

# Usability Evaluation at the Point-of-Care: A Method to Identify User Information Needs in CPOE Applications

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*Point of care usability evaluation may help identify information needs that occur during the process of providing care. We describe the process of using usability-specific recording software to record Computerized Physician Order Entry (CPOE) ordering sessions on admitted adult and pediatric patients at two urban tertiary hospitals in the Intermountain Healthcare system of hospitals.*

## INTRODUCTION

Information needs at the point of care occur frequently and generally remain unmet. Although there has been substantial research on physicians' information needs, there is not a lot of understanding about information needs that arise while physicians are using clinical information systems in the course of care provision.<sup>1,2</sup>

Usability Evaluation (UE) is typically used as a tool to support User Interface (UI) design and development prior to application implementation. UE methods can be used during the actual care provision process to identify information needs that may be overlooked or missed during application development.

We used TechSmith Corporation's Morae<sup>®</sup> usability testing software to record CPOE ordering sessions (in HELP2) at two urban tertiary hospitals that are part of the Intermountain Healthcare system of hospitals: LDS Hospital and Primary Children's Medical Center. The ordering sessions were conducted on adult and pediatric patients.

## PROCESS

Seventeen physicians were observed in 18 ordering sessions from June to October of 2005, yielding over 5½ hours of recorded material. The observations consisted of two parts: 1) physicians used a laptop computer configured with usability software and access to HELP2 CPOE. Physicians were encouraged to verbalize ("think aloud") their thought processes during the ordering sessions, especially when an information need arose; 2) order entry sessions were observed in-person by one of the authors (JW) who started and stopped the recordings, answered

questions and took notes of the session for later analysis. The goals of the sessions were to 1) identify information needs that occurred during the order entry sessions and 2) observe how the information needs were resolved during the ordering session.

The session recordings included the "think aloud" verbalizations and the computer screens used in navigating the HELP2 CPOE system. The recorded sessions were subsequently analyzed and the identified information needs classified using a previously developed instrument.<sup>3</sup>

A total of 114 information needs were identified. Participants frequently suggested (either verbally or implicitly, as observed by JW) improvements to the HELP2 CPOE system, in particular the content of order sets. Interestingly, order sets have been available for more than 3 years and have been extensively reviewed and updated. The amount of feedback on order sets suggests that some content issues only arise at the point of care. Therefore, our findings confirm that a UE method may be a useful adjunct in knowledge management by eliciting content improvement requirements that do not surface when using traditional knowledge engineering techniques.

## References

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