CENTER for ADVANCED INFORMATION MANAGEMENT

a New York State Center for Advanced Technology at Columbia University

Technology Fact Sheet

WebCIS

A Clinical Repository Browser Capable of Displaying Varied Data Types

What is WebCIS?

WebCIS is a web-based clinical information system (CIS) developed at Columbia University and used by New York Presbyterian Hospital (NYPH). At the Presbyterian Hospital campus, WebCIS currently houses information from laboratory, radiology, pathology, other ancillary data; patient discharge summaries, demographics, registration data, insurance information; and patient lists.

What It Can Do?

WebCIS supports up to 900 users/hour who can

- retrieve information,
- sort data by department and time,
- sort by time only, or
- aggregate data in several ways (spreadsheets, cross patient summaries, graphs)

Users can also

- define and request new spreadsheets,
- enter clinical notes (electronically signed and permanently archived),
- create patient lists, and
- enter work list summaries for generating sign-out sheets.

How It Works?

WebCIS is a clinical browser that displays information from many sources. It is implemented as a set of common gateway interface (CGI) programs written in C, and runs on a UNIX web server that communicates with a main-frame data repository using TCPIP socket protocol. The CGI programs generate hypertext markup language (HTML) and JAVA scripts, which are subsequently executed on the clinic web browser. A schematic diagram of the architecture incorporating WebCIS[1] is shown in Figure 1.

In operation, data from numerous sources (laboratory, pathology, departmental systems, etc.) are collected in a centralized clinical repository[2]. All data transfer is mediated by a Health Level Seven (HL7) interface engine that uses information from a Medical Entities Dictionary[3] (MED), an institutional vocabulary that defines all stored, coded data. The MED also translates between the various application coding systems and provides a classification hierarchy and semantic relationships that simplify coding and vocabulary maintenance. As data are stored in the repository, messages are sent to an (Arden Syntax-based) event monitor that provides automated decision support.

Accessibility and Security

WebCIS is currently available to clinical system users who care for patients at the Columbia-Presbyterian Center of the New York Presbyterian Hospital. WebCIS is accessible from within the hospital with a user ID and password, and over the Internet with the addition of a *smart card*. All access is audited regularly and permanent audit trails maintained.

Operation

In the New York Presbyterian Healthcare system (Columbia University Medical Center), 2 million patient records are stored in the data repository, and are accessed by over 4,500 users/month

CLINICAL INFORMATION SYSTEM SCHEMATIC DIAGRAM

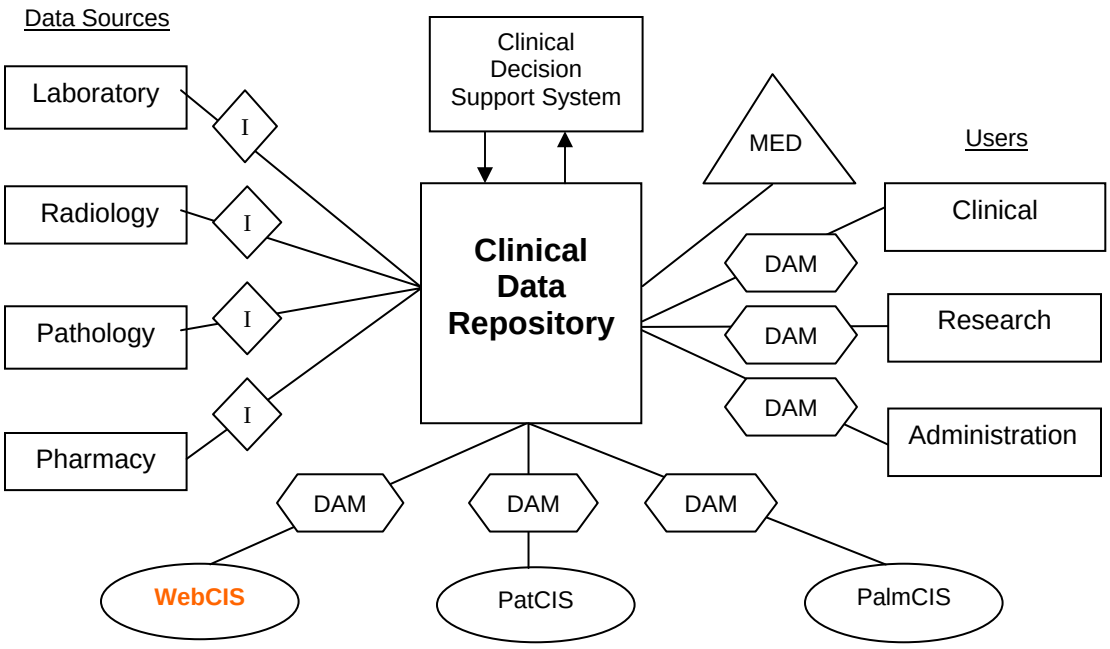

Figure 1. Schematic diagram of clinical information system with WebCIS browser. *PatCIS* is the patient-accessible version of WebCIS, and *PalmCIS* allows for connectivity to hand held systems. (I = interface, DAM =data access module, MED = medical entities dictionary)

References

[1]*WEBCIS:Large Scale Deployment Of A Web-Based Clinical Information System*, G. Hripcsak, J.J.Cimino, S. Sengupta, J. American Medical Informatics Association. 1999;6 (suppl.):804-8.

[2]*Accessing the Columbia Clinical Repository,* S.B. Johnson, G. Hripcsak, J. Chen, P. Clayton, Proc. Annual Symposium Computer Applications in Medical Care, 1994:281-5.

[3]*From Data To Knowledge Through Concept-Oriented Terminologies: Experience With The Medical Entities Dictionary*, J.J. Cimino, J. American Medical Informatics Association; 2000; 7(3):288-297.

See also https://webcis.cpmc.columbia.edu/webcisdocs/webcisintro.html

Intellectual Property Position

Technology Position

This technology is available for licensing.

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