Web Clinical Information System (WebCIS) – an Ambulatory/In-Patient EMR Built Around Clinical Workflow Process

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Abstract

WebCIS is designed and developed at the University of North Carolina Healthcare systems (UNCH) and serves both the ambulatory and in-patient care. It is built by physicians for physicians. It has a very simple interface. It receives data from over 40 ancillary systems including labs, radiology, scheduling, transcription, CPOE and thus it is a one-stop shop for majority of the patient data. It is seamlessly linked with e-Prescription, PACS and Document imaging systems and shares the user and patient context with CPOE. It is developed using java technology and is accessible using internet explorer with no client software. It has over 1.5 million patient records on line, and serves 10,000 users. It provides sub seconds response with even 1000 concurrent users. Some of the functional highlights of the system include customizable clinical alerts, flow sheets, growth charts, and healthcare maintenance prompts. It also has customizable templated notes builder for documentation that pulls data from key fields, and propagates data from previous notes. This makes the system very attractive, as it virtually eliminates duplicate data entry and streamlines workflow process, in addition to saving valuable time. Thus WebCIS is totally integrated with physician workflow

WebCIS Demonstration

A live demo of WebCIS will be given showing the key functions as it relates to the workflow of the clinical process both for an ambulatory and in-patient scenarios. For example (1) the patient flow in an ambulatory clinic will be mapped to the interactions between various care providers and WebCIS, and how data that is captured upstream is used downstream, showing the functional integration with workflow. (2) How healthcare maintenance is integrated with the lab and radiology data and the flow sheets. (3) How the clinical documentation during an in-patient stay is integrated with the routing process of those documents for teaching physician attestation. (4) How multiple providers are able to do multi-disciplinary documentation. (5) How the discharge process is integrated with the data flow from CPOE to WebCIS. (6) How the primary care physicians and referring physicians are communicated about their patients’ statuses.

We will share our experience in building a very successful EMR that aligns very well with the clinical process, with customizable screens, functions, alerts, work lists, for individual users. The presentation is intended to provide the attendees with (1) Very simple ideas to build functions based on the past user behavior, (2) Reuse of data that is entered once to save physician time, (3) Presentation of data in a graphical format, so as to access the patients disease process and response to treatment in a single screen (4) Recover from any lapse in the workflow process. Point of care clinical decision support like (1) Alerts that will ensure that allergies are checked against the medications, and drug/drug interactions if any, displayed before any drugs are prescribed. (2) Warnings about any drug omission for an active disease or (3) Recommendation to do any lab tests to monitor the side effects of drug toxicities.

Current Status of WebCIS at UNCH

CIS which is a precursor of the current WebCIS has been in use at UNCH since 1992. The whole application was re-written in java in 2000. WebCIS has been evolving ever since and is actively in use. It interoperates with CPOE to synchronize the user and patient context using global session manager. It is integrated with PACS and document imaging system using service oriented architecture. It communicates with third party content providers, like drug interaction checker, monographs, and drug info through web services. WebCIS is the pride of UNCH. As it adapts to clinical workflow, it is fully adopted by the physicians.