



# Storing Information Online: What Organizations Need to Look for in Online Data Storage Solutions

by Donald B. Moore

The need to secure and streamline the management of medical information has become mainstream news. Medical information exists in various forms—paper charts, x-ray films, electronic health records—and is located in different repositories that often can't talk to each other. However, one option for managing medical information, storing data online, can help increase accessibility and security. This article explores what organizations need to look for in online data storage solutions.

## The Downsides of Poor Data Management

There are numerous examples of poor data management in healthcare organizations today. On almost a daily basis there are reports of stolen laptops with unencrypted patient data, missing backup tapes, and inappropriate data disclosures due to lack of proper procedures and practices. Hospitals and providers routinely fax patient information over non-secure connections.

Anesthesiologists often sedate patients without having access to charts from prior procedures. Providers work with a bare minimum of data (whose accuracy is not assured) on forms filled out by a nervous patient only minutes before what may be a very frightening evaluation. This lack of control helps make medical identity theft one of the fastest growing areas of crime. These failures also can cause increased costs and a lack of proper patient care.

## Data Storage Options

On the surface the problem of managing all of this medical information appears to be almost insurmountable. However, efforts to find appropriate solutions are under way by various factions including providers, institutions, insurance companies, and the government.

The health record banking model is gaining in popularity, with the introduction of the "Independent Health Record Trust Act" into the US House of Representatives by Rep. Dennis Moore. This act would create independent trusts that manage patients' electronic medical records. Online storage is an essential component of this model. A similar bill is expected to be introduced in the Senate. (To read more about the health record banking model, read the October 2007 article "Health Record Banking: An Emerging PHR Model.")

There is also a wealth of technology available that can help organizations manage this glut of data. Capture solutions are available that convert existing paper-based medical information (such as patient charts) to an electronic format. These solutions store the information online and then provide access from any Internet-connected computer. Once stored in an electronic format, the information can be securely shared or transmitted, removing the cost and inefficiency of the faxing process. Forms traditionally filled out on paper just before a medical procedure or while waiting in a physician's office can be filled out online, resulting in more accurate information and increased efficiency.

As more medical information is stored electronically, ensuring that it is secure and accessible is extremely important. Technology advances can render storage devices obsolete (or they eventually quit working), so digital data will survive only if there is a plan for long-term access and eventual migration to other media.

## The Pros and Cons of Online Data Storage

The falling prices of storage media make it tempting to just add local devices rather than consider an online solution. There are, however, compelling benefits of online storage that make it worthy of serious consideration. Files containing critical medical information are stored off site, which is a key recommendation in disaster planning. The issues of media life expectancy and accessibility are resolved as the online storage provider manages the data and provides various methods of access. Information can be accessed from the Internet and securely shared as needed.

A potential downside to online storage is the amount of time it can take to upload data. This problem will diminish as bandwidth increases, but for now storing a large amount of data online may be impractical. Organizations should consider archiving the data initially and then only uploading changes.

If a large database must be backed up in its entirety on a nightly basis, a careful calculation of upload time must be done to see if online storage is economical. The amount of time it takes to upload (or download) data is a function of the connection speed and the amount of bandwidth that a vendor has available to serve all customers. It is wise to test both upload and download performance to see if this is an issue.

Specific organizational needs must be evaluated regarding online storage, including disaster recovery, regulatory requirements, protection of data, the amount of data to be backed up, the amount to be archived, and the need to share or exchange the data with other providers or institutions. Backed up data should include accounting data, appointment schedules, financial information, and any other data that changes on a daily basis. Archived data (such as patient charts or x-rays) are intended for long-term storage and have to be archived only once for disaster recovery and as required by authorities.

A major concern for data stored online is security. It is essential that data never exist in "clear text" and is encrypted both in transit and while stored. Each account should have its own unique encryption and decryption key. That way, even if the provider's site is compromised, the data can't be decrypted without that key. There should be ongoing independent testing of the site for known vulnerabilities. A reliable data facility should back up files in an off-site location.

Other features that increase the value of an online storage solution include hardware independence (access from Windows, Macintosh, Linux), WebDAV access (allows the online storage to appear as a virtual hard drive), and content such as a PHR.

Everyone wins when healthcare organizations securely manage their health information. The ability to quickly access and share information helps physicians provide the best treatment and can eliminate duplicate tests or procedures. Insurance companies benefit by reduced costs and the potential reduction in medical identity theft. The consumer, with his or her medical information under secure control, can take a more active role in health-related issues.

We are fortunate that the technology to manage this information is available. Thoughtful implementation will provide tremendous benefits.

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