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As physician practices transition to or upgrade electronic health record systems, how should they evaluate the pluses and minuses of “cloud computing” solutions?

By Steven F. Tolle

Despite years of talk about electronic health records (EHRs), activity has tended to be limited to the largest or most well-heeled physician practices. Nearly 75 percent of physician practices in the US *have not* made the move—and for good reason. In tough economic times, it's difficult to justify pouring money, time, and effort into technology that has not shown much return on investment.

Now, however, a strong push from federal health care reform to better coordinate care, reduce errors, and improve efficiency is forcing every physician to consider EHRs with a renewed sense of urgency.

Unfortunately, there is a lot of confusion about potential options, particularly about the term “cloud computing.” Understanding the term is essential if physicians are to make truly informed choices. For cloud computing—with its quick start-up, simplicity of use, easy adaptability, and reasonable costs—may hold the key to getting physician practices connected.

Defining the terms

To help frame the discussion, consider the terms that define the three basic EHR options.

Client-server: The oldest of the available technologies, client-server refers to a setup where a server delivers the key software and information to “client” computers. All of the hardware and software is on site and is fully bought and paid for by the practice. Installation involves considerable up-front costs and time. All updates and maintenance tend to be the responsibility of the practice. Client-server's biggest advantage—the ability to fully customize according to individual practice patterns—may ultimately become a non-factor as health care moves toward health information exchanges and regulations that demand standardization.

Application Service Provider (ASP): For ASPs, the individual practice server moves to a remote site where an external vendor maintains it. Because a web browser in the physician's office accesses the remote server, some refer to this model as “web-based” or even “software as a service (SaaS),” though that muddies the discussion because these terms are also associated with cloud computing. Up-front costs and updates for ASP solutions are still considerable because of the time needed to configure a server for each individual practice. ASP EHRs are, however, easily customized, and because the vendor maintains the server, some of the long-term maintenance costs can shift away from the practice.

Cloud computing: Cloud computing refers to the idea that a wealth of shared resources lives in a “cloud” created by the Internet and that a web browser enables users to pull the information and capabilities they need, on demand. With little start-up cost and effort, physician practices can access a standard EHR system that can be integrated with practice management, coding, and claims management solutions and is interoperable with hundreds, perhaps thousands of labs, pharmacies, hospitals, and insurers in the cloud. While not as customizable as ASP or client-server solutions, physician practices can be assured that the EHR meets current standards and regulations. When a change becomes necessary—for “meaningful use,” health information exchanges, or clinical guidelines, or to add new members to the cloud—the vendor implements the changes once and they are instantly accessible to all users.

In the physician's office

Consider how a cloud-based, fully integrated, CCHIT®-certified, practice management/EHR solution might work in a small primary care practice.

To get started, the only requirement is a web browser and scanned patient records.

When a patient arrives, a password-protected link to his EHR arrives at the computer in the exam room. Insurance and demographic information arrive at the office manager's desktop.

The physician's assistant updates information in the electronic chart, including current medications and vital signs. An elevated blood pressure reading and related complaints lead the physician to prescribe a blood pressure medication and refer the patient to a specialist. The pharmacy connection offers best-practice advice on dosage and medication conflicts, while the EHR is automatically available to the specialist.

Meanwhile, integration with the office's practice management and coding solutions allows the office manager to enter the proper coding (and dramatically decrease the chance of a claims denial), and be fully aligned with any compliance reporting requirements for meaningful use incentives. A secure portal allows the patient to view his health record when he returns home.

The challenges

Despite the advantages, three questions commonly arise about cloud-based EHR solutions.

Are they secure? Protecting patient privacy, preventing system crashes, and having disaster backup is a significant concern. Any system is vulnerable to hackers or disasters. But a fully certified and compliant EHR vendor has considerably more expertise and resources to secure its system than individual practices. For cloud-based system vendors, securing their clients' data is a full-time job. The same cannot be said for individual physician practices, whose primary purpose is to deliver medical care.

Do they make economic sense? The key is to look at total cost of ownership. Some have raised concerns that cloud-based EHRs work on a subscription or on-demand basis, so costs are ongoing. But purchasing a client-server or ASP system demands more than substantial up-front costs. Add on the cost and headache of ongoing maintenance and upgrades, including new interfaces every time an individual practice needs to add a new lab, pharmacy, insurer, hospital, or physician practice to its system. This gets costly. In contrast, the "one connected, all connected" model of the cloud-based system is much more economical and the costs, from the outset, are more transparent.

Are they flexible enough? While not as customizable as a client-server or ASP solutions, cloud-based EHRs do offer some flexibility. They also offer the security of knowing that what's customized won't fall outside meaningful use or various regulatory and reporting requirements.

Time, simplicity, and value

In short, cloud-based systems enable small physician practices to quickly and simply implement fully integrated EHRs that meet all of the meaningful use requirements of the new federal law. Their three main advantages are:

- **Cost-effectiveness**—Minimum up-front investment that translates into rapid ROI and comparable total cost of ownership
- **Cumulative value**—Improved quality and efficiency through simple interoperability with a wealth of systems and health industry partners, from hospitals and insurers to labs and pharmacies
- **Adaptability**—Cloud solutions offer the easiest, fastest, and most economical way for physician practices to manage the transition to ICD-10, changes in meaningful use requirements, and other industry changes

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