

Appendix A: Glossary

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Computer-Based Patient Record (CPR) / Electronic Medical Record (EMR) / Electronic Health Record (EHR). These terms are, for all practical purposes, synonymous. EHR is the preferred term and is applied to systems regardless of origin (in-house, open source, or commercial products) or setting (inpatient or ambulatory) that have met the CCHIT criteria for certification.

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AJAX

Asynchronous Javascript and XML, a programming technique that enables Web applications to move data between the server and client without reloading an entire page. Web applications that are built using this and related approaches are often called Rich Internet Applications (RIAs) because they offer users an experience that more closely resembles traditional desktop applications in terms of richness of functionality and responsiveness. The term Dynamic HTML (DHTML) is also used to describe this level of increased user interaction.

Application Service Provider (ASP)

A method for delivering a computer application over the Internet as opposed to running an application on local hardware. Some EHR software vendors offer an ASP option as an alternative.

Authentication

The process of verifying a user identity. User names and passwords are the most common type of authentication approach, although more secure techniques are increasingly being employed.

Authorization

A component of security, authorization is the ability to define not only a user's allowable functionality (e.g., look up a patient, create a clinical note, order a lab test) but also the type of data that may be viewed (e.g., all test results except HIV results, all clinical notes including psychotherapy notes).

Broadband

A network connection method that offers higher speed than standard telephone service, broadband services are offered by cable television and telephone services (see **Digital Subscriber Line**). Broadband speeds vary based on a number of factors. There is no agreement on a definition for broadband speed.

Browser

An application that enables downloading and viewing of content from the Internet. Microsoft Internet Explorer and Mozilla Firefox are the most commonly used browsers in Windows environments.

Client/Server

A means for accessing information that resides on a central computer (server) by any number of connected computers (clients). This architecture, on which the Internet itself is based, continues to be the leading approach for most small- and medium-sized business applications. Traditionally the term *client-server* meant that the application, or some part of it, is installed on the workstation, in contrast to a *Web-based* system, in which the only thing needed on the workstation is a Web browser. Some client-server applications are "Web-enabled" which means some part of the functionality is available through a Web browser.

Clinical Data Repository (CDR)

The component of an EHR system that stores and manages patients' clinical information. CDRs are features of inpatient EHR systems

Clinical Decision Support (CDS) System (CDSS)

The component of an EHR system that analyzes clinical data and provides care recommendations.

Computerized Physician Order Entry (CPOE)

The component of an EHR system through which a clinician inputs requests for services such as diagnostic tests, procedures, and medications.

Controlled Vocabulary

A list of preferred terms for describing actions, concepts, and findings within a particular domain. In health care, a controlled vocabulary might be used to identify acceptable terms for encoding the progress note. Common

vocabularies include ICD for encoding diseases and health conditions, CPT for services and procedures, SNOMED-CT for relatively broad use, LOINC for laboratory observations, and NDC for medications.

DBMS

Database Management System, an application that manages the creation, storage, and retrieval of data. The most common type of DBMS uses relational data models (tables of data related to other tables), but object-based data models are becoming more common.

DICOM

Digital Imaging and Communications in Medicine, the primary standard for exchanging images (e.g., X-rays, EKGs, ultrasounds).

Digital Subscriber Line (DSL)

A network connection method that offers higher speed than standard telephone service. DSL service is typically offered by telephone companies.

Disease Registry

An application that tracks clinical information relevant to the management of patients with chronic diseases. Disease registries may focus on a single disease or multiple diseases. Disease registries may be stand-alone applications or components of EHR systems.

Dynamic HTML (DHTML)

See **AJAX**.

Electronic Data Interchange (EDI)

EDI consists of rules and standards that typically allow businesses to use computers and networks to conduct business transactions. Health care billing systems often use EDI to exchange billing information with payers.

Electronic Document Management (EDM)

An application component that enables the storage, indexing, and retrieval of scanned paper documents (e.g., driver's license, insurance cards, faxed or photocopied reports).

Enterprise Master Person Index (EMPI)

The term *Enterprise Master Patient Index* is also used. An EMPI is a database that lives on the network of a healthcare enterprise and keeps track of relevant information about people who are of interest to the enterprise. The main functions of the EMPI are person/patient identification, matching, and reconciliation. EMPI keeps track of all the ways that different systems and applications identify the same patient and can locate information about a patient that is stored in another system or in multiple systems.

Firewall

Hardware or software that prevents harm from external systems by limiting access to a computer. Common firewall protections include anti-virus software, spam filters, spyware, and secured access (e.g., token-based **authentication**). Firewalls often form the first line of security for protecting computers and networks from unauthorized access.

Health Level 7 (HL7)

HL7 is one of the primary standards used to exchange information between different vendors' systems (e.g., between an EHR and LIS [Laboratory Information System]). The standard is message-based, meaning information is packaged and sent in defined message formats from system to system. HL7 version 2.x is the most prevalent version of the standard in use.

HTML

Hypertext Markup Language, the formatting code that is used to display content within a browser. HTML is the simplest technique for controlling formatting and layout of Web pages but is increasingly being replaced by richer, more robust techniques (e.g., AJAX).

Integration

Two computer applications are said to be integrated when they can exchange data in a form that each can understand and act upon. Generally, integration results when applications exchange data using standard formats and standard coded terminologies.

Interface

In information technology there are two uses for this term. One is to describe the way a user views and controls the operation of an application; this is often referred to as the GUI ("gooey", Graphical User Interface). Every computer application that is directly operated by a user must have a user interface. The other use of the term is to describe the method by which applications automatically exchange data with other applications; this type of interface is known as the API (Application Programming Interface). A user does not see this kind of interface, but it is critical for ensuring the exchange of data between applications. For example, an EHR system may have an application interface that is designed for receiving messages and reports from clinical laboratories.

Internet Service Provider (ISP)

Everyone who uses the Internet uses an ISP to connect to the Internet. The ISP charges for maintaining the user's connection and for passing data between the user and all of the sites on the Internet with whom the user interacts. An ISP may provide other services such as e-mail accounts, user Web pages, and online storage. An ISP may offer Internet connections via various technologies such as phone lines, DSL, and cable TV.

Javascript

A scripting language used largely to provide a richer user interface. Javascript is used primarily in the development of the Web front-end (i.e., what the user sees as the application screen). It is part of the AJAX standard. Note that Javascript is *not* equivalent to the Java programming language.

National Provider Identifier (NPI)

The NPI is a unique ten-digit identification number issued to health care providers in the United States by the Centers for Medicare and Medicaid Services (CMS). The NPI replaces the unique provider identification number (UPIN) as the required identifier for Medicare services and will be used by other payers, including commercial health care insurers.

Operating System (OS)

An operating system is software that controls the functioning of a computer. The various versions of Microsoft Windows (XP, 2000, Vista) Macintosh OS X, and Linux are operating systems. Computer applications must be written so that they can interact properly with the operating system. A single version of a computer application cannot operate on more than one type of operating system.

Optical Character Recognition (OCR)

With OCR a printed or hand-written document is scanned and a computer application attempts to determine what each letter in the document is intended to be. In this way the text of hard copy documents can be imported into an EHR. The accuracy of OCR is not perfect and depends on the quality of the document being scanned. Usually someone must review the results of a scan and make corrections.

Patient Portal

Some EHR systems offer clinicians the opportunity to provide their patients with a Web-based portal. This is a Web site where patients can look for educational information and links to other sources of information that are recommended by the clinician. Also, patients can use the portal to exchange secure structured messages with their clinicians and possibly perform activities such as scheduling appointments and ordering refills of prescriptions.

Personal Digital Assistant (PDA)

Small handheld devices capable of running relatively complex applications. PDAs are increasingly being equipped with wireless Internet access, enabling them to serve as gateways to Web applications, albeit with rather limited screen resolutions (typically less than 25% of full-size computer monitors). Smart phones are devices that converge mobile phones and PDA functionality into a single device.

Personal Health Record (PHR)

The PHR is a relatively new concept that describes a range of activities in which patients interact with health information. Development of PHR systems is moving in various directions, and there is no consensus on a definition. A PHR may include health information about a patient that is collected from clinical systems and/or entered directly by a patient or caregiver. PHRs may also offer services that allow patients to improve and monitor their health and to research and learn about their conditions.

Practice Management System (PMS)

A PMS is a computer application that assists clinicians and their staffs in managing the day-to-day operations of a practice. PMS applications typically manage patient demographics, appointments, insurance claims, billing, and payments. Although PMS and EHR applications may be separate, there are significant benefits if they are integrated.

Registry

See **Disease Registry**.

Rich Internet Applications (RIAs)

See **AJAX**.

Structured Data

Structured data are more easily understood and processed by computer systems than are **unstructured data**. Elements of structured data have been assigned codes from a standard controlled vocabulary or terminology such as ICD9-CM, CPT, or SNOMED CT.

Tablet PC

A mobile computer that is based on the notebook or laptop format but enables users to rotate the screen and position it over the keyboard such that the user interface becomes a large touchscreen. Although affording the advantages of a larger screen and more computing power than a PDA and greater mobility than a traditional notebook computer, tablet PCs have not been as popular as was originally expected. The prevalence of computing “carts” in many facilities, coupled with the disadvantage of their greater weight than PDAs, are likely contributing factors.

Template

Some EHR systems use templates in order to assist clinicians in collecting clinical information during an encounter. Using point-and-click widgets such as check boxes and drop-down lists, templates can speed data collection and offer reminders of possibly relevant additional questions to ask.

Unstructured Data

Free text that has not been coded with standard controlled vocabulary or terminology (see **Structured Data**).

Virtual Private Network (VPN)

VPNs provide a more secure way to communicate over the Internet. A VPN is like a tunnel that runs through the Internet but is shielded from it. Normal Internet communications can be spied upon relatively easily by unauthorized parties, whereas VPNs make such eavesdropping considerably more difficult. An example of VPN is the remote access of a corporate network by employees working from home.

Voice Recognition

An alternative input method to direct typing into an application. Voice recognition allows users to dictate, rather than use keyboard or mouse point-and-click techniques, to complete documentation. There is no additional transcription step. Voice recognition has improved in accuracy over the last few years, although the acceptability of remaining errors will vary by factors such as medical specialty and physical environment.

Wireless Local Area Network (WLAN; Wi-Fi)

A wireless version of a Local Area Network (LAN) that enables computers to communicate without network cabling. Wi-Fi, the common name for a family of 802-11 standards, is the most common form of WLAN; it is most often used to connect handheld or portable devices and other mobile computers.

Workflow-enabled

This growing area of functionality within EHRs provides the ability to automate aspects of practice workflow. In the simplest case, an event, such as arrival of a lab result, triggers an action, such as sending a notification message. Typically workflow is applied to end-to-end processes (e.g., initial appointment scheduling through billing), but it can also be used to manage certain aspects of practice (e.g., ordering a lab test through communication with the patient).

XML

Extensible Markup Language, a data representation language that is human-readable (i.e., is based on plain text) and the standard for formatting data that are exchanged or shared between systems (e.g., sending a lab result to the ordering provider). Because the data are human-readable and not routinely compressed, care must be taken to ensure that access to the data is protected with additional layers of security.