The HITECH Era in Retrospect

John D. Halamka, M.D., and Micky Tripathi, Ph.D.

At a high level, the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 accomplished something miraculous: the vast majority of U.S. hospitals and physicians are now active users of electronic health record (EHR) systems. No other sector of the U.S. economy of similar size (one sixth of the gross domestic product) and complexity (more than 5000 hospitals and more than 500,000 physicians) has undergone such rapid computerization.

Along the way, however, we lost the hearts and minds of clinicians. We overwhelmed them with confusing layers of regulations. We tried to drive cultural change with legislation. We expected interoperability without first building the enabling tools. In a sense, we gave clinicians suboptimal cars, didn't build roads, and then blamed them for not driving.

Burdensome requirements imposed costs on providers and vendors without offering sustained benefit. These deficiencies were manifested in five key areas: usability, workflow, innovation, interoperability, and patient engagement.

The Centers for Medicare and Medicaid Services (CMS) and the Office of the National Coordinator for Health Information Technology (ONC) set ambitious requirements for "meaningful use" of health information technology (IT) to ensure that Medicare and Medicaid would get value from their large investment on a fixed timeline. But in the absence of business and clinical drivers for change (HITECH predated the Affordable Care Act by more than a year), meaningful use came to be used as a de facto vehicle for transforming health care delivery — a purpose for which, as a technology investment program, it was not adequate.

This approach led to complex requirements that stressed processes more than outcomes, telling providers not only what they should do with their EHRs but also how they should use them. For example, quality measurement added data collection requirements that had a substantial negative effect on usability with little return; performance was not connected with payments. Providers bristled at externally imposed process-oriented requirements that dictated their user experience without a corresponding change in reimbursement policies or clinical best practices.

This challenging situation became untenable for daily practice workflow when meaningful use was added to other disconnected regulatory requirements, including the *International Classification of Diseases*, 10th Revision (ICD-10), the Omnibus Rule of the Health Information Portability and Accountability Act (HIPAA), and new payment models from commercial and government accountable care organization (ACO) programs. Soon physicians were expected to provide high-quality and empathic care in a 12-minute visit while weaning themselves from paper-based workflows, entering the numerous structured data elements required for meaningful use, rolling out new HIPAA privacy notices, implementing security protections for new electronic data, learning and incorporating new ICD-10 billing codes, and convincing their patients to use patient portals and secure e-mail, all while avoiding safety and malpractice issues. Instead of being a gift horse that reduced clinician burden, the EHR became an expensive Trojan horse loaded with an array of new regulatory requirements.

It wasn't just the providers who suddenly faced an avalanche of requirements. EHR vendors seeking to innovate had to meet complex certification requirements, administered by ONC-authorized testing companies, that imposed not only direct costs, but large opportunity costs as well. Development resources had to be diverted to programming of complex certification requirements to meet the technical, functional, and workflow requirements of meaningful use, which left little available capacity for innovation and product development based on user experience. Over time, providers and vendors began to perceive meaningful use as yet another check-the-box compliance program.

Furthermore, meaningful use

set unrealistic expectations for interoperability. Though it did not specify a nationwide patient-matching strategy, create a nationwide directory of provider electronic addresses, forge a single set of consent or privacy guidelines, or define governance for deciding who could exchange what for various purposes, it set requirements with the assumption that interoperability could somehow skip over such essentials.

Instead of recognizing the work that needed to be done on these foundational items, some policymakers invented the myth of "information blocking" as the root cause for lack of data flow. Our 50-plus combined years in the health IT industry have taught us that when technology, policy, and business needs are aligned, data flow.

As health care organizations have moved to value-based purchasing, they are finding that data sharing is a business imperative. The needs of care management are now creating genuine demand for interoperability services, such as "pushing" data to support referrals and transitions and "pulling" data for unscheduled visits such as emergency care.

The meaningful use program did not stress any outcome from data sharing. Instead, it required a specific technology and set a process goal: adopt secure e-mail and count the number of messages sent. Many organizations set up "dead letter boxes" to send secure e-mail and comply with the requirement without ensuring that any clinical benefit was provided.

Today, the private sector is meeting burgeoning demand for interoperability with nationwide, standards-based networks that solve key issues such as patient matching, provider directories, uniform consent and privacy policies, data governance, common contracts, and well-defined business cases. Such networks include Carequality, CommonWell, DirectTrust, Epic's CareEverywhere, and Surescripts at the national level, as well as regionally focused health information exchange networks such as those in Indiana, Maine, Maryland, and Massachusetts. They also now include record sharing with government entities such as the Department of Defense (DOD), the Department of Veterans Affairs (VA), and the Social Security Administration (SSA).

Standards obviously play a key role in interoperability, and meaningful use has done much to accelerate the implementation of vocabulary standards such as SNOMED-CT (Systematized Nomenclature of Medicine — Clinical Terms), LOINC (Logical Observation Identifiers Names and Codes), and RxNorm, which have been widely adopted. Emerging open standards such as FHIR (Fast Healthcare Interoperability Resources), based on modern Internet conventions, are being embraced by the industry and are attracting companies and developers from outside health care to build innovative business models and technology platforms that are already reshaping the industry.

In terms of patient engagement, early attempts such as Blue Button (allowing patients to download text files of parts of their records) were well-intended efforts that ultimately did little to engage patients. One success of meaningful use was creating an imperative, and mechanisms, for giving patients access to their medical records, albeit through unwieldy, EHR-tethered patient portals. If we want patients to be engaged to help reduce the burden of care coordination, care plan tracking, and communication, we need modern tools that enable patients to interact with their providers using devices and workflows that are already part of their daily lives. Many companies are now offering such tools.

HITECH has played an invaluable role in accelerating the adoption of EHRs throughout the country. We believe that now is the time to step back and recalibrate the role of the federal government on the basis of lessons learned.

First, requirements related to meaningful use and the Merit-Based Incentive Payment System (MIPS) introduced by CMS could be dramatically simplified to focus on interoperability and a streamlined set of outcome-oriented quality measures. Second, EHR certification could focus exclusively on interoperability capabilities by setting up a public test server and reporting on EHR vendors' success in reading and writing medical records on it.

Third, interoperability could be encouraged by market action rather than by regulation. The ONC, CMS, DOD, VA, SSA, and other federal agencies could actively encourage private-sector networks to connect with each other using open industry standards, much as wireless and automated-teller networks have done. Finally, we could offer incentives for the adop-

tion of open industry application programming interface (API) standards, such as FHIR, for provider–patient, provider–provider, provider–payer, and payer–patient interactions.

The HITECH era was an important catalyst for EHR adoption, and the industry benefited from government intervention. If the post-HITECH era can return control of the agenda to customers, developers, and multistakeholder collaborations, we should be able to recapture the hearts and minds of our clinicians.

Disclosure forms provided by the authors are available at NEJM.org.

From Beth Israel Deaconess Medical Center and Harvard Medical School, Boston (J.D.H.), and the Massachusetts eHealth Collaborative, Waltham (M.T.) — both in Massachusetts.

DOI: 10.1056/NEJMp1709851