Dispute Prevention and Dispute Resolution in Networked Health Information Technology

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ABSTRACT

The United States has committed to promote Health Information Technology through Electronic Health Records that will be exchanged among participants in the healthcare enterprise. In anticipation of problems, legal remedies have been established to protect the rights of all participants, especially their rights to protect the privacy of their own information. However, there are certain to be situations where disputes arise among participants that can be resolved without recourse to legal action. This paper pursues the possibility of establishing policies to encourage alternative dispute resolution through online methods integrated into the health information technology processes and lays out areas requiring research.

Categories and Subject Descriptors

J.3 [**Medical Information Systems**]

General Terms

Management, Legal Aspects

Keywords

Medical Information Systems, Electronic Health Records, Disputes, Online Dispute Resolution, Security, Accuracy, Misunderstandings, Process

1. INTRODUCTION

Both the current and previous administrations of the government of the United States of America have committed to expanding the use of information technology in the country's healthcare system. They have focused considerable attention on encouraging the use of an Electronic Health Record (EHR) that would include a patient's demographic and medical history. They hoped to see this record used for clinical decision support, physician order entry, improvements in medical care quality and exchange and integration with other sources. The Bush Administration established an initiative on Health Information Technology (HIT) aimed at defining standards for interoperability and certification of adherence [14]. The Obama Administration and the current Congress passed and signed into law the ''American Recovery and Reinvestment Act of 2009'' including a title ''Health Information Technology for Economic and Clinical Health (HITECH) Act'' which formally establishes an "Office of the National Coordinator for Health Information Technology (ONC)" to help with the development of nationwide HIT infrastructure and provides considerable funds to encourage the expanded used of EHRs [1]. The expanded use of EHR, and HIT more generally, is now viewed as one of the ways to stimulate the American economy, to save jobs as well as save lives. The European Commission is also requiring the European Standards Organization to developed standards in this area [3].

While increased efficiency and improved treatment are key goals of a transition from paper to digital records, there are likely to be other consequences. As has occurred in other contexts as digital replaced paper, we can expect a large variety and a large number of disputes. The HITECH Act recognizes this in the area of privacy and security. The public is highly sensitized to the potential for breaches of privacy and the protection of information from unauthorized dissemination. The public media has highlighted privacy risks and cases of exposure of personal data are not uncommon. Forty percent of the act's text is devoted to improved privacy and security provisions. The HITECH Act establishes civil and criminal penalties, provides for notification in case of breaches, restrictions on disclosures and improved enforcement. The Act focuses solely on the use of the legal system for remedies.

Privacy and security are not the only issues with associated legal strictures and regulations [10]. Potential for inaccurate recording of medical records, for example, also raises concerns about malpractice. Experience in the medical community has already shown that the contents of records are regularly inaccurate [5,13]. TRICARE, a health care program of the United States Department of Defense Military Health System, has a special emphasis on data quality. It requires each medical treatment facility to staff a data quality manager and publishes regular audits of data quality [15]. It is typical to see only about 90% of entries encoded using ICD-9, a current system used to classify diseases and a wide variety of signs, deemed correct. ONC has included a Correction principle in its Nationwide Privacy and Security Framework for Electronic Exchange of Individually Identifiable Health Information [9].

Legal restrictions touch on many other issues, including: ownership of health information, appropriateness of disclosure, the power of the government to compel the use of collections of EHRs in public health studies, the rights of health insurers to data, the rights of patients involved in medical research, and the rights of healthcare providers to use data for quality improvement. There are many situations in the new technology-

oriented healthcare world where actions that some participants might consider reasonable might result in legal action by others.

Dealing with complaints that arise from misunderstandings will add to this burden. Malpractice cases often are filed when no malpractice occurred [12]. Networked health information technology plans can require that the general public be exposed to the complexity of medical data. The general level of health literacy for the average citizen falls well below the level required for general health care material. Many EHRs that patients will encounter were created for trained professionals. The use of computing systems adds another level of complexity that has not existed before. Unintentional misunderstandings will inevitably lead to disputes.

This is not a comfortable situation. Such disputes and their resultant publicity could reduce confidence in deployed health care systems, distract attention from the goals of better and more efficiently delivered health care, and decrease the utilization of these systems. The new-networked health information technology environments must address problems that currently go unnoticed due to the inefficiencies of paper based record systems. Misunderstandings and mistakes must be corrected before they become complaints, complaints must be responded to before they become disputes, and disputes must be resolved before they become legal actions. Discovery of issues must become occasions for continuous improvement. Research needs to address these issues by focusing on policies, standards and best practices, in addition to the development of new processes and software.

This note posits that alternative future. As has also occurred in many other contexts and domains, software can be designed and employed to respond to these disputes. But this may require research and innovation, and the efficacy of such new software will require careful evaluation. This paper proposes policy development and technical research to address these issues.

2. ALTERNATIVE DISPUTE RESOLUTION AND ONLINE DISPUTE RESOLUTION

Fisher and Ury, over twenty five years ago in their well known book *Getting to Yes,* declared that "conflict is a growth industry. [4]." They and others have inspired the growth of a discipline focused on resolving disputes outside judicial systems: Alternative Dispute Resolution (ADR). The fact that in America a small percentage of the cases that are filed reach the courtroom can, in part, be associated with the successful adoption of ADR. As a result of both Congressional and Presidential action during the 1990s, federal administrative agencies are required to use non-adversarial means of dispute resolution, ADR, whenever possible.

When the nature of the interaction moves online the methods of ADR can also move online using techniques of Online Dispute Resolution (ODR) [7]. Thus, it has been noted that new technologies promise efficiencies, conveniences and new capabilities, but bring with them as a byproduct new forms of disputes, and new forms of dispute resolution. At eBay, one of the most successful of Web 2.0 companies, over forty million disputes between buyers and sellers were handled in 2008 [Colin Rule, personal communication]. These were mostly handled through ODR. Similarly, the Internet Corporation for Assigned Names and Numbers (ICANN) has, since 2000, managed the resolution of over 25,000 domain name disputes [6]. The U.S. Army has significant needs to support wounded soldiers. An online Ombudsman "office" is now available to soldiers who wish to obtain assistance [8].

To give an example of what is possible, consider an eBay auction situation where the buyer feels aggrieved that the goods he or she has purchased do not meet the description supplied online. The buyer could engage a lawyer and sue, try small claims court where he or she would be self-represented, or report to the police hoping they would pursue a criminal action. However, the problem may be a simple misunderstanding or error that could be resolved with simple explanation or actions. eBay provides for that by supplying a structured mechanism that, in many cases, allow buyers to state their complaints both textually and by picking from a set of complaint types eBay provides. eBay next shows the buyer the traditional categories of responses sellers have accepted in response to that category of complaint, e.g., replacing the item with similar item. Buyers then indicate which options would be satisfactory, or provide details. These forms are then sent to the sellers who can decide how to respond. The majority of disputes to which this model applies are resolved in this way without any extra intervention.

The disputes that have arisen in the use of online systems have involved misunderstandings, miscommunications, wrongful interpretations and characterizations, accidents and other problems likely to occur in a highly active environment. More specifically, disputes can be traced to the following:

- Byproduct of online transactions
- Byproduct of online relationships and interactions
- Byproduct of increasing value of information
- Byproduct of broader distribution of and access to information
- Byproduct of novel uses of information
- Byproduct of virtual goods and virtual property
- Byproduct of increasing creative activity
- Byproduct of increasing complexity
- Byproduct of accelerating pace of change
- Byproduct of bugs in software

We can be certain that all these categories will apply as EHRs utilization becomes more widespread. Consider that paper medical records reside in doctor's offices and are rarely accessed by patients. Electronic records are accessible not only to patients and doctors but are built upon the premise that data will be collected from multiple sources. Rather than sitting on a shelf, data will be streaming into electronic files. Paper records rely on a simple filing system, one that creates a place to store information about patients but one that does not facilitate the use of the information in the file. EHR are not simply repositories but, like all software, are information managers. Software becomes a partner of the physician, providing decision support, monitoring and other capabilities. The same metaphor applies when patients maintain Personal Health Records and when public health officials and medical researchers use sets of EHRs.

All of these critical applications will lead to disputes. Rather than solely depending on the legal system and the courts to resolve them, we argue that just as federal administrative agencies are required to use non-adversarial means of dispute

resolution that at the least the adopters of EHR be encouraged to use ADR and where government policy is possible be required to use it wherever possible. Further, that since these systems are online, that ODR be required wherever possible.

3. POTENTIAL ODR RESPONSES AND RESEARCH NEEDS

In the dispute resolution field, it is axiomatic that approaches must be designed that "fit the forum to the fuss. [11]" In the offline environment, the most common forums are mediation and arbitration, along with some hybrid processes that have some qualities of both. In the online environment, ODR solutions merge into efforts to avoid many types of problems by providing online user support augmented by human assistance.

There are a broad variety of proven approaches to take:

- Design for privacy, data quality and ease of use, is a necessary step and one that is much discussed.
- Among the design options are participant support tools that can be used to enhance data quality and provide online "help", such as online medical dictionaries.
- Human support services such as online "chat", call center support, wikis, social media systems and other groupware can be used to in many ways to resolve problems and build understanding.
- Processes that support escalation of response where difficulties occur, such as medical expert-level support, can be used to resolve difficulties inappropriate for the level of staffing at a 24/7 call center or that will take time to resolve.
- Automatic or semi-automatic tools for managing resolution of disagreements, such as the eBay tool described above, can be created.
- Human intermediaries can made available online to facilitate the dispute resolution activity when the issues do not yield to automatic solutions.

All of the above systems can be tied to continuous improvement efforts that can lead to better security, improved data quality and enhanced ease of use. Research will be needed to shape the appropriate application of these techniques to EHR.

Beyond areas proven in other applications, visionary approaches can be imagined. Many of the research challenges seem to lie in the domain of Computer Science. These challenges range from how to assure improved security and privacy to how to create methods that can mitigate the impact of a security breach; from understanding how to improve data accuracy to creating methods for propagating corrections throughout large and diverse distributed data repositories; from how to create appropriate human-computer interfaces to how to develop tools for exploring and understanding complex data; from creating models of dispute resolution to developing methods for supporting the identification of acceptable solutions; and from creating methods for identifying potential points of dispute to the development of methods for supporting the expedited creation and deployment of more effective dispute resolution systems.

Other research needs lie in expanding on core models used in other models of ODR. These techniques range from:

- Structured negotiation methods as in the eBay example.

- Online arbitrations as in the ICANN example.
- The online ombudsman office as in the U.S. Army example.
- Automatic generation of financial settlements, as available from cybersettle.com.
- Brainstorming Processes [2]
- Consensus creation through online workspaces.
- Joint creation of documents using single text editing programs.

As online disputes occur and as online tools are developed, both the range of problems and the range of tools needed to address these problems are likely to increase.

Within the EHR undertaking itself, new processes and new roles can reshape parts of the medical profession leading to new educational needs for medical professionals.

4. CONCLUSIONS

Given the high hopes that health information technology will reduce the cost of health care, while improving its quality, the many disputes that this technology might cause should must give cause for great concern. Health care is already the cause of considerable amounts of expensive litigation. The new technologies have the potential to increase both the range and numbers of these litigations. This would decrease the effectiveness of the technologies, and possibly spawn a public backlash that could completely undermine their value. Research is clearly needed in order to support meeting the technological challenges posed by health information technology. Research is also needs to address the problems inherent in dealing with the inevitable disputes that could reduce or destroy the obvious potential of these technologies.

In the light of these challenges, the authors are carrying out a series of activities involving leaders of the healthcare information technology community, the alternative dispute resolution community, and the computer science research communities whose goals are to:

1. Identify the key risks of disputes in the networked health information technology systems being proposed.

2. Identify the best practices in avoiding and resolving such disputes and the need for new practices in open areas.

3. Identify the computing research challenges inherent in supporting these practices.

5. ACKNOWLEDGMENTS

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