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The Rapidly Emerging National Interest in HIT Usability

Senior Editor Column: Crucial Conversations about Technology Design

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Usability has a strong, often direct relationship with clinical productivity, error rate, user fatigue, and user satisfaction—critical to EMR adoption

(Healthcare Information and Management Systems Society, 2009)

Usability is emerging as an informatics topic of national interest in the United States. After decades of Health Information Technology (HIT) development, informatics leaders concluded that current EHRs do not provide the kind of cognitive and workflow support clinicians need. Stead and Lin (2009) found that even the most revered systems in the U.S., including homegrown and highly tailored EHRs, lacked appropriate usability. The major problems they observed centered on the lack of: 1) an integrative view of the patient, 2) evidence-based decision support and feedback, 3) linkage between research and clinical care, and 4) adequate HIT integration into clinical practice. Moreover,

most comprehensive HIT implementations took decades. Unless these issues are corrected, Health Information Technology, according to Stead and Lin, could actually dampen efforts to improve health care in the future.

The Agency for Healthcare Research and Quality (AHRQ) commissioned a May 2010 report to assess electronic health record (EHR) vendors' compliance with known usability principles and practices (McDonnell, Werner, & Wendel, 2010). A survey of major EHR vendors revealed that usability assessments and evaluations are not common among U.S. vendors today. Formal usability testing, user-centered

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design processes and usability engineering resources are only rarely available. While common design standards are available outside health care, none exist for EHRs. Site end-user involvement is typically limited to workgroups and advisory panels or clinicians with a strong interest in HIT. Importantly, any testing is typically done after the product is developed.

Usability is the extent to which a product can be used by specific users in a specific context to achieve specific goals with effectiveness, efficiency, and satisfaction, according to the International Standards Organization (UsabilityNet, 2006). This simple definition belies its complexity. Good usability is more than subjective user satisfaction. It includes understanding effective work design and users' cognitive processes about that work.

For example, in recent research we discovered nurses do not use electronic patient summary forms as their main reference during change of shift report on medical and surgical units: nurses need cognitive support throughout their shift. Paper forms currently provide that support because nurses can record salient information and major events throughout the shift on paper. Also, that "technology" is portable and flexible. The paper form with all its updates then becomes the gold standard of information to relay during report. This kind of understanding must then

be translated into both device selection and smart user interface design. User interfaces and application functions are the instantiation of understanding users, work, and known design principles. Usability includes sophisticated baseline knowledge about how care is rendered in particular settings, whether it is team-based, individual or cooperative care with the patient.

Exciting national efforts are now underway to improve usability in HIT, in particular for electronic health records. In July 2010, the National Institutes for Standards and Technology (NIST) held a public meeting to: 1) develop a roadmap for HIT usability standards, measurement, and accessibility and 2) create a national effort to measure and evaluate EHRs. Officially, the meeting goal was to bring together industry, academia, and government to prioritize, align, and coordinate short-, medium-, and long-term technical strategies and tactics to improve the usability of Electronic Health Records. NIST recently agreed to be the federal agency responsible for EHR usability efforts. Their vision is to promote high-quality healthcare and assure that user interfaces do not promote errors. Speakers from other federal agencies, the Office of the National Coordinator for HIT, the Food and Drug Administration and AHRQ, all echoed the need for improvement in EHR usability.

NIST spokesperson Lana Lowry indicated that extensive research is planned. NIST

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leaders need to determine first what aspects of EHRs are critical for usability assessments. Applying well-known human factors principles to EHRs can be a logical next step. NIST also plans to build a usability framework with standards, measures, and test methods to include downloadable, public tools such as EHR style guides. Bettyjoyce Lide oversees HIT efforts at NIST. She spoke to near-term goals of educating vendors and implementation experts about usability. The organization is aware that swift movement is needed for system interoperability to enhance usability. Also, the agency sought input about its role in long-term efforts. For example, a government agency such as NIST can be an accelerant for incorporating usability into the commercial EHR sector.

This meeting was particularly eventful

because it brought together an unusual combination of federal agencies, academe, and industry representatives. To view the presentations and meeting goals, access http://www.nist.gov/itl/usability_hit.cfm. Although usability is certainly a current problem for EHRs in the U.S., this kind of national effort is likely the beginning of a rapid emphasis on improving the usability of EHRs.

Our next column will speak to usability and technology design aspects of meaningful use.

For questions or comments on this column, please contact Nancy Staggers at staggers@son.umaryland.edu.



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References

Healthcare Information and Management Systems Society (HIMSS). (2009). *Defining and testing EMR usability: Principles and proposed methods of EMR usability evaluation and rating*. Retrieved from http://www.himss.org/content/files/HIMSS_DefiningandTestingEMRUsability.pdf

McDonnell C., Werner K., & Wendel L. (2010). Electronic health record usability: Vendor practices and perspectives. AHRQ Publication No. 09(10)-0091-3-EF. Retrieved from http://healthit.ahrq.gov/portal/server.pt/document/911984/ehrvendorpractices_perspectives_pdf?qid=19224111&rank=1

Stead, W., & Linn, H. (2009). *Computational technology for effective health care: Immediate steps and strategic directions*. Washington, D.C.: National Academies Press. Retrieved from http://www.nap.edu/openbook.php?record_id=12572&page=1

UsabilityNet. (2006). *Usability definition. International Standards Organization or ISO 9241-11: Guidance on usability*. Retrieved from http://www.usabilitynet.org/tools/r_international.htm#9126-1.