Automated Identification of Shortcuts to Patient Data for a Wireless Handheld Clinical Information System

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INTRODUCTION

Inadequate access to patient information at the point of care has been identified as an impediment to the health care process[1]. To create clinical computing tools that are useful to and used by clinicians, developers of clinical information systems must have accurate models of the users for whom their systems are intended[2]. To create these models, the information needs of clinicians must be understood.

While the wireless handheld environment offers many advantages such as the ability to provide mobile access to information, there are a number of challenges. Developing for this environment differs from the laptop and desktop environments due to features such as processing power, screen size, input mechanism, and bandwidth.

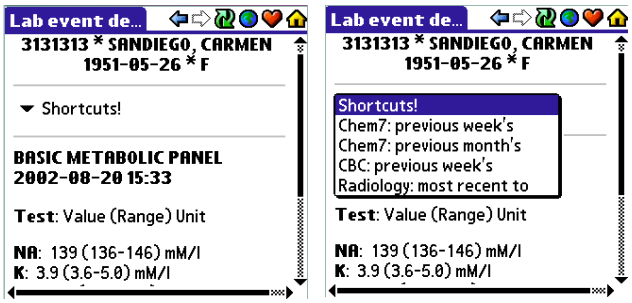
PalmCIS (Palm-based Clinical Information System) is a clinical application being developed at New York Presbyterian Hospital (NYPH) that provides clinicians with access to patient data via a wireless handheld device[1]. We are using an automated technique to uncover patient-specific information needs of clinicians while using a patient record system. With the results, we can enhance PalmCIS.

METHODS

Our work has three goals: to gain knowledge about patient-specific clinician information needs utilizing an automated technique, to introduce the concept of "shortcuts" as a means for accessing needed information quickly, and to guide the proper design and development of PalmCIS.

WebCIS, our Web-based clinical information system, enables clinicians to browse the content of patients' medical records[3]. WebCIS usage logs generated for each day convey how the users are interacting with data in patient records. We are analyzing these logs as a means for gaining an understanding of users and their patient-specific information needs utilizing clinical information system (CIS) log mining. This is a technique we have developed that is based on data mining and Web usage mining. It is used to uncover patterns and gain knowledge from clinical information system logs[4].

Because of the limitations of the wireless handheld environment, we want to provide access to needed information in an optimal way. We propose addition of quick links to particular patient data on each page of PalmCIS. These links will allow users to access data we anticipate they may need based on the results of the CIS log analysis. The figure below shows how a PalmCIS page is enhanced with shortcuts from one laboratory result to other types of laboratory and radiology results.



When PalmCIS is modified with these shortcuts, we can evaluate the impact of the shortcuts as well as the accuracy of CIS log analysis as a method for identifying patient-specific clinician information needs.

CONCLUSION

Both CIS log analysis and shortcuts may prove to be effective methods for dealing with many issues that are faced today in the health care setting such as information needs and information overload. Understanding the limitations of the wireless handheld environment and how to deal with them can lead to widespread and satisfactory use of applications for such an environment.

References

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