

# Health IT Terms

## A

### **Administrative Code Sets**

Code sets that characterize a general business situation, rather than a medical condition or service. Under HIPAA, these are sometimes referred to as non-clinical or non-medical code sets.<sup>1</sup>

### **Algorithm**

A finite set of unambiguous instructions performed in a prescribed sequence to achieve a goal, especially a mathematical rule or procedure used to compute a desired result. Algorithms are the basis for most computer programming.<sup>2</sup>

### **American Standard Code for Information Interchange (ASCII)**

A character encoding based on the English alphabet. ASCII codes represent text in computers, communications equipment, and other devices that work with text.<sup>3</sup>

### **Anonymized Data**

Data that cannot be traced back to their donor.<sup>4</sup>

### **Application/Application Program**

A set of files that make up software for the user. The terms "application" and "application program" are synonymous; however, there could be a technical difference if both terms are used in the same conversation. In that case, "application" would refer to the complete set of files that have to be installed (executables, configuration files, ancillary data files, etc.), whereas the "application program" would refer to just one executable file.

An application program is any data entry, update, query or report program that processes data for the user. It includes the generic productivity software (spreadsheets, word processors, database programs, etc.) as well as custom and packaged programs for payroll, billing, inventory and other accounting purposes.<sup>5</sup>

### **Application Service Provider (ASP)**

An application service provider is a business that provides computer-based services to customers over a network. Software offered using an ASP model is also sometimes called On-demand software or software as a service (SaaS). The need for ASPs has evolved from the increasing costs of specialized software that have far exceeded the price range of small to medium sized businesses. As well, the growing complexities of software have led to huge costs in distributing the software to end-users. Through ASPs, the complexities and costs of such software can be cut down.<sup>3</sup>

### **Architecture**

When used in reference to computer technology, usually associated with three areas:

- Computer architecture – the design of a computer system. It sets the standard for all devices that connect to it and all the software that runs on it. It is based on the type of programs that will run (business, scientific) and the number of programs that run concurrently.
- Network architecture – the design of a communications system, which includes the backbones, routers, switches, wireless access points, access methods and protocols used.
- Software architecture – the design of application or system software that incorporates protocols and interfaces for interacting with other programs and for future flexibility and expandability.<sup>5</sup>

**ASCII** – *see American Standard Code for Information Interchange*

**ASP** – *see Application Service Provider*

### **Authenticate**

- 1.) To verify (guarantee) the identity of a person or company. To ensure that the individual or organization is really who it says it is.
- 2.) To verify (guarantee) that data has not been altered.<sup>5</sup>

### **Authentication Token**

A security device given to authorized users who keep them in their possession. To log in to the network, the security "card" or "token" may be read directly like a credit card, or it may display a changing number that is typed in as a password.<sup>5</sup>

## B

### **Backup**

Additional resources or duplicate copies of data on different storage media for emergency purposes.<sup>5</sup>

### **Bandwidth**

A data transmission rate; the maximum amount of information (bits/second) that can be transmitted along a channel.<sup>6</sup>

### **Bar Code**

A printed horizontal strip of vertical bars which represent decimal digits used for identification. Bar codes must be read by a bar code reader.<sup>6</sup>

### **Beta Testing**

Testing cycle that follows the alpha (first) test. Tests a pre-release version of a piece of software by making it available to selected users for a system test with production data and environments. Beta releases are generally made available to a small number of customers.<sup>7</sup>

### **Biometric**

The biological identification of a person. Examples are face, iris and retinal patterns, hand geometry and voice. Increasingly built into laptop computers, fingerprint readers have become popular as a secure method for identification. Biometrics not only deals with static patterns, but action as well. The dynamics of writing one's signature as well as typing on the keyboard can be analyzed.<sup>5</sup>

### **Biometric Identification**

The automatic identification of living individuals by using their physiological and behavioral characteristics; "negative identification can only be accomplished through biometric identification"; "if a pin or password is lost or forgotten it can be changed and reissued but a biometric identification cannot."<sup>8</sup>

**Broadband**

Broadband or high-speed Internet access allows users to access the Internet and Internet-related services at significantly higher speeds than those available through “dial-up” Internet access services. Broadband speeds vary significantly depending on the particular type and level of service ordered and may range from as low as 200 kilobits per second (kbps), or 200,000 bits per second, to six megabits per second (Mbps), or 6,000,000 bits per second. Some recent offerings even include 50 to 100 Mbps. Broadband services for residential consumers typically provide faster downstream speeds (from the Internet to your computer) than upstream speeds (from your computer to the Internet).<sup>9</sup>

## C

**CAD** – *see Computer-Aided Design/Computer-Aided Drafting*

**CCR** – *see Continuity of Care Record*

**CDA** – *see Clinical Decision Architecture*

**CDR** – *see Clinical Data Repository*

**CIS** – *see Clinical Information System*

### **Classification**

The act of forming into a class or classes; a distribution into groups, as classes, orders, families, etc., according to some common relations or affinities.<sup>2</sup>

### **Clinical Data Repository (CDR)**

A clinical data repository is a real-time database that consolidates data from a variety of clinical sources to present a unified view of a single patient. It is optimized to allow clinicians to retrieve data for a single patient rather than to identify a population of patients with common characteristics or to facilitate the management of a specific clinical department. Typical data types which are often found within a CDR include: clinical laboratory test results, patient demographics, pharmacy information, radiology reports and images, pathology reports, hospital admission/discharge/transfer dates, ICD-9 codes, discharge summaries, and progress notes.<sup>10</sup>

### **Clinical Decision Architecture (CDA)**

An XML-based document markup standard that specifies the structure and semantics of clinical documents for the purpose of exchange. Known earlier as the patient record architecture (PRA), CDA provides an exchange model for clinical documents such as discharge summaries and progress notes, and brings the healthcare industry closer to the realizations of an electronic medical record. By leveraging the use of XML, the HL7 Reference Information Model (RIM) and coded vocabularies, the CDA makes documents both machine-readable (so they are easily parsed and processed electronically) and human-readable so they can be easily retrieved and updated by the people who need them.<sup>11</sup>

### **Clinical Decision Support System**

A clinical decision support system (CDSS) is software designed to aid clinicians in decision making by matching individual patient characteristics to computerized knowledge bases for the purpose of generating patient-specific assessments or recommendations.<sup>6</sup>

### **Clinical Information System (CIS)**

A clinical information system is a collection of various information technology applications that provides a centralized repository of information related to patient care across distributed locations. This repository represents the patient's history of illnesses and interactions with providers by encoding knowledge capable of helping clinicians decide about the patient's condition, treatment options, and wellness activities. The repository also encodes the status of decisions, actions underway for those decisions, and relevant information that can help in performing those actions. The database could also hold other information about the patient, including genetic, environmental, and social contexts.<sup>12</sup>

### **Clinical Laboratory Information System**

Information systems, usually computer-assisted, designed to store, manipulate, and retrieve information for planning, organizing, directing, and controlling administrative and clinical activities associated with the provision and utilization of clinical laboratory services.<sup>13</sup>

### **Code Set**

Under HIPAA, this is any set of codes used to encode *data elements*, such as tables of terms, medical concepts, medical diagnostic codes, or medical procedure codes. This includes both the codes and their descriptions.<sup>1</sup>

### **Coding**

The process of classification of information (vs. use of "free text" e.g. in Medical Informatics). In medical coding, diagnoses and procedures are assigned to categories in their respective taxonomies.<sup>3</sup>

### **Computer-Aided Design/Computer-Aided Drafting (CAD)**

The use of computer software and systems to design and create 2D and 3D virtual models of goods and products for the purposes of testing. It is also sometimes referred to as computer assisted drafting.<sup>14</sup>

### **Computerized Provider Order Entry/Computerized Physician Order Entry (CPOE)**

A process of electronic entry of physician instructions for the treatment of patients (particularly hospitalized patients) under his or her care. These orders are communicated over a computer network to the medical staff (nurses, therapists, pharmacists, or other physicians) or to the departments (pharmacy, laboratory or radiology) responsible for fulfilling the order. CPOE decreases delay in order completion, reduces errors related to handwriting or transcription, allows order entry at point-of-care or off-site, provides error-checking for duplicate or incorrect doses or tests, and simplifies inventory and posting of charges.<sup>3</sup>

### **Confidentiality**

Confidentiality has been defined by the International Organization for Standardization (ISO) as "ensuring that information is accessible only to those authorized to have access" and is one of the cornerstones of Information security. Confidentiality also refers to an ethical principle associated with several professions (e.g., medicine, law, religion, professional psychology, journalism, and others). In ethics, and (in some places) in law and alternative forms of legal dispute resolution such as mediation, some types of communication between a person and one of these professionals are "privileged" and may not be discussed or divulged to third parties.<sup>3</sup>

### **Configuration**

The way a system is set up, or the assortment of components that make up the system. Configuration can refer to either hardware or software, or the combination of both. When you install a new device or program, you sometimes need to configure it, which means to set various switches and jumpers (for hardware) and to define values of parameters (for software).<sup>15</sup>

### **Connectivity**

A generic term for connecting devices to each other in order to transfer data back and forth. It often refers to network connections, which embraces bridges, routers, switches and gateways as well as backbone networks. It may also refer to connecting a home or office to the Internet or connecting a digital camera to a computer or printer.<sup>5</sup>

### **Continuity of Care Record (CCR)**

A health record standard specification developed jointly by ASTM International, the Massachusetts Medical Society (MMS), the Healthcare Information and Management Systems Society (HIMSS), the American Academy of Family Physicians (AAFP), the American Academy of Pediatrics (AAP), and other health informatics vendors. The CCR standard is a patient health summary standard. It is a way to create flexible documents that contain the most relevant and timely core health information about a patient, and to send these electronically from one care giver to another. It contains various sections such as patient demographics, insurance information, diagnosis and problem list, medications, allergies and care plan. These represent a "snapshot" of a patient's health data that can be useful or possibly lifesaving, if available at the time of clinical encounter. The ASTM CCR standard is designed to permit easy creation by a physician using an electronic health record (EHR) system at the end of an encounter. Because it is expressed in the standard data interchange language known as XML, a CCR can potentially be created, read and interpreted by any EHR or EMR software application. A CCR can also be exported in other formats, such as PDF and Microsoft Word format.<sup>3</sup>

### **Cookies**

Also referred to as Web cookies or tracking cookies, are parcels of text sent by a server to a Web client (usually a browser) and then sent back unchanged by the client each time it accesses that server. Cookies are used for authenticating, session tracking (state maintenance), and maintaining specific information about users, such as site preferences or the contents of their electronic shopping carts. Because they can be used for tracking browsing behavior, cookies have been of concern for Internet privacy.<sup>3</sup>

**CPOE** – see *Computerized Provider Order Entry/Computerized Physician Order Entry*

# D

## Data

- 1.) Technically, raw facts and figures, such as orders and payments, which are processed into information, such as balance due and quantity on hand. However, in common usage, the terms data and information are used synonymously. In addition, the term data is really the plural of "datum," which is one item of data. But datum is rarely used, and data is used as both singular and plural in practice.
- 2.) Any form of information whether on paper or in electronic form. Data may refer to any electronic file no matter what the format: database data, text, images, audio and video. Everything read and written by the computer can be considered data except for instructions in a program that are executed (software).<sup>5</sup>

## Data Dictionary

- 1.) A document or system that characterizes the data content of a system.<sup>1</sup>
- 2.) A database about data and databases. It holds the name, type, range of values, source, and authorization for access for each data element in the organization's files and databases. It also indicates which application programs use that data so that when a change in a data structure is contemplated, a list of affected programs can be generated.<sup>5</sup>

## Data Element

Under HIPAA, this is the smallest named unit of information in a transaction.<sup>1</sup>

## Data Mapping

The process of matching one set of data elements or individual code values to their closest equivalents in another set of them. This is sometimes called a cross-walk.<sup>1</sup>

## Data Mart

A data mart is a subset of an organizational data store, usually oriented to a specific purpose or major data subject, that may be distributed to support business needs. Data marts are analytical data stores designed to focus on specific business functions for a specific community within an organization. Data marts are often derived from subsets of data in a data warehouse, though in the *bottom-up* data warehouse design methodology the data warehouse is created from the union of organizational data marts.<sup>3</sup>

## **Data Mining**

Data mining is the process of extracting hidden patterns from data. It is commonly used in a wide range of applications such as, marketing, fraud detection and scientific discovery. Data mining can be applied to data sets of any size, and while it can discover hidden patterns, it can not discover patterns which are not already present in the data set.<sup>3</sup>

## **Data Model**

- 1.) A conceptual model of the information needed to support a business function or process.<sup>1</sup>
- 2.) A description of the organization of a database. It is often created as an entity relationship diagram. Today's modeling tools allow the attributes and tables (fields and records) to be graphically created.<sup>5</sup>

## **Data Modeling**

The analysis of data objects and their relationships to other data objects. Data modeling is often the first step in database design and object-oriented programming as the designers first create a conceptual model of how data items relate to each other. Data modeling involves a progression from conceptual model to logical model to physical schema.<sup>15</sup>

## **Data Warehouse**

- 1.) A database designed to support decision making in an organization. Data from the production databases are copied to the data warehouse so that queries can be performed without disturbing the performance or the stability of the production systems.<sup>5</sup>
- 2.) Data warehouse is a repository of an organization's electronically stored data. Data warehouses are designed to facilitate reporting and analysis. This Classic or general definition of the data warehouse focuses on data storage. However, the means to retrieve and analyze data, to extract, transform and load data, and to manage the data dictionary are also considered essential components of a data warehousing system. Many references to data warehousing use this broader context. Thus, an expanded definition for data warehousing includes business intelligence tools, tools to extract, transform, and load data into the repository, and tools to manage and retrieve metadata.<sup>3</sup>

## **Database**

- 1.) A collection of information organized in such a way that a computer program can quickly select desired pieces of data.<sup>6</sup>
- 2.) A collection of information organized in such a way that a computer program can quickly select desired pieces of data. You can think of a database as an electronic filing system. Traditional databases are organized by fields, records, and files. A field is a single piece of information; a record is one complete set of fields; and a file is a collection of records. For example, a telephone book is analogous to a file. It contains a list of records, each of which consists of three fields: name, address, and telephone number.<sup>15</sup>

### **Database Management System (DBMS)**

A collection of programs that enables you to store, modify, and extract information from a database. There are many different types of DBMSs, ranging from small systems that run on personal computers to huge systems that run on mainframes.<sup>15</sup>

**DBMS** – see *Database Management System*

### **Decision Support System (DSS)**

An information and planning system that provides the ability to interrogate computers on an ad hoc basis, analyze information and predict the impact of decisions before they are made. A DSS is a cohesive and integrated set of programs that share data and information. A DSS might also retrieve industry data from external sources that can be compared and used for historical and statistical purposes. An integrated DSS directly impacts management decision-making.<sup>5</sup>

### **Decision Tree**

In operations research a decision tree is a decision support tool that uses a graph or model of decisions and their possible consequences, including chance event outcomes, resource costs, and utility. A decision tree is used to identify the strategy most likely to reach a goal. In data mining a decision tree is a predictive model; that is, a mapping from observations about an item to conclusions about its target value.<sup>3</sup>

### **Designated Standard Maintenance Organization (DSMO)**

An organization, designated by the Secretary of the U.S. Department of Health & Human Services, to maintain standards adopted under Subpart I of 45 CFR Part 162. A DSMO may receive and process requests for adopting a new standard or modifying an adopted standard.<sup>1</sup>

### **Digital Certificate**

The digital equivalent of an ID card used in conjunction with a public key encryption system. Also called a "digital ID," "digital identity certificate," "identity certificate" and "public key certificate," digital certificates are issued by a trusted third party known as a "certification authority" (CA). The CA verifies that a public key belongs to a specific company or individual (the "subject"), and the validation process it goes through to determine if the subject is who it claims to be depends on the level of certification and the CA itself.<sup>5</sup>

### **Digital Signature**

A digital signature is an electronic signature that can be used to authenticate the identity of the sender of a message or the signer of a document, and possibly to ensure that the original content of the message or document that has been sent is unchanged. Digital signatures are easily transportable, cannot be imitated by someone else, and can be automatically time-stamped. The ability to ensure that the original signed message arrived means that the sender cannot easily repudiate it later.

A digital signature can be used with any kind of message, whether it is encrypted or not, simply so that the receiver can be sure of the sender's identity and that the message arrived intact. A digital certificate contains the digital signature of the certificate-issuing authority so that anyone can verify that the certificate is real.<sup>16</sup>

### **Distributed Database**

A database physically stored in two or more computer systems. Although geographically dispersed, a distributed database system manages and controls the entire database as a single collection of data. If redundant data are stored in separate databases due to performance requirements, updates to one set of data will automatically update the additional sets in a timely manner.<sup>5</sup>

### **Driver**

A program that controls a device. Every device, whether it be a printer, disk drive, or keyboard, must have a driver program. A driver acts like a translator between the device and programs that use the device. Each device has its own set of specialized commands that only its driver knows. In contrast, most programs access devices by using generic commands. The driver, therefore, accepts generic commands from a program and then translates them into specialized commands for the device.<sup>15</sup>

**DSMO** – see *Designated Standard Maintenance Organization*

**DSS** – see *Decision Support System*

## E

**EBM** – *see Evidence-Based Medicine*

**EDI** – *see Electronic data interchange*

### **eHealth**

A term for healthcare practice which is supported by electronic processes and communication. The term can encompass a range of services that are at the edge of medicine/healthcare and information technology: Electronic Medical Records, Telemedicine, Evidence-Based Medicine, Consumer Health Informatics, Health knowledge management (or specialist-oriented information provision), and Virtual healthcare teams.<sup>3</sup>

**EHR** – *see Electronic Health Record*

### **Electronic Data Interchange (EDI)**

Refers to the exchange of routine business transactions from one computer to another in a standard format, using standard communications protocols.<sup>1</sup>

### **Electronic Health Record (EHR)**

A subset of each care delivery organization's EMR, presently assumed to be summaries like ASTM's Continuity of Care Record (CCR) or HL7's Continuity of Care Document (CCD), is owned by the patient and has patient input and access that spans episodes of care across multiple CDOs within a community, region, or state (or in some countries, the entire country). The EHR in the US will ride on the proposed National Health Information Network (NHIN).<sup>17</sup>

### **Electronic Medical Record (EMR)**

An application environment composed of the clinical data repository, clinical decision support, controlled medical vocabulary, order entry, computerized provider order entry, pharmacy, and clinical documentation applications. This environment supports the patient's electronic medical record across inpatient and outpatient environments, and is used by healthcare practitioners to document, monitor, and manage health care delivery within a care delivery organization (CDO). The data in the EMR is the legal record of what happened to the patient during their encounter at the CDO and is owned by the CDO.<sup>17</sup>

**Electronic Prescribing** – see *e-prescribing*

### **Electronic Signature**

The electronic equivalent of a handwritten signature. Electronic signature software binds a signature, or other mark, to a specific document. Just as experts can detect a paper contract that was altered after it was signed, electronic signature software can detect the alteration of an electronically signed file any time in the future. An electronic signature is often confused with a "digital signature," because it uses digital signature technology for detection alteration. An electronic signature also requires user authentication such as a digital certificate, smart card or biometric method.<sup>5</sup>

**EMR** – see *Electronic Medical Record*

### **Encryption**

- 1.) The translation of data into a secret code. Encryption is the most effective way to achieve data security. To read an encrypted file, you must have access to a secret key or password that enables you to *decrypt* it. Unencrypted data is called *plain text*; encrypted data is referred to as *cipher text*.<sup>15</sup>
- 2.) Encryption is the process of transforming information (referred to as plaintext) using an algorithm (called cipher) to make it unreadable to anyone except those possessing special knowledge, usually referred to as a key. The result of the process is encrypted information (in cryptography, referred to as ciphertext). In many contexts, the word encryption also implicitly refers to the reverse process, decryption (e.g. "software for encryption" can typically also perform decryption), to make the encrypted information readable again.<sup>3</sup>

### **e-prescribing (Electronic Prescribing)**

Prescribing medication through an automated data-entry process and transmitting the information to participating pharmacies.<sup>6</sup>

### **Evidence-Based Medicine (EBM)**

The judicious use of the best current evidence in making decisions about the care of the individual patient. Evidence-based medicine (EBM) is meant to integrate clinical expertise with the best available research evidence and patient values. EBM was initially proposed by Dr. David Sackett and colleagues at McMaster University in Ontario, Canada.<sup>18</sup>

**Extensible Markup Language** – see *XML*

# F

## **Field**

A physical unit of data that is one or more bytes in size. A collection of fields make up a record. A field also defines a unit of data on a source document, screen or report. Examples of fields are NAME, ADDRESS, QUANTITY and AMOUNT DUE. The field is the common denominator between the user and the computer. When you interactively query and update your database, you reference your data by field name. There are several terms that refer to the same unit of storage as a field. A data element is the logical definition of the field, and a data item is the actual data stored in the field. For each data element, there are many fields in the database that hold the data items.<sup>5</sup>

## **File**

A collection of data or information that has a name, called the filename. Almost all information stored in a computer must be in a file. There are many different types of files: data files, text files, program files, directory files, and so on. Different types of files store different types of information. For example, program files store programs, whereas text files store text.<sup>15</sup>

## **File Server**

A high-speed computer in a network that stores the programs and data files shared by users. It acts like a remote disk drive. The difference between a file server and an application server is that the file server stores the programs and data, while the application server runs the programs and processes the data.<sup>5</sup>

## **Firewall**

The primary method for keeping a computer secure from intruders. A firewall allows or blocks traffic into and out of a private network or the user's computer. Firewalls are widely used to give users secure access to the Internet as well as to separate a company's public Web server from its internal network. Firewalls are also used to keep internal network segments secure; for example, the accounting network might be vulnerable to snooping from within the enterprise. In the organization, a firewall can be a stand-alone machine or software in a router or server. It can be as simple as a single router that filters out unwanted packets, or it may comprise a combination of routers and servers each performing some type of firewall processing.<sup>5</sup>

## **Flat Files**

A flat file is a plain text file which usually contains one record per line or 'physical' record. Within such a record, the single fields can be separated by delimiters, e.g. commas, or have a fixed length. In the latter case, padding may be needed to achieve this length. There are no structural relationships between the records.<sup>3</sup>

## G

### **Graphical User Interface (GUI)**

A graphics-based user interface that incorporates movable windows, icons and a mouse. The ability to resize application windows and change style and size of fonts are the significant advantages of a GUI vs. a character-based interface. GUIs have become the standard way users interact with a computer, and the major GUIs are the Windows and Mac interfaces.<sup>5</sup>

**GUI** – *see Graphical User Interface*

# H

## **Hacker**

A person who writes programs in assembly language or in system-level languages, such as C. The term often refers to any programmer, but its true meaning is someone with a strong technical background who is "hacking away" at the bits and bytes. During the 1990s, the term "hacker" became synonymous with "cracker," which is a person who performs some form of computer sabotage. The association is understandable. In order to be an effective cracker, you had to be a good hacker, thus the terms got intertwined, and hacker won out in the popular press.<sup>5</sup>

## **Hardware**

A computer, its components, and its related equipment. Hardware includes disk drives, integrated circuits, display screens, cables, modems, speakers, and printers.<sup>8</sup>

## **Harmonization**

The process and/or results of adjusting differences or inconsistencies to bring significant features into agreement.<sup>19</sup>

## **Health Information Exchange (HIE)**

The mobilization of healthcare information electronically across organizations within a region or community. HIE provides the capability to electronically move clinical information among disparate health care information systems while maintaining the meaning of the information being exchanged. The goal of HIE is to facilitate access to and retrieval of clinical data to provide safer, more timely, efficient, effective, equitable, patient-centered care. HIE is also useful to Public Health authorities to assist in analyses of the health of the population.<sup>3</sup>

## **Health Information Technology (HIT)**

Health information technology (HIT) provides the umbrella framework to describe the comprehensive management of health information and its secure exchange between consumers, providers, government and quality entities, and insurers. Health information technology (HIT) in general are increasingly viewed as the most promising tool for improving the overall quality, safety and efficiency of the health delivery system.<sup>3</sup>

**HIE** – *see Health Information Exchange*

**HIT** – *see Health Information Technology*

**Hub**

A common connection point for devices in a network. Hubs are commonly used to connect segments of a local area network (LAN). A hub contains multiple ports. A *passive hub* serves simply as a conduit for the data, enabling it to go from one device (or segment) to another. So-called *intelligent hubs* include additional features that enable an administrator to monitor the traffic passing through the hub and to configure each port in the hub.<sup>15</sup>

## Implementation Guide

A document explaining the proper use of a standard for a specific business purpose.<sup>1</sup>

### Informatics

Informatics is the science of information, the practice of information processing, and the engineering of information systems. Informatics studies the structure, algorithms, behavior, and interactions of natural and artificial systems that store, process, access and communicate information. It also develops its own conceptual and theoretical foundations and utilizes foundations developed in other fields. Since the advent of computers, individuals and organizations increasingly process information digitally. This has led to the study of informatics that has computational, cognitive and social aspects, including study of the social impact of information technologies.

In some situations, information science and informatics are used interchangeably. However, some consider information science to be a subarea of the more general field of informatics. Used as a compound, in conjunction with the name of a discipline, as in *medical informatics*, *bioinformatics*, etc., it denotes the specialization of informatics to the management and processing of data, information and knowledge in the named discipline, and the incorporation of informatic concepts and theories to enrich the other discipline; it has a similar relationship to library science.<sup>3</sup>

### Interface

The connection and interaction between hardware, software and the user. Users "talk to" the software. The software "talks to" the hardware and other software. Hardware "talks to" other hardware. All this is interfacing. It has to be designed, developed, tested and redesigned; and with each incarnation, a new specification is born that may become yet one more de facto or regulated standard.

#### Hardware Interfaces

Hardware interfaces are the plugs, sockets, cables and electrical signals traveling through them.

#### Software/Programming Interfaces

Software interfaces (programming interfaces) are the languages, codes and messages that programs use to communicate with each other and to the hardware.

#### User Interfaces

User interfaces are the keyboards, mice, commands and menus used for communication between you and the computer.<sup>5</sup>

**Interoperability**

Interoperability is a property referring to the ability of diverse systems and organizations to work together (inter-operate). The term is often used in a technical systems engineering sense, or alternatively in a broad sense, taking into account social, political, and organizational factors that impact system to system performance.<sup>3</sup>

## L

### **Legacy systems**

An older computer system such as a mainframe or minicomputer. It may also refer to only the software.<sup>5</sup>

### **Logical Observation Identifiers, Names and Codes (LOINC®)**

The purpose of the LOINC® database is to facilitate the exchange and pooling of results for clinical care, outcomes management, and research. LOINC codes are universal identifiers for laboratory and other clinical observations that solve this problem.

The scope of the LOINC effort includes laboratory and other clinical observations. The laboratory portion of the LOINC database contains the usual categories of chemistry, hematology, serology, microbiology, toxicology; as well as categories for drugs and the cell counts, antibiotic susceptibilities, and more. The clinical portion of the LOINC database includes entries for vital signs, hemodynamics, intake/output, EKG, obstetric ultrasound, cardiac echo, urologic imaging, gastroendoscopic procedures, pulmonary ventilator management, selected survey instruments, and other clinical observations.<sup>20</sup>

**LOINC®** – see *Logical Observation Identifiers, Names and Codes*

## N

### **National Health Information Network (NHIN)**

The Nationwide Health Information Network is being developed to provide a secure, nationwide, interoperable health information infrastructure that will connect providers, consumers, and others involved in supporting health and healthcare. This critical part of the national health IT agenda will enable health information to follow the consumer, be available for clinical decision making, and support appropriate use of healthcare information beyond direct patient care so as to improve health.<sup>1</sup>

### **Network**

A system that transmits any combination of voice, video and/or data between users. The network includes the network operating system in the client and server machines, the cables connecting them and all supporting hardware in between such as bridges, routers and switches.<sup>5</sup>

**NHIN** – see *National Health Information Network*

### **National Plan and Provider Enumeration System (NPPES)**

The National Plan and Provider Enumeration System collects identifying information on health care providers and assigns each a unique National Provider Identifier (NPI).<sup>21</sup>

### **National Provider Identifier (NPI)**

The Administrative Simplification provisions of the *Health Insurance Portability and Accountability Act of 1996 (HIPAA)* mandated the adoption of a standard unique identifier for health care providers. The name of the standard unique identifier is the National Provider Identifier. The NPI is a ten-position numeric identifier with a check digit in the last two positions to help detect keying errors. The NPI contains no embedded intelligence; that is, it contains no information about the health care provider, such as the type or location of the health care provider. The NPI must be used in connection with the electronic transactions identified in HIPAA.<sup>3</sup>

### **Normalization**

Broadly, normalization (also spelled normalisation) is any process that makes something more normal, which typically means conforming to some regularity or rule, or returning from some state of abnormality.<sup>3</sup>

**NPI** – see *National Provider Identifier*

**NPPES** – *see National Plan and Provider Enumeration System*



**OLTP** – see *Online Transaction Processing*

### **Online**

Available for immediate use. It refers to being connected to the Internet or any remote service where there is no delay in accessing the network. A peripheral device (terminal, printer, etc.) that is turned on and connected to the computer is also online.<sup>5</sup>

### **Online Transaction Processing (OLTP)**

Online transaction processing refers to a class of systems that facilitate and manage transaction-oriented applications, typically for data entry and retrieval transaction processing. The term is somewhat ambiguous; some understand a "transaction" in the context of computer or database transactions, while others define it in terms of business or commercial transactions. OLTP has also been used to refer to processing in which the system responds immediately to user requests. An automatic teller machine (ATM) for a bank is an example of a commercial transaction processing application.<sup>3</sup>

### **Operating System**

The most important program that runs on a computer. Every general-purpose computer must have an operating system to run other programs. Operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as disk drives and printers.<sup>15</sup>

## P

### **Patient-Centered Medical Home (PC-MH)**

The Patient-Centered Medical Home (PC-MH) is an approach to providing comprehensive primary care for children, youth and adults. The PC-MH is a health care setting that facilitates partnerships between individual patients, and their personal physicians, and when appropriate, the patient's family.<sup>22</sup>

**PC-MH** – see *Patient-Centered Medical Home*

### **Personal Health Record (PHR)**

A personal health record is typically a health record that is initiated and maintained by an individual. An ideal PHR would provide a complete and accurate summary of the health and medical history of an individual by gathering data from many sources and making this information accessible online to anyone who has the necessary electronic credentials to view the information.<sup>3</sup>

**PHI** – see *Protected Health Information*

**PHR** – see *Personal Health Record*

### **Portability**

Portability is the general characteristic of being readily transportable from one location to another. When referring to software, it refers to the portability of a piece of software to multiple platforms.<sup>3</sup>

### **Porting**

In computer science, porting is the process of adapting software so that an executable program can be created for a computing environment that is different from the one for which it was originally designed. The term is also used in a general way to refer to the changing of software/hardware to make them usable in different environments.<sup>3</sup>

### **Privacy**

The degree to which an individual can determine which personal information is to be shared with whom and for what purpose. Although always a concern when users pass confidential information to vendors by phone, mail or fax, the Internet has brought this issue to the forefront. Web sites often have privacy policies that stipulate exactly what will be done with the information you enter.<sup>5</sup>

**Privilege**

A permission or right. In information security, it refers to the modes of operation that a user or a process is granted.<sup>5</sup>

**Protected Health Information (PHI)**

Individually identifiable health information transmitted or maintained in any form or medium, which is held by a HIPAA covered entity or its business associate.

- Identifies the individual or offers a reasonable basis for identification.
- Is created or received by a covered entity or an employer
- Relates to a past, present, or future physical or mental condition, provision of health care or payment for health care.<sup>1</sup>

## Q

### **Query**

To interrogate a collection of data such as records in a database. The term may also be used to search a single file or collection of files. However, in addition to obtaining lists of records that match the search criteria, queries to a database allow for counting items and summing amounts.<sup>5</sup>

### **Queue**

A temporary holding place for data.<sup>5</sup>

### **Queuing**

The process of lining up events in the order you want them processed. Whether it refers to packets in an IP network that search for the most optimal path to their destination, or telephone callers sitting in a "hold queue" waiting to be answered, queuing means the same thing: deciding on priorities through bottle-necked passageways. The science of queuing has developed many formulas for maximizing efficiency.<sup>5</sup>

## R

### **Radio Frequency Identification (RFID)**

A data collection technology that uses electronic tags for storing data. The tag, also known as an "electronic label," "transponder" or "code plate," is made up of an RFID chip attached to an antenna. Like bar codes, RFID tags identify items. However, unlike bar codes, which must be in close proximity and line of sight to the scanner for reading, RFID tags do not require line of sight and can be embedded within packages. Depending on the type of tag and application, they can be read at a varying range of distances. In addition, RFID-tagged cartons rolling on a conveyer belt can be read many times faster than bar-coded boxes.<sup>5</sup>

### **Regional Health Information Organization (RHIO)**

The terms "RHIO" and "Health Information Exchange" or "HIE" are often used interchangeably. A RHIO is a group of organizations with a business stake in improving the quality, safety and efficiency of healthcare delivery. RHIOs are the building blocks of the proposed National Health Information Network (NHIN). To build a national network of interoperable health records, the effort must first develop at the local and state levels. *See also Health Information Exchange.*<sup>23</sup>

### **Relational database**

A database that maintains a set of separate, related files (tables), but combines data elements from the files for queries and reports when required.<sup>5</sup>

**RFID** – *see Radio Frequency Identification*

**RHIO** – *see Regional Health Information Organization*

### **RxNorm**

RxNorm provides normalized names for clinical drugs and links its names to many of the drug vocabularies commonly used in pharmacy management and drug interaction software, including those of First Databank, Micromedex, MediSpan, Gold Standard Alchemy, and Multum. By providing links between these vocabularies, RxNorm can mediate messages between systems not using the same software and vocabulary.<sup>24</sup>

## S

**SDO** – *see Standard Development/Developing Organization*

### **Smart Card**

A smart card, chip card, or integrated circuit card (ICC), is any pocket-sized card with embedded integrated circuits which can process data. This implies that it can receive input which is processed and delivered as an output. There are two broad categories of ICCs. Memory cards contain only non-volatile memory storage components, and perhaps some specific security logic. Microprocessor cards contain volatile memory and microprocessor components. Using smartcards also is a form of strong security authentication for single sign-on within large companies and organizations.<sup>3</sup>

**SNOMED CT** – *see Systematic Nomenclature of Medicine*

**SQL** – *see Structured Query Language*

### **Standard**

A definition or format that has been approved by a recognized standards organization or is accepted as a de facto standard by the industry. Standards exist for programming languages, operating systems, data formats, communications protocols, and electrical interfaces.<sup>15</sup>

### **Standard Development/Developing Organization (SDO)**

A standards organization, standards body, standards development organization or SDO is any entity whose primary activities are developing, coordinating, promulgating, revising, amending, reissuing, interpreting, or otherwise maintaining standards that address the interests of a wide base of users.

The term Standards Developing Organization generally refers to the thousands of industry or sector based standards organizations which develop and publish industry specific standards.<sup>3</sup>

### **Standardization**

Standardization (or standardisation) is the process of developing and agreeing upon technical standards. A standard is a document that establishes uniform engineering or technical specifications, criteria, methods, processes, or practices.<sup>3</sup>

**Standards body** – *see Standard Development/Developing Organization (SDO)*

**Structured Query Language (SQL)**

Structured Query Language, pronounced "S-Q-L" or "see-quill," is a language used to interrogate and process data in a relational database. Originally developed by IBM for its mainframes, all database systems designed for client/server environments support SQL. SQL commands can be used to interactively work with a database or can be embedded within a programming language to interface to a database.<sup>5</sup>

**Systematic Nomenclature of Medicine (SNOMED CT)**

A clinical healthcare terminology that provides the core general terminology for the electronic health record (EHR) and contains more than 311,000 active concepts with unique meanings and formal logic-based definitions organized into hierarchies. SNOMED CT can be used to represent clinically relevant information consistently, reliably and comprehensively as an integral part of producing electronic health records.<sup>25</sup>

# T

## **Taxonomy**

Taxonomy is the practice and science of classification. The word comes from the Greek *taxis* (meaning 'order', 'arrangement') and *nomos* ('law' or 'science'). Taxonomies, or taxonomic schemes, are arranged frequently in a hierarchical structure. Typically they are related by subtype-supertype relationships, also called parent-child relationships. In such a subtype-supertype relationship the subtype kind of thing has by definition the same constraints as the supertype kind of thing plus one or more additional constraints. For example, car is a subtype of vehicle. So any car is also a vehicle, but not every vehicle is a car.<sup>3</sup>

**Token** – see *Authentication Token*

## **Transaction**

The exchange of information between two parties to carry out financial or administrative activities related to health care.<sup>1</sup>

## **Transmission**

The transfer of data over a communications channel.<sup>5</sup>

## U

### **Universal Product Code (UPC)**

A unique 12-digit number assigned to retail merchandise that identifies both the product and the vendor that sells the product. The UPC on a product typically appears adjacent to its bar code, the machine-readable representation of the UPC. The first six digits of the UPC are the vendor's unique identification number. The next 5 digits are the product's unique reference number that identifies the product within any one vendor's line of products. The last number is a check digit that is used to verify that the UPC for that specific product is correct.<sup>15</sup>

**UPC** – *see Universal Product Code*

### **Use case**

Use cases describe the interaction between a primary Actor (the initiator of the interaction) and the system itself, represented as a sequence of simple steps. Actors are something or someone which exist outside the system under study, and that take part in a sequence of activities in a dialogue with the system to achieve some goal. They may be end users, other systems, or hardware devices. Each use case is a complete series of events, described from the point of view of the Actor.<sup>3</sup>

# V

## **Validity**

The extent to which a test, measurement, or other method of investigation possesses the property of actually doing what it has been designed to do.<sup>19</sup>

## **Virus**

- 1.) Software used to infect a computer. After the virus code is written, it is buried within an existing program. Once that program is executed, the virus code is activated and attaches copies of itself to other programs in the system. Infected programs copy the virus to other programs.<sup>5</sup>
- 2.) A program or piece of code that is loaded onto your computer without your knowledge and runs against your wishes. Viruses can also replicate themselves. A simple virus that can make a copy of itself over and over again is relatively easy to produce. Even such a simple virus is dangerous because it will quickly use all available memory and bring the system to a halt. An even more dangerous type of virus is one capable of transmitting itself across networks and bypassing security systems.<sup>15</sup>

## **Vulnerability**

A security exposure in an operating system or other system software or application software component. Before the Internet became mainstream and exposed every organization in the world to every attacker on the planet, vulnerabilities surely existed, but were not as often exploited.<sup>5</sup>

# W

## **What You See Is What You Get (WYSIWYG)**

It refers to displaying text and graphics on screen the same as they will print on paper or display on a Web page. For printing, the results may look very similar on paper, but it is impossible to get a 100% exact representation because screen and printer resolutions do not match.<sup>5</sup>

## **Workflow**

- 1.) The automation of a business process, in whole or part, during which documents, information or tasks are passed from one participant to another for action, according to a set of procedural rules.<sup>6</sup>
- 2.) A graphic representation of the flow of work in a process and its related subprocesses; including specific activities, information dependencies, and the sequence of decisions and activities.<sup>26</sup>

**WYSIWYG** – see *What You See Is What You Get*

# X

## **XML (Extensible Markup Language)**

A general-purpose specification for creating custom markup languages. A markup language is an artificial language using a set of annotations to text that give instructions regarding the structure of text or how it is to be displayed. XML is classified as an extensible language, because it allows the user to define the mark-up elements. XML's purpose is to aid information systems in sharing structured data, especially via the Internet, to encode documents, and to serialize data.<sup>3</sup>

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