

A Nursing Focus on EMR Usability Enhancing Documentation of Patient Outcomes

Cecilia Anne Kennedy Page, DNP, RN-BC, CPHIMS, PMP^{a,*},
Aric Schadler, PhD(ABD)^b

KEYWORDS

- Usability • Usability checklist • User interface design • Efficiency • Effectiveness
- Satisfaction

KEY POINTS

- Nursing practice requires a focus on the usability of technology, such as the electronic medical record, to enhance patient outcomes.
- Usability is a critical dimension of health information technology design to support human responses in the use of information in clinical decision making.
- Integration of the usability checklist as a standard tool in the software design process and user acceptance testing is a method to strive for safe technology in health care.

INTRODUCTION

Health Information Technology (Health IT) makes it possible for health care professionals to more effectively manage patient care through secure use and sharing of health information. The Health Information Technology for Economic and Clinical Health Act passed in 2009, a part of the American Recovery and Reinvestment Act, is an incentive program designed to expedite the adoption of an electronic medical record (EMR) by 2014.¹ The provisions of the Health Information Technology for Economic and Clinical Health legislation focus on utilizing this infrastructure with the underlying aim of promoting population health through meaningful use of EMRs as opposed to a focus on technology alone.² Over the next 2 to 3 years, adoption of EMRs into clinical practice settings will be rapid as reimbursement becomes linked to meaningful use of these systems and the ultimate tracking of clinical conditions or outcomes to promote health.

Implementing electronic health records without a focus on usability is the largest barrier to widespread adoption of EHRs.³ Broadly defined, usability is viewed as the

^a Information Technology Services, University of Kentucky HealthCare, 900 South Limestone Street, Charles T. Wethington Building, Suite 317, Lexington, KY 40536-0200, USA;

^b Information Technology Services, 2333 Alumni Plaza, Suite 110, Lexington, KY 40517, USA

* Corresponding author.

E-mail address: cecilia.page@uky.edu

capacity of a system to allow users to carry out their tasks safely, effectively, efficiently, and enjoyably.⁴ The International Standards Organization defines usability as “the effectiveness, efficiency, and satisfaction with which the intended users can achieve their tasks in the intended context of product use.”⁵ In essence, a system with good usability is easy to use, effective, intuitive, forgiving of mistakes, and allows the user to perform necessary tasks quickly.⁶ In the context of nursing health care IT or the adoption of the electronic health record, usability addresses the capability of a nurse to perform tasks associated with care delivery.

Achieving the health care reform goals of broad EMR adoption and meaningful use will require that the usability of these systems in nursing practice be addressed. There is a direct relationship between usability and clinical productivity, error rates, user fatigue, and user satisfaction. All of these are critical indicators of poor usability.⁶ With the rapid deployment of EMRs, usability evaluations can identify design features of health information technology that pose a risk for influencing patient safety.⁷ However, these evaluations are not commonly performed and early adopters did not integrate usability evaluations as a part of standard design and implementation. This integration was not considered because early adopters focused on adoption rather than on usability. Nursing practice requires a focus on the usability of technology, such as the EMR, to embed features of usability within the tool to enhance patient outcomes and optimal utilization by the end-user.

BACKGROUND

The goal of health care technology utilization is to promote a safer and more efficient system of care. In a recent publication by the Committee on Patient Safety and Health Information Technology of the Institute of Medicine (IOM),⁸ health IT is presented as a positive enabler to transform the way health care is delivered. The inherent risk is that health IT adds complexity to an already complex health care system. Inappropriately designed and applied health IT may lead to unintended adverse consequences and errors.⁸ From a sociotechnical model view, technology is approached as interactive with the people, processes or workflow, organization, and environment as key factors that influence the success of health IT outside of the technology itself⁹ and this becomes the foundation for understanding the user-technology interaction. This relationship must be considered in a usability evaluation and approach for understanding how the user integrates technology into their daily practice in the provision of safe care.

The user-centered design principle is considered a “bedrock principle” for creating usable systems and devices.⁵ In the current information age, health care providers are challenged with managing an increasing amount of information now presented in an electronic modality.¹⁰ To assimilate the vast influx of information, user-centered design methods must be taken into consideration to design and create systems. These methods result in systems that are easy to learn, increase user productivity and satisfaction, increase user acceptance, decrease user errors, and decrease user training time.¹⁰ User-centered design methods include tasks and goals of the users, functional analysis of cognitive activities of the users, user analysis of the characteristics of the users, environmental analysis of the environments in which the users work, and the representational analysis of the manner in which information displays to the users.¹⁰ It is the workflow and cognitive processing for the users that warrants consideration in the system design. This focus embraces the users and shifts the cognitive work to the patient processes and away from just the mechanics of the EMR system. Software design and its effect on workflow, as well as an effective user interface, are key determinants of usability.⁸

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