



Call for Papers

Special Issue on Informatics Methods in Medical Privacy

Due Date for Submissions: August 1, 2013

Recent developments in healthcare technology enable the collection, storage, management, and sharing of massive amounts of medical data [1], including demographic, diagnosis, and medication information, as well as radiology images, laboratory test results, doctors' entries and comments. For instance, electronic health records are utilized by multiple parties with different roles and responsibilities as Electronic Medical Record/Electronic Health Record (EMR/EHR) systems [2, 3] are increasingly adopted. For instance, the EMR/EHR system use, among office-based physicians, increased from 18% in 2001 to 72% in 2012 [4]. Current estimates are that over 90% of physicians in the US will use EMR/EHR systems by the end of the decade.

The use of electronic health records can greatly benefit medical practice. This is because, they allow clinicians to access comprehensive medical information, to extract knowledge and reduce medical errors (e.g., through alerts), as well as to collaborate with other clinicians and healthcare entities to improve diagnosis and treatment of diseases. At the same time, the reuse of medical data offers the potential to improve medical research by spawning a wide spectrum of applications, ranging from enabling post-marketing safety evaluation to increasing preparedness for health-related risks (e.g., through experiences patients share in health social networks). However, the reuse of medical data must be performed in a way that addresses important privacy concerns. According to a recent survey by the National Partnership for Women & Families,¹ 59% of patients believe that the widespread adoption of EMR/EHR systems will lead to more personal information being lost or stolen, while 51% believe that the privacy of health information is not currently sufficiently protected. To address these concerns, it must be ensured that medical data are collected and communicated securely, accessed by authorized parties only, and do not disclose any private and/or sensitive medical information when disseminated.

Preserving the privacy of medical data is not only an ethical but also a legal requirement, posed by several data sharing regulations and policies worldwide, such as the Privacy Rule of the Health Insurance Portability and Accountability Act (HIPAA) in the US [5], and the Data Protection Act in the UK. In addition, we are witnessing a wealth of approaches for preserving privacy in many phases of the healthcare information lifecycle², including the data collection, communication and sharing, as well as the knowledge management of healthcare information. To achieve privacy goals, these approaches employ various techniques, such as cryptography, access control, and data anonymization.

This special issue is devoted to informatics methods in medical privacy. We are soliciting papers that focus on privacy-aware solutions and technologies that are relevant to four themes: *healthcare information collection and communication*, *healthcare data and knowledge management*, *healthcare information systems and technologies*, and *healthcare policies*. Within these research areas, we seek contributions that include (i) research articles addressing privacy problems, (ii) articles describing practical applications of privacy-preserving technologies or already deployed systems, emphasizing how the methods might generalize for application in other settings, (iii) survey papers that critically analyze the current research and add understanding to the surveyed topic, and (iv) position papers that raise awareness and provide guidance towards open problems.

Potential topics for contributions to this issue include, but are not limited to, the following areas:

1. *Healthcare information collection and communication*: Submissions that address issues around the collection and communication of healthcare information, in a privacy-preserving way, are sought. Such works should propose novel methods for measuring and maintaining patient privacy either at a personal level (e.g., through patient-centric control and monitoring on data, or enforcement of privacy preferences) or when healthcare information is communicated (e.g., in social networks, health portals, sensor networks for healthcare).
2. *Healthcare data and knowledge management*: Papers on privacy-preserving healthcare data and knowledge management are solicited. These include methods for de-identification and anonymization of healthcare data (e.g., patient demographic, diagnosis, genetic, or location information), privacy-preserving data linkage and integration, and privacy-preserving data mining, as well as papers proposing novel approaches for privacy-aware healthcare knowledge management (e.g., abstraction, summarization, and sharing) and decision support (e.g., disease prediction, adverse-event surveillance).
3. *Healthcare information systems and technologies*: Submissions that cover issues related to privacy in information systems, and the way users interact with health information technologies, are of interest. In particular, we solicit papers focusing on the development and evaluation of privacy-preserving infrastructures for health information systems, or proposing methods for auditing, accountability, and access control.
4. *Healthcare policies*: Submissions that focus on the extraction, modeling, formal representation, and implementation of privacy policies, at an institutional level or beyond, as well as on the impact of these policies on health information technologies, are sought.

¹ National Partnership for Women & Families, Making IT Meaningful: How Consumers Value and Trust Health IT Survey. <http://www.nationalpartnership.org/>.

² <http://www.legislation.gov.uk/ukpga/1998/29/contents>.

Questions regarding the topics of the special issue should be directed to Dr. Gkoulalas-Divanis at arisdiva@ie.ibm.com.

Peer-review process:

All submitted papers must be original and will undergo a rigorous peer-review process with at least two reviewers. All submissions should follow the guidelines for authors, available at the *Journal of Biomedical Informatics* web site (<http://www.journals.elsevier.com/journal-of-biomedical-informatics>). JBI's editorial policy is also outlined on that page (see Aims and Scope) and will be strictly followed by the special issue reviewers.

Submission process:

Authors must submit their paper by August 1, 2013 via the online Elsevier Editorial System (EES) at <http://ees.elsevier.com/jbi>. Authors can register and upload their text, tables, and figures as well as subsequent revisions through this website. Potential authors may contact the Publishing Services Coordinator in the journals editorial office (jbi@elsevier.com) for questions regarding this process.

References

- [1] E.C. Lau, F.S. Mowat, M.A. Kelsh, J.C. Legg, N.M. Engel-Nitz, H.N. Watson, H.L. Collins, R.J. Nordyke, and J.L. Whyte. Use of electronic medical records (EMR) for oncology outcomes research: assessing the comparability of EMR information to patient registry and health claims data. *Clinical Epidemiology*, 3(1):259–272, 2011.
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- [3] G. Makoul, R. H. Curry, and P. C. Tang. The use of electronic medical records communication patterns in outpatient encounters. *Journal of the American Medical Informatics Association*, 8(6):610–615, 2001.
- [4] C.J. Hsiao and E. Hing. Use and characteristics of electronic health record systems among office-based physician practices: United States, 2001–2012. *NCHS data brief, no 111*. Hyattsville, MD: National Center for Health Statistics, 2012.
- [5] US Department of Health and Human Services Office for Civil Rights. HIPAA administrative simplification regulation text, 2006.

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