Implementation Challenges for Clinical and Research Information Systems: Recommendations from the 2007 Winter Symposium of the American College of Medical Informatics

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The American College of Medical Informatics (ACMI), is “a college of elected fellows from the United States and abroad who have made significant and sustained contributions to the field of medical informatics” and is a component of the American Medical Informatics Association (AMIA). Over the last few years in its winter symposium, ACMI has discussed a variety of issues related to the adoption and deployment of electronic health records (EHRs). Beginning in winter 2004, ACMI addressed what would be needed to promote greater adoption of electronic health records. The recommendations led to AMIA’s “Got EHR?” initiative (www.amia.org/gotehr) and a series of articles summarizing the ACMI participants’ recommendations. In 2005, the ACMI symposium focused on personal health records (PHRs), and the resulting article outlined recommendations for the deployment of PHRs, an area that is now showing increasing development nationwide. In 2006, with the growing interest in clinical decision support (see AMIA’s Clinical Decision Support Roadmap initiative http://www.amia.org/inside/initiatives/cds/), ACMI addressed the knowledge management that would be needed for effective broad-based use of clinical decision support systems. These recommendations were presented at the 2006 AHRQ Patient Safety and Healthcare IT Conference (http://healthit.ahrq.gov/portal/server.pt/gateway/PTARGS_0_4450_132264_0_0_18/Berner%20IV%20Aud.ppt).

Over the same period of time nationally, the momentum for the adoption of EHRs has accelerated. A National Coordinator for Health Information Technology was appointed; the Agency for Healthcare Research and Quality (AHRQ) developed a series of funding initiatives related to research and implementation of information technology in health care; and the American Health Information Community (AHIC) was formed. AHRQ, in partnership with the Office of the National Coordinator, also funded pilot studies on the development of a National Health Information Network and Regional Health Information Organizations (RHIOs) formed in many parts of the country. Suddenly, the deployment of EHRs was clearly on the national radar and adoption was accelerating.

The next logical topics for ACMI to address, now that adoption and implementation were increasing, were the issues involved in implementation of these EHR systems. The 2007 ACMI winter symposium focused on recommendations related to implementation. However, along with the growing interest nationally in the implementation of clinical systems for patient care, there was recognition of a need to implement information systems to promote clinical and translational research. The National Institutes of Health Clinical and Translation Science Award (CTSA) program (www.ctsaweb.org) mandated that each research center have a strong biomedical informatics component whose role would include integration of clinical, research, and bioinformatics systems. Systems for translational scientific research have their own implementation challenges, and the 2007 symposium also provided the opportunity for ACMI members, many of whom are in leadership positions within their institution’s CTSA centers, to share their experiences. As a result, AMIA has added a focus on clinical research informatics to its areas of interest and is sponsoring a new translational bioinformatics conference; it is likely that in the future the area of translational and clinical research informatics will grow in importance. Thus, the 2007 ACMI winter symposium focused on the challenges of implementing both electronic health records and clinical and translational research systems. The set of articles in this special section of the Journal grew out of the 2007 ACMI meeting.

Each article evolved from a presentation at the meeting by one of the authors, which was followed by participant discussion and recommendations. Each manuscript itself was finalized by its authors, several of whom had also contributed to the original presentation. While the papers...
represent the viewpoints of their individual authors and are not ACMI or AMIA position papers, the input from the ACMI participants helped shape their final form.

In keeping with the trend nationally for team science for biomedical research, the article by Lorenzi et al. proposes that there should be a similar team science approach to research to develop best practices for implementation. Although the focus of Lorenzi et al. is on clinical systems, their approach could be applied to the development and implementation of the research systems as well. In fact, the CTSA awardees have formed a National Informatics Steering Committee to share best practices and address common problems. The second article, by McGowan et al., discusses best practices for formative evaluation of the implementation of EHR systems. Again, the principles and approaches they advocate can be adapted for the needed formative evaluation of the implementation of any new information systems, including those that will be developed in the context of the CTSA awards. The last article, by Ash et al., directly addresses the people and organizational issues in the implementation of both clinical and research systems. Recognizing and managing people and organizational challenges are crucial for successful implementations. Although many of these issues have been recognized and studied in clinical system implementations, they are equally important to implementations of new research systems.

As Chair of ACMI’s Scientific Affairs Committee from 2005–2007, I want to express my appreciation to Jeffrey Williamson, who provided support for the committee and its meetings. It was my privilege to work with an excellent program planning committee: Patricia Abbott, Michael Ackerman, Joan Ash, R. Scott Evans, Mark Frisse, Julie McGowan, Kevin Johnson, and Blackford Middleton, and with ACMI presidents Paul Clayton, Judy Ozbolt, and Dan Masys. In addition to the specific presentations that formed the background for the articles in this special section, presentations at the 2007 meeting by Charles Friedman, R. Scott Evans, Michael Kahn, William Hersh, Christopher Chute, Jack Smith, Michael Becich, Dan Masys, and Don Detmer helped shaped the dialogue that led to their creation. The many participants in these meetings over the years cannot be acknowledged by name, but their insights and willingness to share their expertise contributed significantly to these articles and the others that preceded them.

References