

Leveraging Internet Technologies

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Internet availability is as commonplace as the television in our homes. Almost everyone with a computer lives in an area that provides Internet access. You can't miss the advertisements from national and local Internet Service Providers (ISPs) boasting fast connections and economical pricing plans. Today, cable companies, phone companies and other providers such as America Online (AOL) are competing us to connect.

Ease of access to Internet means more and more consumers are getting online. In 1998, nearly 18 million people surfed the Internet for health-related products and services. Explosive growth in health care Internet connectivity is predicted for 2000. (Yes it's happening now!) It is estimated that by 2001, 30 million people will be using the Internet for a variety of health care needs.¹ What does the explosive growth mean to this industry and to the health information management (HIM) professional?

The health care industry is moving quickly to respond to the public's interest to access health care delivery on the Internet. Health care providers, payers and pharmacies are developing e-business strategies, which leverage Internet technologies to develop intimate relationships with the public, gain competitive advantage and reduce processing inefficiencies. HIM professionals, with advanced knowledge and skills in Internet technologies, will be valuable contributors to their organization's e-business strategy. This month, I will briefly review key Internet technologies, discuss their role in health care, and suggest resources to enhance your knowledge of Internet technology beyond what is presented here.

Internet, Intranet and Extranet

There are three basic Internet configurations: Internet, intranet and extranet. All three rely on the standard TCP/IP—transmission control protocol/Internet protocol networks (see Table). The Internet is a public network while the intranet is a single organization's in-house private network. Extranet's are created when two or more organizations use the Internet to tie their private networks (intranets) together. This then creates a virtual private network (VPN) among cooperating organizations. Each type of network configuration has its unique set of security issues and is based on several open technologies.

Good News: Open Standards

Internet technologies are reliant on non-proprietary standards. This means that hardware, software and transmission methods do not need to be identical as long as they adhere to established Internet standards. Some of the key Internet standards are noted here:

These standards are significant in that they make it easier for health care vendors to create applications because they don't have to worry about platform or network interoperability issues. It also makes it possible for health care organizations to link systems on different platforms.

Key Internet Technologies

E-mail: E-mail is the most popular use of Internet. E-mail messages can contain text and multimedia and reach their intended destination in seconds. E-mail applications are built into most Web browsers and many operating systems.

Most health care organizations have a private e-mail network for internal communications that may or may not be connected to the Internet. Organizations that include e-mail in their Internet access infrastructure facilitate communications and decision making with physicians, patients, vendors, government agencies and payers.

Browser: The main activity of the browser is to display information drawn from a server. The two most popular Web browsers are Microsoft's Internet Explorer and Netscape's Navigator. A browser can act as a standardized front-end to provide access to disparate legacy systems. Data mining can then be accomplished with a user-friendly Web browser and a relational database tool such as structured query language (SQL).

Web sites: A Web site is the host of information that typically resides on a file server. Hyperlinks exist to permit rapid access to multimedia data (text, graphics, video, audio). Hypertext Markup Language (HTML) is the technology that permits accelerated linking of information. HTML is like an index in a database that rapidly points a user to a chosen data object. Web sites can exist on an extranet, intranet and on the Internet. On the Internet, health care Web sites promote and provide information about services, offer search capabilities on medical information and interact with consumers. Intranet Web sites act as a private secure communication network for organizations and may include methods for employees to access health data, provide departmental updates and access company-wide documents. Some organizations are using their intranet to support online training and professional development. Web sites on VPNs are being used by health care plans to give providers access to eligibility, referral and claims data, speeding up the time it generally takes to obtain and process this information.

E-commerce: E-commerce technologies enable businesses to deliver services over the Internet or extranet. There are about 15,000 health care Web sites offering products and services online!¹ To date, four types of health care e-commerce have emerged:

1. Health care software sold to providers ;
2. Goods sold online such as pharmaceuticals;
3. Health information provided to consumers or providers; and
4. Virtual exams performed online (check out www.DiabetesWell.com, an e-clinic where patients can get blood tests done over the Internet).

While it is exciting that the health care industry has a strong Internet presence, it is at the same time frightening. The possibility of confidentiality breaches because of poorly designed medical data capture and storage systems (there are currently no standards driving this software development) or obtaining outdated health care information is a real threat to consumers. This is an area to watch very closely and one that needs HIM guidance regarding data security and data organization and management.

A Note about Security

Most Internet technologies cannot be effectively deployed without implementing security technologies and a confidentiality program. Information security replaces Y2K as this year's information technology priority. Security technologies such as firewalls, token-based authentication, encryption, digital signatures and Secure Socket Layer (SSL) are key technologies that enable the safe access and transfer of health data.

Learning Plan

Keeping up with the rapid growth of the Internet is a daunting task. The good news is that there is an abundance of resources available to you. Internet technology will change the way health care delivers services, and it will affect how you perform your work. Make the transition smoother by building upon your existing technology skills. It's time to take out your surfboard and engage in several of the activities suggested below. Happy surfing!

- Connect to the Internet. If you don't have access to the Internet—get it today! This is the best way to understand Internet technologies.
- Keep current: Periodically search for health care Internet technology articles.
- Read: Pick up a general Internet text and learn about Internet technologies not covered here: Electronic Data Interchange (EDI), File Transfer Protocol (FTP), News-groups, mailing lists, Java, XML, bandwidth, etc.
- Attend seminars on information security and/or the role the Internet plays in health care.
- Expand your knowledge of E-health. Visit sites such as www.DrKoop.com, www.Webmd.com, etc.
- Find out how the concepts referenced in this article are being used in your organization.
- Assess what skills you need to keep pace with your work environment as it relates to implementing Internet technologies. Make a plan to gain the skills you identify.

Reference

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Additional Reading

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