Sharing Infobuttons to Resolve Clinicians' Information Needs

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INTRODUCTION

Attempts to link clinical information systems to on-line information resources date back over a decade.[1,2] The World Wide Web presents new opportunities to create such links,[3,4] which we refer to as "infobuttons".[5] This capability is partly due to the ease with which a link (called a Uniform Resource Locator, or URL) in one Web-based system can take users to another Web-based system, and partly due to the proliferation of high-quality Web-based resources. Typically, contextual information from the clinical system (such as patient data) is passed to a search engine that is evoked and, in turn, presents search results to the user.

Impediments to infobutton development include customized programming to pass context information to the information resource, lack of standards for types and values of context information, variability of search engine interfaces, and a lack of understanding of clinicians' information needs. We are addressing these limitations with an Infobutton Manager (IM) that provides a standardized interface for matching user contexts to information resources.[6]

METHODS

The IM accepts contextual information and uses two tables to generate a list of queries. The first table matches user context parameters to information needs, while the second table matches information needs to appropriate resources.

Context parameters are *User Type* (Nurse, Physician, or Patient), *Patient Age* (Newborn, Infant, Child, Adolescent, Young Adult, Middle Aged, or Elderly), *Patient Gender* (Male or Female), *Concept of Interest*, and *Institution*. *Concept of Interest* is the datum (such as specific medication, organism or test result) that stimulated the user's request. We use the Medical Entities Dictionary (MED) to provide class-based mapping from the users' concepts to general classes that correspond the topics found in information resources. *Institution* tells the IM how to translate the *Concept of Interest* into a MED code and which information resources are appropriate.

RESULTS

The IM is implemented as a Computer Gateway Interface (CGI) program that accepts context parameters using either a "get" or "post" method (see www.dmi.columbia.edu/cimino/Infobuttons.html for more details). The IM accepts LOINC names and codes (as well as MED codes) to represent concepts of interest. System developers interested in including IM links in their programs can insert HTML code such as:

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flux.cpmc.columbia.edu/webcisdev13/wc_infomana
ge.cgi?info_med=14698-5&info_context=LabDetail
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This example provides a link to the IM that returns questions related to digoxin levels (LOINC Code 14698-5). "DIGOXIN" could be used as well.

DISCUSSION

The institution-independent approach of the IM offers access to Infobuttons for all users of Web-based clinical information systems, with only a relatively small local programming effort. The table-driven, approach offers the opportunity for sharing of information resources in context-specific ways. The potential exists for the IM tables to expand into a library of resources that can be created by, and shared with, the entire health care community.

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References

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