The New Frontier of Electronic, Personal, and Virtual Health Records

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Information technology can dramatically transform the delivery of healthcare, making it safer, more effective, and more efficient. Almost everyone has heard of an electronic medical record or software that allows a physician or other clinicians to maintain and access patient care and treatment information in an electronic format, rather than on paper stored in folders. However, an electronic medical record is merely a start to the advances in healthcare information technology. In this column, we explore the possibilities related to several forms of electronic patient records.

THE DIFFERENCE BETWEEN ELECTRONIC MEDICAL RECORD AND ELECTRONIC HEALTH RECORD

An electronic medical record (EMR) stores clinical data and is owned, accessed, and contributed to solely by the provider (e.g., physician, clinic, hospital). In some cases, laboratory, radiology, and consultation reports can be scanned and added or perhaps even downloaded into an EMR. An electronic health record (EHR), on the other hand, goes beyond the capability of an EMR. It points to where other health information on the patient can be found, allows the patient to contribute and interact with the clinician, and leverages clinical knowledge to make clinical data more actionable.

For example, with an EMR, a physician can look up the condition of a patient and the medical interventions the patient has been given. However, the EMR does not provide care recommendations, leaving the physician to remember the care needs of the patient. In an EHR environment, the physician is informed of the care needed and is issued an alert if an intervention (like a blood test) is overdue or if new information/result regarding the patient is now available. In addition, the EHR can also receive data from remote patient-monitoring devices used for chronic conditions and from other tracking mechanisms (such as whether the patient has picked up his prescription from the pharmacy).

PERSONAL HEALTH RECORD

An EHR includes a personal health record component and allows individuals to create, manage, and share (with authorized physicians) their personal health information. With this system, patients can contribute information and interact with their clinicians using a messaging function, which can automatically alert the patient when a test or treatment is due and can transmit results after being

reviewed by the physician. In addition, patients can record and update their health history for use by all of their physicians and other caregivers. Physicians can also send secure messages to patients, such as letting patients know that the medication has been ordered and is waiting to be picked up at the pharmacy, asking patients to schedule a follow-up visit for additional testing, or reassuring patients that their results are favorable.

Medstar's eHealth Initiative (2005) defines a personal health record (PHR) as an "Internet-based set of tools that allow people to access and coordinate their life-long health information and make appropriate parts available to those who need it. PHRs can be owned by individuals or integrated into a physician's electronic health record. . . . In either case, PHRs give people access to their health information such as medications and test results and help them become more proactively engaged in their own care."

Personal health records support the Joint Commission's 2007 patient safety goal: accurately and completely reconcile medications across the continuum of care. A PHR provides a process (which involves the patient) for obtaining and documenting a complete list of the patient's current medications upon the patient's admission into the healthcare organization. With this system, the provider can compare the patient's list of medications to the list in the organization's records. It also helps facilitate the process of communicating a complete medication list to the next provider of service at referrals or during transfers to another setting, service, practitioner, or level of care within or outside the organization. A PHR can be completed by the patient, a parent if the patient is a minor, or an adult child or other caregiver if the patient is frail or elderly.

Consider the frail elderly patient's caregiver (often, the adult child of the patient) responsible for coordinating, scheduling, and transporting this patient for doctor visits, referrals to specialists for consultations or tests, and sometimes admission to different care facilities. The current process requires this caregiver to complete, at each different provider, the necessary paper forms, which ask for the same demographic information and medical history of the patient. The more complicated the care needed, the more time the caregiver spends filling out repetitive forms and away from her own work and family. What would happen if these different medical forms filled out by the caregiver were compared against each other? Would they *all* be accurate and complete? Consider if this caregiver were to create a PHR for the patient and could review and confirm the PHR, including the patient's medical history, before it is sent electronically to the provider. Would it be more likely that this record is accurate and complete? Probably yes, given that reviewing and confirming take much less time than rewriting.

Now consider the doctor having an electronic copy of the patient's demographic information and medical history before the visit. What impact does that have on the amount of time the patient and his caregiver actually spend with the doctor or on the number of visits needed if the PHR provides a secure way for

the patient/caregiver and the doctor to communicate on follow-up issues without actually being in the same room?

The benefits of PHR are exciting, but more needs to be done to ensure that people understand their role in securing the future of PHR and in identifying its perceived risks and values to patients.

VIRTUAL HEALTH RECORD

Electronic health records are not yet a reality for many providers, but already a new form of electronic record is on the horizon. A virtual health record (VHR) uses a portal solution to draw data and information from disparate systems; the VHR then presents all of a patient's health information with a single sign-on and view. Portal technology uses master patient-indexing software to locate information that may reside in registration and billing, clinical documentation, radiology, pharmacy, and laboratory systems. By itself, a VHR does not include the full range of an EHR's capabilities, but it does allow a single presentation of an organization's current information and enables the gradual build out of a complete solution without significant disruption to how clinicians interact with the system.

With a VHR, the physician can look up a patient across the organization's systems—clinical, operations, administrative—and view the collection of information. As new software solutions are added, the VHR is updated with a new link to the information. This capability moves the discussion on technology away from system integration and toward data integration, and it offers organizations more flexibility in product selection—for example, which software better meets the needs of users.

HELP FOR SMALL AND RURAL PROVIDERS

The Office of Inspector General and the Centers for Medicare and Medicaid Services (2005) made changes to the safe-harbor regulations under the anti-kickback statute and exceptions to Stark laws. The changes allow providers, such as large hospitals, to donate "e-prescribing" or EHR technology. The decision to provide free or below–market-rate hardware or software must be made to improve patient safety and quality, promoting interoperability or the electronic exchange of health information in the community. These changes enable larger and regional facilities to share their technology and help improve exchange of information with smaller providers such as rural hospitals, clinics, or physician practices.

CONCLUSION

Electronic patient records and their various components will soon become a cost of doing business for hospitals that want to survive in the competitive healthcare marketplace. However, if patients do not trust a paperless system, they will be unwilling to contribute to any attempt to electronically manage their own private health information. Given this fact, it is up to healthcare leaders to ensure that

they and their electronic record systems fully address privacy and security issues as the technology moves into the future.

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Additional Resources

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For more information on the concepts in this column, please contact Ms. Thielst at *cthielst@cox.net.*