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Work system factors influencing physicians' screen sharing behaviors in primary care encounters

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ABSTRACT

Objective: While the use of electronic health records (EHRs) in primary care has increased dramatically, its potential benefits need to be considered in light of potential negative impacts on physician–patient interactions and the increase in physician cognitive workload. This study aims to understand work system factors contributing to physicians' use of the EHR as a communication tool during primary-care encounters.

Methods: We interviewed 14 primary care physicians on their use of EHRs as a communication tool in patient visits. A qualitative content analysis guided by the work system model identified factors influencing physicians' decisions to share or not share the computer screen with their patients.

Results: The analysis revealed 26 factors that influenced physicians' decisions to share the screen, most related to the “task” (reviewing lab records), “tools and technology” (using algorithm calculators for risk prediction), or “individual” (patient interest) elements of the work system. The analysis revealed 15 factors that influenced physicians' decisions not to share the screen, most related to the “individual” (patient's acute pain), “organization” (insufficient time), or “task” (documenting embarrassing information) elements of the work system.

Conclusion: Eleven physicians made individual decisions to share or not to share the screen in a particular visit based on work-system related factors. Three doctors always shared the screen, based on the idea that it is polite and builds trust. However, several physicians also reported that it was time consuming and caused unnecessary distractions. Understanding these factors is essential to effective EHR redesign and training for improving physician–patient communication.

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1. Introduction

The use of electronic health records (EHRs) in primary care has increased dramatically in the last decade. [1,2]. Studies have reported promising benefits of EHR use, such as improving healthcare quality, safety, effectiveness, and patient outcomes [3–5]. Despite these potential benefits, the use of EHRs in primary care has also been accompanied by negative consequences [6,7], such as changes in the patient–physician dynamic [8–10], adverse impacts on physician–patient communication and patient-centered care, reduced physician attention to patient needs, and disengagement on the part of patients [10–15].

Increasingly, research in primary care focuses on how to use EHRs in a patient-centered way [11,16,17] in order to enhance patient–clinician communication and patient engagement during the visit [10,18]. Research is needed to understand how EHRs may be used to their full potential to improve patient–doctor communication [19]. Several studies suggest that the potential pitfalls of EHRs can be avoided if physicians use EHRs as a communication and patient education tool during the visit, including sharing the screen with patients [10,20,21]. Screen sharing during the visit might help to improve real-time patient–clinician communication [10,22,23]; facilitate more accurate documentation [20], shared decision making [24], shared understanding [23], and patient involvement [21,25]; and also reduce patient alienation that results when physicians focus on the computer screen [10,20].

Some experts support using EHRs to facilitate communication and understanding by sharing the screen with patients during the visit [10,20,21], but the factors that influence physicians' screen sharing behaviors have not been explored. We know little about the system factors that facilitate or hinder physician screen sharing. Different physicians take very different approaches to using EHRs as a communication tool during patient visits, but a single physician may also have different screen sharing behaviors from visit to visit [26,27]. Therefore, it is important to understand the work system factors that contribute to how physicians use EHRs during primary care visits; this information can be used to identify effective redesign, implementation, and training suggestions for EHRs. Previous studies have used the work system model to analyze work system factors in several clinical contexts, such as ICU nurses' interactions with technology [28,29] and outpatient surgery [30]. However, research has not yet explored work system factors influencing physician screen sharing behavior in primary care encounters. In this study, we interviewed physicians to understand factors influencing their decision to share or not to share the computer screen with their patients. We use the work system model [31,32] as a guide to identify factors contributing to screen sharing. This model focuses on system design, the elements of the work system, interactions among the elements, and the impact of system design on the care process and outcomes [33]. We also gathered information on physician perceptions of advantages and disadvantages of screen sharing during patient visits.

2. Methods

2.1. Design and setting

This qualitative interview study was conducted in three University of Wisconsin Family Medicine clinics between March and May 2013. We recruited physicians from targeted sites using a purposive convenience sampling approach. An information sheet explaining the purpose of the interview was distributed to all physicians in these three clinics. The number of the interviews (14 interviews) was determined by reaching data saturation (recurring themes) [34]. Data saturation is a qualitative analysis technique where data collection iterates until no new recurring themes are found. In this study, we started to get similar responses by physician number 10. We continued to recruit and interview additional physicians looking for new themes, and we stopped at physician 14 because we were still not seeing any new themes. Similar studies have reached data saturation with sample sizes of 10 to 20 interviews [35–37]. Inclusion criteria for potential participants were: the participant is a faculty primary care physician who uses EHRs during care provision. We interviewed a total of fourteen primary care physicians from three different clinics, 6 male and 8 female. The average number of years the physicians had used the EHR was 6.7 (3–13 years) including their use in training years, and the physicians had been practicing on average 11.2 years (2–31 years). All of the exam rooms in these three clinics had similar settings regarding the location of the EHR, the physician's seat, and the patient's seat. All of the EHR screens are located on the wall on a swivel between the patient and the physician, so the screens can be moved around by the physicians. The study protocol was approved by university and clinic Institutional Review Boards.

2.2. Procedures

Semi-structured interviews were used to gain an in-depth understanding of the factors influencing physicians' decisions regarding screen sharing during patient visits. An interview guide ensured that the interview stayed focused on the topic of screen sharing. The interview guide and questions were developed based on the work system model [32,38]. The work system model helps to identify factors that influence physicians' decisions to share or not to share the screen with patients. Several studies have used the work system model [31,32,38] to describe work in various settings and explore factors influencing providers' use of technologies in health care settings [28–30]. The work system components are: (1) the individual, (2) the tasks, (3) the tools and technologies, (4) the physical environment, and (5) the organizational conditions [31,32]. In other words, the person is performing different tasks with various tools and technologies in a specific physical environment under certain organizational conditions [31]. The semi-structured interview guide included open-ended questions related to each work system element in case respondents discussed only one or two elements. The descriptive questions were designed to elicit understanding of factors related to elements of the work system model, while avoiding directive

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