



# APIC

Spreading knowledge.  
Preventing infection.®

## Informatics glossary for Infection Preventionists

*This glossary includes terms which will facilitate your understanding and investigation of surveillance technology (ST) products and services. Practical examples are included where relevant to ST. Note: these definitions are developed with the intended audience in mind (IPs). As such, some terms defined may have alternate or varying definitions outside the infection control discipline.*

**Alert:** Information automatically reported from the ST application as soon as specific criteria are met. Alert criteria may be determined by ST vendors or IP users or both. These notifications may: occur on screen as a “popup”; within the context of the part of the application in use at the time; be sent via email; pager system; or viewed in the form of a more complete report. Methods and customization vary by vendor. Alerts may also be referred to as “warnings”, “warning flags” etc. Examples of ST infection control alerts may include notification of a patient with a positive smear for AFB; a highly resistant bacterial isolate; a positive serology test for RSV; or notification of a potential outbreak.

**Algorithm:** A set of criteria or decision rules, programmed into ST software to carry out a complex task to save time for the user. See also: Alert, Protocol, Guideline, Care Pathway, and Practice Parameter. For example, in an ST application, an algorithm may be programmed to result in the generation of an alert; or determine a patient who meets the criteria for an infection. Vendors typically design algorithms but the IP may want to ask if there is support to develop additional algorithms.

**Application Software:** Software that is designed and written for a specific personal, organizational, or processing task, such as graphics or patient database software. A simple analogy would be the relationship of an electric light—an application—to an electric power generation plant—the system. The power plant merely generates electricity, itself not really of any use until harnessed to an application like the electric light which performs a service that the user desires, e.g., In addition to Infection Control, ST systems may offer other applications for Pharmacy-treatment recommendations; Employee Health records and others.

**Artificial intelligence in medicine:** The application of artificial intelligence methods to solve problems in medicine e.g. developing expert systems to assist with diagnosis, therapy planning, patterns, trends or clusters in IC surveillance data. See also: Expert system.

**ASCII (ASK-key)** Stands for "American Standard Code for Information Interchange." ASCII is the universal standard for the numerical codes computers use to represent all upper and lower-case letters, numbers, and punctuation. Without ASCII, each type of computer would use a different way of representing letters and numbers, causing major chaos for computer programmers. ASCII makes it possible for text to be shared between different computers, applications and users.

**Application service provider (ASP)** : is a *third party* business or organization which provides access to application software over a network or the Internet. The application(s) may be within (e.g. your IT department) or external to your organization (e.g. another state). ST vendors may provide their applications and services in this manner as opposed to loading the applications directly onto **your** computer(s).

**Bandwidth:** The capacity of data that can be transmitted across a communication channel over a given period of time.

**Bluetooth:** Wireless communication system designed to allow many personal devices such as computers, mobile phones and digital cameras to communicate with each other over a short-range.

**Boolean Logic:** A system of logic devised by Georges Boole that defined the meaning of linguistic conjunctions like *and*, *or* and *not* that represent symbolic relationships between entities. Boolean logic is used in computer circuits and by search engines such as Medline or Google.

**Browser:** A software program that allows users to view content on the World Wide Web. Examples include but not limited to: "Internet Explorer", "Netscape", "Opera".

**Central Data Repository- CDR:** See data warehouse.

**Client:** A computer (and by extension its user) connected to a network that does not store all the data or software it uses, but retrieves it across the network from another computer that acts as a server. See also: Client-server architecture, Server. Can also be used to indicate a customer, e.g. a vendor will refer to clients, be sure to determine if clients are Healthcare Organizations or individuals.

**Client-server architecture:** In the real world, businesses have clients. In the computer world, servers have clients. The "client-server" architecture is common in both local and wide area networks. For example, if an office has a server that stores the company's database on it, the other computers in the office that can access the database are

"clients" of the server. Client server architecture can also be "homegrown" or a commercial product. ST vendors may design their system to function to store pertinent data and software to access it on their own computer (server). You would then access the data from your computer (client) over a network or the Internet.

**Clinical Decision Support (CDS):** Clinical Decision Support refers broadly to providing clinicians with clinical knowledge and patient-related information, intelligently filtered or presented at appropriate times, to enhance patient care. Clinical knowledge of interest could range from simple facts and relationships to best practices for managing patients with specific disease states, new medical knowledge from clinical research and other types of information. Decisions are based on algorithms and are usually semi-structured (i.e. imperfect). ST vendors may provide CDS applications to assist MD's with infectious disease diagnosis and treatment decisions.

**Clinical Document Architecture (CDA):** Clinical Document Architecture (CDA) is a document markup standard published by HL7 that specifies the structure and semantics of "clinical documents" for the purpose of exchange. A clinical document contains observations and services and has the following characteristics:

- Persistence – A clinical document continues to exist in an unaltered state, for a time period defined by local and regulatory requirements.
  - Stewardship – A clinical document is maintained by an organization entrusted with its care.
  - Potential for authentication - A clinical document is an assemblage of information that is intended to be legally authenticated.
  - Context - A clinical document establishes the default context for its contents.
  - Wholeness - Authentication of a clinical document applies to the whole and does not apply to portions of the document without the full context of the document.
  - Human readability – A clinical document is human readable.
- The scope of the CDA is the standardization of clinical documents for exchange. CDA documents are encoded in Extensible Markup Language (XML).
  - See the following site for more details on CDA and requirements of vendors of ST that will permit electronic message reporting into CDC's National Healthcare Safety Network (NHSN):
    - [http://www.cdc.gov/nhsn/CDA\\_eSurveillance.html](http://www.cdc.gov/nhsn/CDA_eSurveillance.html)
    - [http://www.cdc.gov/nhsn/PDFs/CDA/CDAR2L3\\_IG\\_HAIRPT\\_R2\\_D2\\_2009FEB.pdf](http://www.cdc.gov/nhsn/PDFs/CDA/CDAR2L3_IG_HAIRPT_R2_D2_2009FEB.pdf)

**Cloud computing:** A style of computing in which dynamically scalable and often virtualized resources (applications) are provided as a service over the Internet. Conceptually this is equivalent to a utility, much like water or electricity, where the economic model entails paying only for what you use. In this sense, cloud computing provides access to a computational IT infrastructure on an on-demand, variable cost basis, rather than a fixed cost capital investment into physical assets held within any one facility or health system, e.g. database servers.

**Code:** In *medical terminological* systems: a unique, standardized, numerical identifier associated with a medical concept which may be associated with a variety of terms, all with the same meaning. e.g. ICD-9 (diagnosis) CPT (medical procedure) LOINC (laboratory tests or results), CPT-4 (patient services and procedures). . :

**Computerized Physician/Provider Order Entry (CPOE).** An electronic system in which medical orders can be written, transmitted, accepted by nursing and other patient care staff. Many hospitals have “on line” order entry for nursing and other patient care staff to electronically request materials, laboratory tests, meals etc.

**CPT-4 Code:** Stands for Correct Procedural Terminology (4<sup>th</sup> edition) and is used by insurance companies in the United States for billing purposes to describe procedures performed on a patient. Each CPT Code has a policy regarding proper billing and reimbursement, and list which ICD-9 code can and should be used with that CPT Code. There are certain fees that are paid for each CPT Code. See also ICD-9 code.

**Dashboard:** As in a car, a software application dashboard allows the user to quickly assess large quantities of data succinctly on a “user friendly” screen view. Can vary in degree of sophistication and ability of user to customize in real-time.

**Data:** A discrete measurement or characteristic of an object or event that is the focus of an information system. In the plural sense, data may be used to describe a collection of said discrete measures. Data, without context, is of little value, but serves as the primary building block to obtaining information and eventually knowledge. In hierarchical manner it goes: data, information and lastly knowledge. See information, knowledge.

**Database:** Databases have been a staple of business computing from the very beginning of the digital era. The **relational database** was born in 1970 and since then, relational databases have grown in popularity to become the standard.

Originally, databases were **flat**. This means that the information was stored in one long text file, called a **tab delimited file**. Each entry in the tab delimited file is separated by a special character, such as a vertical bar (|). Each entry contains multiple pieces of information (**fields**) about a particular object or person grouped together as a **record**. The text file makes it difficult to search for specific information or to create reports that include only certain fields from each record. Here's an example of the file created by a flat database:

```
Lname, FName, Age, Salary|Smith, John, 35, $280|Doe, Jane, 28, $325|Brown, Scott, 41, $265|Howard, Shemp, 48, $359|Taylor, Tom, 22, $250
```

You can see that you have to search sequentially through the entire file to gather related information, such as age or salary. A relational database allows you to easily find specific information. It also allows you to sort based on any field and generate reports that contain only certain fields from each record. Relational databases use **tables** to store

information. The standard fields and records are represented as columns (fields) and rows (records) in a table. Look at this example:

LName	FName	City	Age	Salary
Smith	John	3	35	\$280
Doe	Jane	1	28	\$325
Brown	Scott	3	41	\$265
Howard	Shemp	4	48	\$359
Taylor	Tom	2	22	\$250

In the relational database example, you can quickly compare salaries and ages because of the arrangement of data in columns. The relational database model takes advantage of this uniformity to build completely new tables out of required information from existing tables. In other words, it uses the relationship of similar data to increase the speed and versatility of the database.

The "relational" part of the name comes into play because of the other tables. A typical relational database has anywhere from 10 to more than 1,000 tables. Each table contains a column or columns that other tables can key on to gather information from that table. Look at the table below that matches the number in the City column of the above table with the name of a city.

City #	City Name
1	Boston
2	London
3	New York
4	Los Angeles

By storing this information in another table, the database can create a single small table with the locations that can then be used for a variety of purposes by other tables in the database. Using a series of smaller relational databases usually enhances the efficiency of the overall system. A typical large database, like the one a big Web site, such as a large healthcare system would have, will contain hundreds or thousands of tables like this all used together to quickly find the exact information needed at any given time. Relational databases are created using a special programming language, **structured query language (SQL)**, that is the standard for database interoperability. SQL is the foundation for all of the popular database applications available today, from **Access** to **Oracle**.

**Data mining:** The extraction of implicit, previously unknown, and potentially useful information from electronic data or, the science of extracting useful information from large data sets or databases. Although it is usually used in

relation to analysis of data, data mining, like “artificial intelligence” is an umbrella term and is used with varied meaning in a wide range of contexts. It is usually associated with a business or other organization's need to identify trends. An ST vendor may “mine” your data, find correlations, aberrations, and trends and report them to IP's for their investigation. Correlations, aberrations, trends in the data may or may not be clinically meaningful. Knowledgeable IP's will verify all interpretive reports from an ST vendor. Sensitivity and specificity of the data mining application to identify clinically meaningful information is essential to successful ST performance.

**Data Warehouse:** large amounts of pooled historical and current data e.g. patients, for shared access. Commonly in the form of a collection of large inter-relational databases, they are used to identify otherwise invisible relationships among disparate source of data. see also enterprise system

**Demographics:** Personally identifiable information contained in patient ADT (admission discharge transfer) files. E.g. name, medical record or ID number, address, date of birth, sex, admitting physician etc. ST vendors may require that some of these data files be transferred to their applications, in which case HIPAA rules apply.

**Diagnosis-related groups (DRGs):** is a system to classify hospital cases into one of approximately 500 groups, also referred to as DRGs, expected to have similar hospital resource use, developed for Medicare as part of the prospective payment system (PPS). DRGs are assigned by a "grouper" program based on ICD9 diagnoses, procedures, age, sex, and the presence of complications or co morbidities. DRGs have been used since 1983 to determine how much Medicare pays the hospital, since patients within each category are similar clinically and are expected to use the same level of hospital resources. DRGs may be further grouped into 25 “major diagnostic categories” which are then broken down into ICD9 codes. See also ICD-9.

**Domain:** A name by which a computer connected to the Internet is identified. A typical domain name looks like this: [www.apic.org](http://www.apic.org). The "www." refers to the fact that this computer is connected to the World Wide Web; the middle portion of a domain name is usually the name of the company that owns the computer—in this case, APIC. The final portion of a domain name tells you what kind of site is served by this machine. “Com” means commercial; “edu” means educational institution like a university or college; “org” is a membership organization; “gov” means governmental agency etc.

**Download:** The transfer of electronic data from a remote facility computer or computer system, to a local computer or computer system.

**EDI: Electronic Data Interchange.** Term describing the need for healthcare applications to be able to exchange data, requiring the adoption of agreed common standards for the form and content of the messages passing between applications. See also: HL7, LOINC, Snomed CT, and ICD-9

**EHR:** Electronic health record, See: Electronic medical record

**EMR: Electronic medical record:** A general term describing computer-based patient record systems. It is sometimes extended to include other functions like order entry for medications and tests, amongst other common functions. There is ongoing confusion over the difference between the use of the terms electronic health record ([EHR](#)) and electronic medical record ([EMR](#)). Most electronic patient records contained within an organization and often commercially available are EMR.

An EHR includes a personal (and ideally portable) health record - which includes information such as symptoms or disease management data inputted by the patient - as well as an EMR or an EMR summary.

An *electronic medical record* (EMR) is used solely by the provider (physician, clinic, hospital) that creates the record. It becomes an *electronic health record* when:

1. reports and histories (labs, pharmacy, radiology, consults, etc) are electronically added;
2. items in the record are electronically exchanged with other providers, and
3. there is a personal health record ([PHR/PMR](#)) component which allows patients to participate in documenting and creating their medical history and communicate with their provider.

In October 2005 Healthcare Informatics provided a simple overview of the difference:

"EMRs are computerized legal clinical records created in Care Delivery Organizations (CDOs), such as hospitals and physician offices. EHRs represent the ability to easily share medical information among stakeholders and to allow it to follow the patient through various modalities of care from different CDOs."

**Encryption:** A technique of scrambling transmitted data, using special encryption software, so that only a party with the ability to unscramble the message has access to it. ST vendors must encrypt healthcare information if it is to be transmitted out of your organization to theirs and or back to yours again. ST vendors may use "SSL".

**Enterprise (information) system:** Computer system generally deemed as offering high quality service, capable of dealing with large volumes of data capable to support a large organization like a healthcare system. Enterprise Information Systems provide a technology platform that enable organizations to integrate and coordinate their business processes and patient information. They provide a single system that is central to the organization and ensure that information can be shared across all departments. Enterprise systems eliminate the problem of information fragmentation by creating a centralized data structure. An Enterprise Information System would typically be operated by professional system administrators and then deployed on dedicated servers. Because enterprise systems are very complex, costly and represent a significant time and financial investment, your CIO or CEO may ask why you cannot do IC surveillance, etc. with the organization's enterprise system.

**EPR:** Electronic patient record, See: Electronic health record

**Evidence-based Medicine:** A movement advocating the practice of medicine and nursing care according to clinical guidelines based upon scientific data published in peer reviewed journals. See also: Clinical guideline, Meta-analysis, Protocol.

**Expert system:** A computer program that contains expert knowledge about a particular problem, often in the form of a set of if-then rules that is able to solve problems at a level equivalent or greater than human experts. e.g. ST vendors may have included expert system programming in their applications which can alert you to patterns or trends you may not have determined in your own analysis. For example, ST applications may notify you that there is an unusual or above baseline level of occurrence of multi-drug resistant *Pseudomonas* species recovered from patients on a particular ward. See also: Artificial intelligence in medicine.

**Extract: of data: Extraction,** also called decompression, is the action of reversing compressed data. Data compression is the process of encoding information using fewer bits (or other information-bearing units). One popular instance of compression is the “zip file” which, as well as providing compression, acts as an archiver, storing many files in a single output file.

**FAQ :** Frequently Asked Questions. Usually found on the Internet and software applications, FAQs are helpful resources that contain the answers to the most frequently asked questions about a topic. ST vendors’ websites should have an “FAQ” section.

**Feed:** Informal way of describing the process of data being electronically “fed” or transferred from a sender to a receiver. See upload

**File:** A collection of information that is stored in a computer system and can be identified by its full path name. Computer files provide a way to organize and permanently store information inside a computer.

Information in a computer file may consist of smaller packets of information (often called *records* or *lines*) that are individually different but share some trait in common. For example, a file which an ST vendor will require may be the complete list of names of laboratory tests used by your lab which would be updated as needed. The records or lines in the file would be the names of each laboratory test.

**File Extension:** The final part of a file name that denotes the file format. The extension is usually three to four letters set apart from the rest of the file name by a period. Examples of file extensions are: .gif, .html, .doc, .txt, .wav, wpd and so on. Also indicates the type of file and how the data it carries is formatted. ST applications may allow you to transfer files from their system into other formats.

**File Transfer Protocol (FTP):** The standard protocol for sending (see uploading and downloading) files across the Internet or directly between computers. ST applications may require that your data be transmitted to their service via an FTP over the Internet.

**Firewall:** A security barrier erected between a public computer network like the Internet and a local private computer network like one in your organization. ST vendors may provide applications which allow you to manage your data exclusively within your organization's firewall, or to transmit it beyond your firewall via dedicated lines (modem).

**Flat file:** See Database.

**Freeware:** A method of software distribution where a programmer creates a program and makes it available for free. Beware; there may be no such thing as "Free". Always check with your IT department before you download any "freeware".

**Go live:** The day an application is available for use (e.g. during validation) or, the first day it is actually used by a user ("trial run") or, the first day it is integrated into IP work practice.

**Guideline:** An agreed set of steps to be taken in the management of a clinical condition. See also: Algorithm, Care Pathway, Practice Parameter, and Protocol. ST vendors may provide reference to established and proven guidelines related to infection control and prevention.

**Hardware:** For a computer system, all its physical components (e.g. monitor, keyboard), as distinguished from the programs and data that are manipulated by the computer. See also: Software.

**HIS:** Hospital information system. Typically used to describe hospital computer systems with functions like patient admission and discharge and transfer (ADT), files from laboratory tests (LIS) or medications, and billing functions. ST vendors may receive transfer of varied files from an HIS. See also: CDR, Enterprise system.

**HL7 (Health Level 7):** An international standard or language, for electronic data exchange in healthcare, which strictly defines the format and content of messages that pass between medical applications. ST vendors may accept or require transfer of patient data files in this form or language. <http://www.hl7.org/index.cfm>

**HTML:** Hypertext Mark-up Language. The description language used to create hypertext documents (associated documents that can be accessed from the display screen) that can be viewed on the World Wide Web. See also: HTTP, World Wide Web.

**HTTP:** Hypertext Transfer Protocol. Communication protocol used on the Internet for the transfer of HTML documents. See also: HTML, World Wide Web.

**Hyperlink:** An electronic link between files applications or domains, activated by the user. Typically, a hyperlink is underlined and visible in blue so that it stands out among other text. ST applications may hyperlink patient medical record numbers so you can tap into previous admissions; an organism name so that you can see the susceptibility pattern; an organization name so that you can access its website.

**ICD-9:** Stands for International Classification of Diseases, 9<sup>th</sup> Revision. An ICD9 Code is a set of three to five digit numeric and alphanumeric codes. There are 16,789 ICD9 Codes for 2006. ICD9 Codes are used to describe symptoms, diseases, conditions, and other reasons for seeking healthcare services.

All conditions, (ICD9 Codes), which are documented in the medical record, are required to be coded. The ICD9 Codes represent patient care, treatment, or management procedures during the patient encounter. ICD-9 codes are assigned by professional “coders” and there can be discrepancy or incorrect coding of any patient. IP’s need to know that it is not uncommon for incorrect coding to be found on a patient’s chart, resulting in reporting a case of infection where there was none.

The ICD9 Code is used in conjunction with a CPT code. The relationship between the ICD9 and CPT refers to the medical necessity of the procedure. The CPT Code describes the procedure; the ICD9 Code describes the diagnosis.

**Informatics:** The collection, organization, and analysis of large amounts of patient data, using computers and databases with the goal of obtaining information. It includes the integration and “mining” of the ever-expanding databases of information within healthcare organizations. Healthcare Informatics, Nursing informatics

**Information:** Data placed within the context of analysis. An example of information is a rate, which expresses the occurrence of an event in a given time period. Information is constructed from data and when used properly, advances to form knowledge. See Data, Knowledge.

**Information architecture:** The systematic design of information systems within a given setting (often organizational level). This includes all hardware, software and network components that collectively form an information system. ST may exist within or external to an organization’s architecture, but it undoubtedly interacts with it.

**Interface:** The program or device that controls the way two pieces of computer equipment **or** computer programs work together. The term interface can also be used to describe the look and layout of a program on the screen for interaction with the user. They can be described as one directional (files are transferred one way, from your computers to vendor’s) or bi-directional (files can be transferred back and forth from organization to vendor). The

design of ST products may or may not require interface(s) for your computers to transmit information to and from theirs. Hospital IT departments will need to communicate with vendors regarding their interfaces.

**Internet:** Technically, a network of computer networks. Today, associated with a specific global computer network which is publicly accessible, and upon which the World Wide Web is based. ST vendors may or may not utilize the internet as a mechanism for your organization to send data to them and for them to provide you with system access. See also ASP model.

**Integration:** The internal process of incorporating ST into your Infection Control Plan and daily workflow. ST vendors may advise you; communicating with other ST users is essential.

**Intranet:** A computer network, based upon World Wide Web and Internet technologies, but whose scope is limited to within the organization. An intranet may be connected to an extranet, so that there can be communication and flow of information between it and other intranets. Your organization may have an intranet to enhance communication between healthcare professionals and departments. ST vendors may or may not design their applications for access only within your organization's intranet.

**IP (working Protocol):** Communication protocol to allow different individual networks to communicate with each other. IP is the basis of the communication infrastructure.

**IP address:** The physical address of an individual computer, represented in code, on the Internet, which permits it to send and receive messages from other computers on the Internet.

**Knowledge:** The application of information to form actionable items. For instance, if hand hygiene observation rates are expected to be at 90% and a recent collection of data is analyzed and determines the current rate is 70% the decision to hold a meeting and educational session with direct care providers of the implicated unit is the result of knowing (knowledge) that 70% is less than the acceptable and requires intervention. ST can collect data and provide information, but often a human element (the IP) is required to turn information into knowledge.

**Knowledgebase:** A structured repository for knowledge, consisting of a collection of knowledge elements such as rules and their associated data model. A knowledge-base is a core component of an *Expert System*. An ST application knowledge base could for example, include organism scientific names, antibiotic susceptibility test results, patient wards so that it could be used to generate an alert about patterns, trends or an unusual correlation of data needing your attention.

**Knowledge-based system:** See: Expert system. ST vendors may offer this type of service in their applications so that they analyze your data and report their findings to you.

**LAN:** Local Area Network. A computer network limited to servicing computers in a small locality, e.g. your total organization, several departments or your department only. ST vendors may provide IC applications which are designed to be used within a local area network only.

**LIS – Laboratory Information System:** System which allows electronic processing and storage of laboratory test orders, test results, patient demographics and additional data. Within each clinical specialty (microbiology, serology, hematology, chemistry etc) there may be multiple, huge databases, files and applications.

**Load:** To transfer programs or data from secondary to primary storage. For example, when a program is started, the information contained in its files is copied from the hard drive to the RAM so it will run on your computer. See also: upload, download.

**LOINC:** a standardized code set, for electronic movement of clinical data from laboratories to hospitals, physician's offices, and payers who use the data for clinical care and management purposes. LOINC codes allow users to merge clinical results from many sources into one database for patient care, clinical research, or management. An ST vendor may use LOINC codes to send and receive laboratory data files.

**Mobile Computing Device:** A variety of devices that are portable and permit the user to access applications from almost any location. Examples include – and are rapidly changing – laptop, netbook, electronic-readers, personal digital assistants (PDAs), USB memory (aka thumb or flash drives), smart phones (mobile phones with advanced communication, storage and processing capabilities

**Modem:** Modulator-demodulator. Device used for converting a digital signal into tones that can be transmitted via a telephone wire. ST vendors may require that your data be transmitted from your organization's computer network to theirs via modem or router. See also: router.

**Module:** One or more components of a larger system. e.g. ST vendors may provide separate components or modules in a line of products: Infection control surveillance, Employee health, Pharmacy etc. See also: application.

**Network:** Set of connected elements. For computers, any collection of computers connected together so that they are able to communicate, permitting the sharing of data or programs. ST vendors applications may be designed for use within your organizations internal network only e.g. Infection Control; or, within a wider area network e.g. your healthcare organization.

**Operating system (OS)** is an essential software program that manages the hardware and software resources of a computer. The OS performs basic tasks, such as controlling and allocating memory, prioritizing the processing of

instructions, controlling input and output devices, facilitating networking and managing files. An example of this includes Windows by Microsoft.

**Plug 'n Play:** Also called PnP, Plug n' Play refers to technology that allows you to simply install a new peripheral device on your computer, then start the computer and the operating system will automatically identify the device and load the necessary drivers to make them run. "PnP" devices can include printers, digital cameras, PDA's.

**Product:** Software/application/device or service provided by ST vendors. Products may be intangible like software or tangible like a personal computer. Services may include data analysis and reporting by the ST vendor or customization of software to enable user to do better analysis. Software products can be purchased in which case you own it; licensed, in which case you pay each year for the right to use it. Users must carefully investigate the vendor's agreements and fees to revise or upgrade the software, and include agreements in contracts.

**Program, Programming:** Writing computer readable code to direct what a computer does. Programming has elements of science, mathematics and engineering. ST vendors design, create and utilize numerous programs to **make up an infection control or any other application** (wording confuses me). Customizing their application to meet your specific needs will require work from their programmers who will program changes into the program.

**Protocol:** A software method convention that allows different programs or hardware components to communicate with one another.

**Pull or Push – Data:** Process of taking data from one source and moving it electronically to another, for example, from a healthcare organization to ST vendor. Data is pushed when it is sent one way by the sender to the receiver. Pulling data requires an interface be established so that the receiver can pull it from the sender without the sender needing to act. Pulling data is more complex and costly than pushing it. See upload, download

**Query:** Method of "asking" a database for the purpose of obtaining information in hopes of generating knowledge. Queries can be pre-formatted or programmed by an ST vendor, or if the vendor has included in software design, by you, the user. A query may ask a simple or complex question. e.g., how many isolates of all *Shigella* species did we have in calendar 2005? Or, how many isolates of *Pseudomonas* species, resistant to cefepime, from lower respiratory specimens, were found in patients from the Neuro ICU last week? Some ST vendors may refer to queries as reports.

**Relational database:** Application which allows users to access, update, and search information based on the relationship of data in one database to another. **See also database.**

**Reports:** A way of gathering, sorting and presenting data. A report may be pre-programmed and generated by the vendor as a result of their analysis of your data (see also mining, analysis, knowledge base system). Reports may be created by the user based upon running a query or a programmed (standardized) report, using the ST application. Or, they may be created by the user's exporting/downloading data from the ST application database into another application, e.g. Excel, SAS etc.

**Router:** A device that forwards data packets across a network toward their destinations, through a process known as routing.

**Rule-based expert system:** Programmed rules which will enable a ST application to collect and report meaningful data based on design and need. ST vendors may have programmed or "built in" rules which when met will generate reports which they then provide to IP's. Or, ST vendors may design rule choices which IP's can select to create their own notification system. See also Alerts, mining, expert system, knowledge based system.

**Screens:** or view screen. Your actual view(s) of a software application as you look at in on your computer. The better a system design, the fewer screens you'll have to move through to get to the information you're looking for. ST vendors may or may not allow requests for screens to be modified or customized for your need and use.

**Security:** A system of protocols and devices which prevent unauthorized users from accessing your data. Details and evidence of security procedures, protocols and certifications must be discussed in detail and contracted with your chosen ST vendor.

**SSL or Secure Sockets Layer:** A standardized security protocol which provides endpoint authentication and communications privacy over the Internet using cryptography. In typical use, only the server is authenticated (i.e. its identity is ensured) while the client remains unauthenticated; mutual authentication requires public key infrastructure (or PKI) deployment to clients. The protocols allow client/server applications to communicate in a way designed to prevent eavesdropping, tampering and message forgery. E.g. Banks, credit card companies and other businesses for who security is essential, use this technology. Hospitals and ST Vendors will use this if they require transfer of patient information over the internet.

**Server:** a computer that provides services to other computers (clients), or the software that runs on it. An application server is dedicated to running certain software or applications, i.e. it is not a personal computer. You may use your computer to access a server which is in your office, your department, your building, your organization or at a remote site in another city, state or country. ST applications may require your data be stored and accessed on a server at your site, their site, or both.

**Service:** Additional support provided by ST vendors to improve and enhance the use of the application(s) they sell. Examples include but not limited to: analysis of your data (mining); advice on integration of ST into daily work practice; extra programming to customize the application to best meet your needs; ad-hoc data requests; continuing education or resources for staff.

**Shareware:** Refers to a method of software distribution. Shareware are programs that are written and distributed for free for users to install and try out. If a user likes the program and decides to use it, they are expected to "register" the program with its creator for a small fee. If the user decides not to register, they are expected to remove it from their system. See freeware

**Software:** Synonym for computer program or application.

**Source Code:** The original copy of a software program as it is written by programmers in a language they understand. The source code is then compiled (converted) into machine language, a language that computers understand. Now the program is able to work on a user's computer in a language the user understands.

**Specs or Specifications:** Technical requirements which describe or define the way data must be sent, stored. Or, the technical description of the final functionality of a customized product.

**SQL ("sequel"): Structure Query Language** A computer language used to query databases. You may hear it referred to as "sequel". There are various providers of varying applications (not always 100% compatible iterations) which may be used by your IT department or commercial vendors in their applications.

**System:** Can be used to describe an ST product or a "suite" of complimentary products and or services.

**Testing:** The steps involved in the vendor's detailed review of your "trial run" data as it flows into and is processed by their application. Once they verify that it's "working" they will validate the process with your real patient data. IP's should inquire with ST vendors how this process will be done and how long it will take. See also validation.

**Update:** To install the latest version of a program, or to record the latest information in a file or other document.

**Upgrade:** A newer version of a program intended to seamlessly add new features to an existing piece of software without having to purchase and install an entirely new edition. Upgrades typically cost less than buying an all new copy of the software (fees are often nominal, or even free). Also refers to reconfiguring a computer system to increase its computing power— by installing new hardware components. Upgrade is also a verb, to describe the action of installing and running a newer version.

**Upload:** To send a file from a local computer or computer system to a remote computer, system or server.

**URL:** Uniform Resource Locator, a string of text used to identify and locate a file on a computer network, like the Internet. 'An URL looks like this ... <http://www.apic.org>

**User:** A person who operates and uses a computer or uses an ST application.

**User-friendly:** Programs that have been thoughtfully designed to be intuitive and self-explanatory to the average user, with a minimal chance of mistakes. This is a commonly used marketing term for any software application, like beauty, it's in the eye of the beholder.

**User interface:** The view a user has of a computer program, usually understood to mean the visual look (screen views) and feel of a program, but also extending to other modes of interaction, e.g. voice and touch.

**Validation:** The process of detailed review of all data as received and processed by an ST vendor and made available for your use. Each organization must decide the amount of patient data to be reviewed to determine errors, problems, questions. IC and IT project managers must then work with ST vendor to ensure corrections and improvements are made. Only when sufficient patient data seen in the ST application is validated as completely reliable, can the IP deem it suitable for use. This process could take days, weeks or months depending upon the vendor and the applications. Validation must be led by organizational staff, not vendors and is not necessarily a one-time, pre-launch activity. Periodic mini-reviews are recommended to ensure continuing data reliability and performance.

**Version:** A specific release of a software product sometimes referred to as "upgrades" or revisions. Version numbers are typically assigned in ascending order, thus the higher the number, the newer the software. Sometimes, to add a small feature or fix a small error, rather than release another version of a program, a manufacturer will release a revision or "patch" of the software, which is represented in the version number as a decimal (e.g. Paint Shop Pro v 5.1). ST vendors will inform users when new versions of software are available for their applications and should describe and provide changes and training if required. Contract negotiations should cover new version releases: price, installation process, and timing.

**Virtual private network (VPN):** is a private communications network usually used within a company, or by several different companies or organizations, to communicate over a public network. VPN message traffic is carried on public networking infrastructure (e.g. the Internet) using standard (often insecure) protocols, or over a service provider's network providing VPN service guarded by well defined Service Level Agreement (SLA) between the VPN customer and the VPN service provider.

**WAN** (Wide Area Network): Computer network extending beyond a local area such as a campus or office. See also: LAN.

**World Wide Web:** An easy-to-use hypertext document system developed for the allowing users to access multimedia documents. See also: HTTP, HTML, URL.

**ZIP files:** Refers to the most common file compression format. A zip file is made by compressing the information in a file or set of files to generally make the file smaller. Zip files are easier to store and transport since they require less disk space. A special file-compression and/or decompression utility such as “Win-Zip” is typically required.

### Resources used in this glossary:

DocofficeRx.com, an online resource for ICD-9 and CPT coding, found at <http://docofficerx.com/aboutus.cfm>

Guide to Health Informatics 2<sup>nd</sup> Edition, Enrico Coiera, US distributor Oxford University Press, 1-800-445-9714, ISBN number 0340 764252 also found online at: <http://www.coiera.com/index.htm>

How Stuff Works.com, Online resource found at: <http://www.howstuffworks.com/index.htm>

Online Nursing Informatics glossary found at <http://www.angelfire.com/bc/nursinginformatics/glossary6.html>  
Kwantlen University College 1999, 2000, Design & Content by June Kaminski, RN MSN

Open Clinical -Knowledge Management for Medical Care, found online at: [www.openclinical.org](http://www.openclinical.org) see “Health Informatics”

Public Health Informatics and Information Systems: editors: Patrick W. O'Carroll et al. Springer New York, NY ISBN: 0-387-95474-0; 2003

The Clinical Informatics Wiki – Clinfowiki, found on line at: [http://www.informatics-review.com/wiki/index.php/Main\\_Page](http://www.informatics-review.com/wiki/index.php/Main_Page)

The Sharpened Computer Glossary found online at: <http://www.sharpened.net/glossary/>

Wikipedia the free online encyclopedia that anyone can edit at: [http://en.wikipedia.org/wiki/Main\\_Page](http://en.wikipedia.org/wiki/Main_Page)

Further Reading: AJIC Supplement, Informatics and Infection Prevention & Control; available at:  
[http://www.ajicjournal.org/issues/contents?issue\\_key=S0196-6553\(08\)X0005-7](http://www.ajicjournal.org/issues/contents?issue_key=S0196-6553(08)X0005-7)

For details on NHSN visit:

[http://www.ajicjournal.org/issues/contents?issue\\_key=S0196-6553\(08\)X0005-7](http://www.ajicjournal.org/issues/contents?issue_key=S0196-6553(08)X0005-7)