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Current challenges and opportunities for better integration of human factors research with development of clinical information systems

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Abstract

Clinical information system developers and implementers have begun to look to other scientific disciplines for new methods, tools, and techniques to help them better understand clinicians and their organizational structures, clinical work environments, capabilities of clinical information and communications technology, and the way these structures and processes interact. The goal of this article is to help CIS researchers, developers, implementers, and evaluators better understand the methods, tools, techniques, and literature of the field of human factors and vice versa. The article discusses six sub-themes: 1) Mental Workload and Situation Awareness; 2) Workflow and Task Analysis; 3) Clinical Decision Making and Decision Support; 4) Distributed Cognition; 5) Informatics and Patient Safety; and 6) User Interface Design and Evaluation. Integrating the methods, tools, and lessons learned from each of these six areas of human factors research early in clinical information system design and incorporating them iteratively during development can improve user performance, user satisfaction, and integration into clinical workflow. Ultimately, this approach will improve clinical information systems and healthcare delivery.