By Barry P. Chaiken, MD, FHIMSS

Health IT's Glue

With the march toward deployment of healthcare IT in full swing, concern mounts about obtaining the full value from the investment. Spending $19 billion on health IT tools does not guarantee patient safety, enhanced quality, improved access to care, or reduced cost. In fact, many studies over the past years have shown just the opposite.

Articles by Himmelstein in the *American Journal of Medicine* (2009), Ash in the *Journal of the American Medical Informatics Association* (2007), and Koppel in the *Journal of American Medical Association* (2005) are anything but encouraging. Yet, taking these studies at face value does not reveal the entire state of healthcare IT. These studies reflect older systems representing more of the bleeding edge, rather than the cutting edge of health IT. Our pace of learning is now exponential, and system deployment is better thought out today than ever in the past. Successes achieved at organizations are quickly shared with colleagues who work to replicate the effort. This bodes well for what we can achieve with health IT.

In my last column, "Raison d'Être," I wrote about the importance of staying focused on making healthcare IT work to achieve the four important goals noted above: patient safety, quality care, access to care, and cost savings. In March, I addressed the HIMSS membership with these words:

> *Healthcare information technology is the instrument that will transform healthcare, and it is we—the informaticists, clinicians, management engineers, senior IT executives, IT specialists, and the diverse talents of so many others—who will create the applications, processes and workflows that will improve quality, safety, access and cost-efficiency.*

In addition to our effort to transform care delivery through deployment of innovative software, revised processes, and creative workflows, niche applications are becoming available that allow the varied health IT tools to be sewn together to allow us to effectively tap into their potential. Without these applications we could not achieve the necessary integration of systems that permits the construction of meaningful, efficient workflows. Such workflows allow clinicians to deliver quality care safely and efficiently while satisfying the work requirements of caregivers.

Seamless Linking

The future of health IT over the next five years is in the development of these "glue" applications that allow the seamless linking of large, robust system, such as EMRs or laboratory applications, so that end users can utilize these tools in a coherent, patient-centric manner. Added value is not to be found in the incremental expansion of capabilities of large applications, as they already offer the functionality required to deliver care. These "glue" applications fill the voids between larger systems, adding the specialized capabilities that make the sewn-together system attractive to clinicians.

Effective and efficient workflow is the key factor in achieving acceptance of clinical IT systems by caregivers. Poorly designed implementations that disrupt workflow while distracting clinicians lead to frustrated health IT users, medical errors, poor care, and wasted resources. Recent innovations in user authentication and single sign-on offer a way for multiple systems to be linked together in one comprehensive, complete health IT workflow. These applications offer the "glue" that allows these larger systems to function in a real clinical environment.

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For security and privacy purposes, every system requires user authentication to allow access and rights based upon the role of the person using the system. For example, physicians are granted rights to write medication orders while therapists are able to view these orders but not change them. Tracking access to systems is critical to manage privacy and prevent breaches. Authentication occurs in several ways that often include user name, password, and secondary identification (e.g., smartcard, PIN number), much of this driven by legal and regulatory requirements.

Considering that all systems require this form of authentication, it is obvious how a comprehensive system that demands multiple logins can become unusable in a busy clinical environment. In an effort to remove this barrier to use, single sign-on applications are now deployed with various health IT systems to allow a user to login once and have the "glue" application login to any and all applications used in care delivery. Although valuable due to reducing the frequency in which a user logs into an application, these first tools failed to provide the complete functionality required by physicians.

Physicians Do Roam

Physicians typically utilize multiple workstations throughout a hospital even when focused on a single patient. To be more useful, these applications need to preserve the physician's elec-

Glue applications facilitate the use of health IT.

tronic workspace, irrespective of the workstation, while providing single sign-on capabilities. Unlike nurses who generally work within a specified location in a hospital, physicians roam. Therefore, their desktops need to roam with them and not be tethered to a specific workstation.

Fortunately, newer versions of these products allow the desktop to roam. After beginning of the day authentication and sign-on, a physician can now use a more convenient authentication, such as a proximity device, to launch an electronic desktop. As the physician travels from workstation to workstation, the electronic desktop roams similarly as if the physician is working at a single workstation rather than multiple ones. This "glue" application remembers the physician's last configuration of applications and information windows, and reproduces the same view on any workstation the physician accesses.

Such simple functionality provides great value to physicians as it allows these clinical IT systems to work within the workflow requirements of the physician. As workflow requires physicians to roam, clinical IT applications must be deployed to roam with them. These new versions of authentication and single sign-on applications do just that, making the bigger health IT applications more useable and attractive to physicians.

Providing a consistent electronic desktop offers a consistent application environment that helps reduce confusion and the need to reorient each time the physician accesses a workstation. By providing a stable electronic desktop, physicians are less likely to incorrectly interpret the information displayed or become disoriented about the patient they are treating. The consistency of the desktop allows an understandable, connected, and consistent information flow experience that helps to prevent medical errors due to inconsistent displays as noted by Koppel et al. (2005).

Glue applications such as single sign-on and authentication facilitate the use of health IT. Without their development and use, many large, comprehensive, and useful systems cannot be deployed in ways that fit a clinical workflow that strives to deliver safe, high quality, efficient care. Instead, the use of large, complex systems can lead to medical errors, decreased accessibility, and wasted resources. In the use of health IT, it is important to be mindful of outcomes and continually work to improve processes and workflows to achieve desired results. So in your health IT planning, be sure to remember the glue. PSQH

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