SINI 2015 Nursing Informatics Sharon Coleman Memorial Podium Research Award Winner

Evaluating Usability and User Satisfaction of Secure Messaging for Pediatric Providers

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Problem Statement: Secure messaging is a web-based message system within a personal health record system (PHR) that allows health care teams and their patients to communicate non-urgent, health-related information in a private and safe computer environment. Recent studies have shown that usability of health records is a significant concern for credentialed providers and is a potential obstacle to system adoption. The objectives of this project were to examine usability patterns of this communication tool and to compare the experiences of users to assist in overcoming implementation barriers and to promote new system capabilities for pediatric providers. **Methods:** This study employed a mixed methods study design using a convenience sample from three military treatment centers following IRB approval at two institutions (UAB X1408114005 and BAMC 401023-1). For the first phase, data were collected from 61 pediatric providers to include physicians, nurse practitioners, nurses, and medical technicians using an online version of a highly reliable survey tool (a=.91). The Questionnaire for User Interaction Satisfaction (QUIS) 7.0 consisted of 43 questions and 11 sections: general demographics, current system experience, past computer experience, overall system satisfaction, screen characteristics, technology and system information, ease of learning, online help availability, training methodologies, multimedia availability, and future capabilities. For the second phase of the study, three focus groups were conducted. 21 subjects participated discussing how secure messaging was currently used in their practice, current barriers, opportunities, and upcoming design considerations for upgrades of this patient engagement tool. Zhang and Walji's conceptual framework for electronic health record (EHR) usability, called TURF (Tasks, Users, Representations, and Functions) was used throughout the research as a guiding framework. Data were analyzed using SPSS-PC (version 22.0 for MAC; SPSS, Chicago, Illnois) and MAXQDA (version 11 for MAC; Berlin, Germany). Descriptive statistics performed included frequencies, mean scores, and Pearson's correlation. **Results:** Following the survey, mean scores of all Likert-scaled questions targeting system use ranged from 2.26 to 6.11 based on a 9 point scale with an overall average of 5.28. No significant relationships were found among subjects' age, job role, or amount of computer experience received and outcome measures. However, a moderate positive relationship was found between ease of training and user satisfaction (r=.437). Focus group data revealed four overarching themes: adopted workflows varied, few pediatric functions were embedded within the tool, interoperability with the EHR was poor to non existent, and staff were highly concerned about a breach to system security potentially leading to an adverse patient event. **Significance:** By reevaluating usability issues throughout the implementation process, training and clinical workflow can be redesigned to assist pediatric providers in adopting secure messaging into their daily clinical process. Identification of future messaging capabilities, such as increased interoperability with the electronic health record, will be critical to ensure provider adoption and patient safety.