the value of care delivered will take at least a decade, or more. The aging population is increasing the burden of chronic disease, and the shift from commercial to public insurance is reducing once generous healthcare margins to the minimum. Times are tough all over. If the fundamental theorem of informatics is to improve care with the application of information and communication technologies, then informatics prime objective is to increase the value of services rendered—simply considered: value=quality/cost.

A PATH FORWARD

We are entering a post-electronic medical records (EMR) era—one where the goals and objectives of health information technology adoption are largely met but the transformation we need is not yet achieved. We have a distance to go still on enhancing the exchange of health information, and equally on generalizing sharing clinical data for basic research and operations improvement purposes, and we have a long way to go on generalizing and delivering on the promise of ‘personalized, predictive, preventive, and participatory’ medicine. It is absolutely necessary that we deliver on the value proposition for this country’s extraordinary investment in health information technologies.

Recent reports (PCAST, JASON, ONC Connecting Health and Care) point toward an approach. In the post-EMR era, next-generation health information technologies will be in the hands of both patients (and their proxies) as well as providers and care teams, and connected to data sources in diverse care settings, and at home. Seamless information exchange will need to occur across a heterogeneous array of technologies to allow a coordinated regional (or even global) view of care management, and facilitate collaboration around a shared care plan. As my bank balance and credit risk score are known throughout the financial ecosystem, so my health status and disease risk should be known securely and confidentially, and only as I permit, across my health and wellness ecosystem.

Given that no single application or system will ever have complete reach across the health and wellness ecosystem, this implies that next-generation health information technologies will need to provide means to interact appropriately with remote, disparate systems to exchange information about shared patients, and to access an array of tools and services via APIs (application programming interfaces) to support care (eg, clinical decision support, phenotype extraction from clinical data, population health). This also implies that we need to envelop data with sufficient metadata so that it is essentially self-describing and can be interpreted and used appropriately across time and space in the healthcare ecosystem. This also implies that patients have an ability to control access and use of their data in ways they deem appropriate, in a secure and confidential manner, and perhaps earn a reward for data sharing for the purposes of research. And, this implies that potentially competing healthcare delivery organizations appropriately share patient information, and developers of health information technologies for patients and providers alike design their products with sharing data in a patient-centered manner. Only rapid alignment around these broad principles can possibly prepare our patients and providers, and secondarily our technologies, for the era of Big Data as we see patients adopt quantified self-applications and genomic, geospatial, social, and environmental data come online, and we see the ‘internet of things’ wire the healthcare ecosystem.

INFORMATICS IS KEY

Biomedical informatics methods and technologies, and biomedical informaticians, therefore, play a key role in enabling the transformation of US healthcare. We need to continue to pursue fundamental AMIA strategic goals and objectives: to increase research and understanding in informatics, to enhance the applied practice of informatics, and to expand the workforce of professionally qualified informaticians from all communities engaged in this endeavor. The AMIA Board of Directors has sponsored creation of an ‘EHR 2020’ task force to create a vision for and a path toward next-generation health information technologies. Another task force is charting the informatics competencies needed among clinical informatics practitioners in healthcare delivery organizations. And, AMIA is committed to the professional certification of clinicians and other health professionals, and others working at the interface of clinical practice, research, and technology (clinical informatics board certification for physicians, and advanced interprofessional clinical informatics certification for health professionals).

These are truly exciting times! I look forward to seeing you at our AMIA 2014 Annual Symposium, November 15–19, Washington, DC.
REFERENCES

11. President’s Council of Advisors on Science and Technology. Realizing The Full Potential Of Health Information Technology To Improve Healthcare For Americans: The Path Forward. 2010:1–108.