Designing Usable and Useful EHR Systems

Whitepaper

Electronic Health Record (EHR) Systems | 2
Healthcare Usability is Not the Answer | 2-3
Design Process | 3

By Kevin Richardson, Ph.D.
Principal User Experience Architect
Electronic Health Record (EHR) Systems

Developed and honed over generations, the medical profession has created processes, procedures and physical artifacts that serve healthcare professionals and their patients well. Yes, there are process improvements to be had. Yes, there are inefficiencies inherent in the overlap between healthcare providers and the healthcare industry. However, improving the digital systems that support the medical profession is not the primary problem. Usability, while problematic, is not the primary problem either. The problem is the imposition of poorly designed technological solutions to replace the medical profession’s processes, procedures and physical artifacts.

The cost of designing, developing, purchasing and installing Electronic Health Record (EHR) systems, plus the price of “training” health care professionals to change their behaviors in order to adapt to their new electronic systems, amounts to many millions of dollars. In response, medical task forces, healthcare professionals and reporters are sounding the alarm that these new systems are difficult to use, decrease productivity and negatively impact the quality of patient care.

Healthcare Usability is Not the Answer

To address these issues, the healthcare industry has focused on the need to identify, employ and measure the usability of these systems. These are laudable and necessary goals but, in the end, they are insufficient. They place the needs of users far too late in the process and do not address the primary issue—poor design. EHR systems informed by usability principles will help ensure that the user-system interaction follows accepted patterns. A rating system informed by usability principles can help healthcare institutions differentiate between systems that meet basic requirements and systems that do not. However, applying usability during the development or selection processes is insufficient to guarantee a useful system once it is deployed.

Usable and useful mean very different things. An application or feature can be considered “usable” if users can successfully and quickly complete the task for which it was created. It’s important to keep in mind that usability is, by definition, a post hoc test. Usability does not determine the gathering of requirements. It does not define the scope of the system. It does not provide a pathway to innovation. Usability is necessary for good design but it is not sufficient. It is absolutely possible for an application to be usable but not innovative, inspiring, beautiful, lasting or useful.

On the other hand, a well-designed system is, by definition, both useful and usable. Usefulness is achieved when users are able to accomplish their goals through their interaction with the system. It is important to note that a user’s goals may have very little to do with the completion of an individual task. It’s also important to understand that a user’s goals are likely to vary as their environment (physical, situational, attentional, etc.) varies even if the task remains nominally the same.
Designing Usable and Useful EHR Systems

Design Process

A well-designed system is the result of a well-defined design process. That process is research-based and highly iterative, with a focus on exploring different models of the user-system interaction. It employs the expertise of an interdisciplinary team with individual backgrounds in graphic design, fine art, interaction design, cognitive psychology, anthropology and human-computer interaction (among others). This kind of design team has the training and experience to bridge the gap between business, technology and human requirements. They practice a process that is mindful of the features, functions and legacy systems that must be somehow united, implemented and maintained. They are equally mindful of the healthcare professionals who will be using these systems, the physical environments in which they are being used, and what users need to accomplish through their interaction with technology. Rather than simply asking users what they want, the design team is able to determine user needs even when users are unable to express them (“latent” user requirements). This is the core of innovation.

This process of eliciting wants and needs from the different parties defines the requirements that designers on the team meet as they create a rapid series of exploratory models of how the user and system might interact. Interwoven with designers’ interaction models and screen designs, researchers on the team conduct fast, early and iterative testing to fine tune the ultimate form of the design. In this way, the team is able to focus on creating solutions that support users in ways they could neither have articulated nor imagined.

EHRs can progress beyond ticking features off a checklist. Data can be explicitly translated into information and presented to users in ways that support their decisions and actions while freeing resources (attentional and financial) to be spent on problems previously hidden or untouched. Disparate systems can be coordinated and aligned. Processes and even entire “businesses” can be reformulated to serve user needs as well as user wants.

Design provides the pathway to innovation. It ensures that the system is shaped not only by the opinions of design professionals, but also by the needs, expectations and desires of users. With end users as participants in the design effort, stakeholders are assured that the final system design will be accurate, lasting, innovative and, most importantly, useful.

For more information on how we can help your Enterprise, visit us at Infragistics.com

Contact our Enterprise Development Sales Team at sales@infragistics.com or call us at +1 (800) 231 8588