Electronic Health Records in the Age of Social Networks and Global Telecommunications

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On August 20, 2009, the US government announced $1.2 billion in new grants as part of the American Recovery and Reinvestment Act to promote "meaningful use" of electronic health records (EHRs) by all individuals in 2011,[1] and to support the development of mechanisms for information sharing through EHRs in the United States. This investment is happening at a time of massive reduction in the costs of data collection, exchange, and storage; of convergence of technologies; and massive public adoption of smart telephones and online social media.

In this Commentary, we propose some components for consideration during the development of the EHR network that will emerge in the United States. This proposal recognizes that these important trends create a unique opportunity for the emergence of a national system of interconnected EHRs in the United States and for a rethinking of how EHRs are constructed and used, and to promote a truly people-centered health care system.[2] This proposed framework includes 7 components based on resources and knowledge that exist today, and may contribute to current efforts to provide the public with access to tools that meet the public's needs and expectations.

Tools to Promote Health, Not Only to Treat Diseases

Health and illness are not merely biomedical conditions, but also encompass significant psychological and social dimensions.[3] The concept of "patient centered care" that emerged from this recognition and the more general notion of "people-centered health," acknowledge the multiple contexts of individuals' lives and the web of relationships and interactions they have with the (social) environment. It promotes partnership, involvement, and empowerment. Up to now, most EHR systems have been designed to meet the needs of episodic clinical encounters between patients and health care professionals, and around the diagnosis and treatment of diseases. The next generation of EHRs should include tools designed to facilitate improvement in functional health literacy levels, participation in self-care, health promotion, and disease prevention efforts by the public. Although by definition EHRs are controlled and managed by authorized clinicians and other staff of 1 or more health care organizations, an important element would be to allow patients access to their own information online.[4]

See also p 450.

Fully Integrated and Interoperable Components

The development of standards to allow for data interchange, semantic interoperability, and data security has been—and will continue to be—a major issue in the development of health information technology. However, many initiatives to date are at the local level. The current impetus to create a national network of interconnected EHR systems in the United States is also creating ideal conditions for development of a global set of standards for the generation and exchange of health information, similar to what happened in the financial world in the 20th century. To achieve this goal, strong collaborative efforts could be pursued with other regions such as Europe, in which strong efforts are being made to harmonize all elements of the digital health information landscape.

Incorporation of Multimedia

Most EHRs rely heavily on the ability of health care professionals to populate databases with jargon-rich text typed on a keyboard. It is now possible to replace cryptic text with natural language enriched by audio or video recordings of interactions between members of the public and the health care system. This could not only minimize the interference of data entry with communication, but also maintain the significant narrative component of the record in a most authentic form, while preserving the multiple cues and personal focus needed by those individuals facing health challenges. Rich multimedia has the potential to reduce ambiguity and enhance performance in complex tasks.[5] The incorporation of multimedia into EHR systems involves processing nontextual data for retrieval and analysis, legal implications, usability, and potential users' perceptions of the system and concerns—especially over privacy and confi-

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dentiality—that may hinder adoption. Therefore, this area provides many opportunities for research.

Support for Virtual Interactions

With the rapid convergence of the Web with mobile telecommunication devices, it is now easy to embed resources in EHRs that could support exchanges of information by members of the public with health care professionals in a wide range of modalities spanning from simple text messaging through asynchronous telehealth consultations to live videoconferences, therefore making the health system available and responsive to the public anywhere, at any time. This is a major change and it requires thinking through and adapting policies, roles, work processes, and system structures. However, patients are increasingly expecting to access care from various locations at practically any time. This is an essential component for improving quality of care, as it has been shown in low-income to middle-income health systems throughout the world.[6]

Integration of Social Networking Tools

Existing EHRs are designed to support one-to-one interactions between patients, health care professionals, and administrators. The health system, however, is an ecosystem that could benefit from tools that enable one-to-many, many-to-one, or many-to-many interactions. The proliferation of generic resources, such as Wikipedia, Facebook, and Twitter, as well as health-specific tools targeting health professionals and the public, is creating new, cost-effective ways to embed powerful tools in the health system.[7] Integrating these tools with the EHR would make them easier to access, while enabling targeted and personalized communication.

Promotion of Optimal Health Outcomes, Resource Utilization, and Policy Development

Few if any EHR systems go beyond clinical or administrative transactions. EHRs could include tools that generate system-wide data with which to assess the performance of the health system as a whole, and to introduce and evaluate innovative health services in real-enough time.

Open and Collaborative Systems, Free of Unnecessary Concerns About Privacy

Although it is essential to ensure that the appropriate, authorized individuals—and only they—can access personal information at the right time, it is also acknowledged that information sharing and collaboration promote better service.[8] In almost every other aspect of today's society, barriers are being removed and information is becoming more openly and carefully available. This openness promotes advanced commercial services, online banking, and scientific collaborations.[9] In health care, while privacy of information is absolutely essential, there are concerns that excessive preoccupation with privacy may interfere with the quality of service. A new balance is needed between the urge to protect individuals from potential harm that may be caused by exposing personal information and the quality and safety expected of the health care system. This issue is already being explored by initiatives led by the public, such as PatientsLikeMe or the Genetic Alliance.[10]

These proposed suggestions for a framework for EHR components may contribute to the current deliberations on health care reform, enabling EHRs to contribute to produce the savings that the Obama administration hopes to achieve through the reduction of waste and abuse, while meeting the expectations and needs of the public at no extra cost.

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