

## Saving Clinicians Precious Time

By Joseph Goedert, News Editor August 2007

Clinicians at Eisenhower Memorial Hospital routinely access six modules from San Francisco-based McKesson Corp., two applications from Kansas City, Mo.-based Cerner Corp. and several other ancillary and homegrown information systems.

And the 289-bed hospital in Rancho Mirage, Calif., part of the Eisenhower Medical Center delivery system, soon will install three to five more modules from McKesson. So the time has come, says CIO David Perez, to make clinicians' lives a little easier. Consequently, the hospital this spring implemented single-sign-on software on nursing floors. This summer, it will add the technology to applications in ancillary departments.

"Our initial focus was on nurses who were required to log in to eight or nine applications multiple times during their shifts," he adds.

While some organizations have installed single-sign-on software with little or no outside help, others, particularly larger organizations, can find the job challenging, says Mark Anderson, CEO of AC Group, a Montgomery, Texas-based consulting firm. "It's a great product if you do your due diligence ahead of time."

Anderson estimates that 80% of organizations use single-sign-on as a stand-alone product. But some facilities install the technology in conjunction with biometrics authentication software that replaces a password. And some use it in combination with context management software that enables access to patient data from multiple information systems during a single workstation session.

### **Dramatic improvement**

The improvement in clinician acceptance of information systems when context management is used with single-sign-on is dramatic, contends Steve Hight, director of strategic technology projects in the Phoenix division of Catholic Healthcare West, a multi-state provider network based in San Francisco. "They're mildly appreciative of single-sign-on," he notes. "But with context management, they're practically thanking us and asking us to lunch."

One early-adopter physician told Hight he is saving two to three hours a day in retrieving patient data. Further, physicians can access the information systems remotely using a Web portal that supports single-sign-on and context management. Several major applications previously were not remotely accessible.

Organizations implementing single-sign-on should spend time conducting load tests, says Celwyn Evans, a senior partner at Greencastle Consulting, Malvern, Pa. The tests ensure the technology is responsive and works with the desired information systems.

Some information systems automatically log out users after a certain period of inactivity. Others do not log out until the user manually does it. Consequently, 500 users might be signed on to information systems at a given time, but only 50 are actually using them. That's a problem because many systems limit how many users can be signed in at the same time. As a result, access by those actually using the system could be restricted. Further, Evans says, some software vendors certify single-sign-on to work on only specific versions of their information systems.

To get around that problem, an organization should build tables during the design phase that lay out user limits, log-out requirements of each application and the overall suitability of applications, says Mark Stabile, another senior partner at Greencastle. These tables are helpful when determining which applications will get single-sign-on and developing appropriate log-in/log-out procedures.

"Learn this before you buy the tool," Evans counsels.

### **Customized desktop**

Eisenhower Memorial Hospital's single-sign-on initiative, called FastPass, uses technology from Sentillion Corp., Andover, Mass. Eventually about two dozen applications will be accessible via single-sign-on.

.T. staff at the hospital implemented single-sign-on without the help of a consultant. They used the vendor's "bridge" integration technology to build interfaces.

Staff also used Sentillion's Launchpad tool to give a standard, yet customized image on all workstations. Role-based access enables the programming of what icons are needed on the desktop for each user, says Walter Seay, manager of new technologies at the hospital.

In theory, he says, "When a user logs in, everything that pertains to them is on the desktop and nothing else." In practice, however, some stray icons remain. The hospital is working to fix that problem.

But the customized screens are easier for clinicians to use. They also make it easier for technicians to manage desktops.

The Launchpad tool and bridge technology were important factors in choosing Sentillion, says CIO Perez. He also found the vendor more flexible in contract negotiations than others being considered. "I got the sense from Sentillion that they were going to be a partner with us."

Organizations implementing single-sign-on should clean up and consolidate job codes, which define the roles of specific staff and the information they have access to, before deploying the software, Seay says. That enables tighter access to data while ensuring users get the access they need. It also enables improved auditing of access because there are less jobs and roles to track.

During site visits to other hospitals using various single-sign-on products, Seay noticed that some hospitals consolidated too many job codes, lumping many roles together into a handful of codes. Eisenhower Medical Center ended up with 16 job codes for clinicians using single-sign-on technology.

Some hospitals Eisenhower executives visited were rolling out single-sign-on on only two to four applications at a time, Perez says. "We decided to go with all applications that nurses use at one time," he adds. "We don't have to go back and continuously remind them of new applications."

Seay thought communication with nurses was good as the technology was rolled out, but learned it could have been better. "We had 'super users' and instruction sheets on workstations," he recalls. "We assumed people could just walk up and dive right in."

That approach worked during a pilot with day-shift nurses. But nurses on weekend and evening shifts have a more verbal, one-on-one communication style. So they didn't adopt single-sign-on as quickly.

"We have annual 'Skill Days,' and I've been camping out at those and catching users and making sure they are aware of how the tools are to be used and how to register and log on," Seay says.

He's also using those opportunities to give one-on-one assistance. "Ten minutes and they've got it," he adds. "The typical response is, 'Is that it?' and yes, that's it."

Eisenhower Memorial Hospital has not conducted a financial return on investment study because single-sign-on was bought to reduce clinician frustration. So far, it looks like that goal is being met. Time studies before and after single-sign-on show clinicians are saving almost 3.5 minutes per workstation encounter.

Single-sign-on can make it easier to win user acceptance of new applications, Seay says.

"The vast majority of nurses are used to providing care without computers," he notes. "They can use them or not, so the challenge is to get them to accept new applications. The goal is to change to the concept that the workstation is your friend, your partner."

So when the hospital provided single-sign-on access to cardiac strips from medical devices, there wasn't the hassle of demonstrating how to get in and assigning user names and passwords. "The tool came out, and people went in and started using it," Seay says. "That would not be a typical situation otherwise."

## **Big plans**

Implementing single-sign-on and context management is a major task for Catholic Healthcare West, which operates hospitals across the Western states.

The delivery system is in the early stages of the project, but is ramping up this summer. This spring, pilot sites Chandler Regional Hospital and Mercy Gilbert Medical Center in Arizona went live. Four to eight more facilities were scheduled to be live by the end of June, with 33 hospitals using the combined technology by year-end.

The DirectConnect project uses single-sign-on software from Novell Inc., Waltham, Mass., and context management from Carefx Corp., Scottsdale, Ariz.

Catholic Healthcare West initially planned to use the technologies to provide easier access to four or five applications per hospital, but the number has varied widely. "We have to do some workflow modeling and figure out the core applications used every day," says Hight, the director of strategic technology projects. "Whether it's two or eight applications, that's what you have to do."

Like Eisenhower Memorial Hospital, Catholic Healthcare West learned the technology was very easy to use once clinicians got past very basic first steps.

During user acceptance testing, the DirectConnect workstation was placed next to conventional workstations. But that just confused clinicians because they used the DirectConnect workstation like any other.

"Doctors chose not to use the new system because it wasn't taking their Cerner or Meditech passwords," Hight recalls. "We needed support staff there to get them past the simple steps."

Consequently, the delivery system now floods facilities with support at all go-lives to make sure technology designed to greatly ease clinician use of information technology actually is perceived that way, he adds. "Word travels fast, and if a key physician has a bad experience and goes in the physician lounge and talks about it, then everyone will have a bad experience."

## **Another way**

While Catholic Healthcare West is using workflow modeling to determine how many applications in each hospital will get single-sign-on, Christiana Care Health System took a different approach.

The two-hospital delivery system, in Wilmington, Del., decided to keep its initial scope to "a controllable amount," says Steve Hess, vice president and CIO.

Users decided the organization should start with electronic records from Cerner, document imaging from Streamline Health and PACS from Agfa. These went live with single-sign-on and context management

software in June 2005. Since then, five more applications have been added, which has helped promote use among clinicians, Hess says. "We've seen use and acceptance of our I.T. systems increase year after year."

Christiana Care uses Sentillion's single-sign-on and context management software. Hess, like some counterparts elsewhere, found explaining context management wasn't easy. "We knew how big a deal context management was, but it's kind of hard to articulate that. But the first time users see it, they are just floored."

Hospitals using context management need a good master patient index system, Hess says. That greatly eases the task, but the differences in how vendors interpret Health Level Seven messaging standards will complicate implementation, he contends.

Now, Christiana Care is getting ready to introduce proximity badges that users will wave in front of a reader to be logged on and off.

Experiments revealed that use of "active" badges that automatically log users on as they approach the workstation and log them off as they leave won't work in their environment. Too many desktops are too close together, and an approaching user might get logged onto more than one machine, Hess says.

So, users will place "passive" badges in front of a reader to log on and off. Hess expects to eventually combine the badges with biometrics authentication. Sentillion is developing the proximity badge technology, and Christiana Care expects to test it starting late this year.

A time savings study of the delivery system's current use of single-sign-on shows users are saving 1,700 hours a year, plus another 1,000 hours annually because of context management.

Before getting the technology, clinicians took an average of 81 seconds to get in the EMR and three other applications for data on the same patient. The initial goal was to drop that time to 18 seconds; the average time now is eight seconds, Hess says. "You can log into Sentillion and get into the EMR within three seconds."

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## Sidebar

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### **Taking a Two-Pronged Approach**

Organizations implementing single-sign-on should strongly consider including context management software with the package, says Josh Levine, manager of servers and desktop support at Legacy Health System, Portland, Ore.

The six-hospital delivery system spent 2004 implementing single-sign-on software from Novell Inc., Waltham, Mass., and context management from CareFx Corp., Scottsdale, Ariz.

Context management, which tunes each information system to the patient via the patient identifier, makes surfing through various applications much faster, Levine notes. "If you pull up the electronic health records

system and see X-rays were taken, you can then go into the PACS to view the images and it also automatically pulls up the patient data you were viewing in the EHR."

Legacy Health has two core electronic medical records systems as it is switching from one to the other. Single-sign-on and context management save users three or four clicks each time they move between the applications. The technology, Levine says, also reduces the potential for errors, such as looking at lab results for the wrong John Smith.

While preparing for single-sign-on implementation, teams at Legacy Health created scenarios that followed typical clinician workflows. Eventually, they created more than 100 scenarios to ensure data was accessible as efficiently as possible for different types of clinicians.

But the scenarios create a very customized product, and not all vendors will be agreeable to assisting in the task, Levine cautions. "Vendors may shove the product at you and want you to change your workflow to meet their product."

### **Why a Small Hospital Uses the Technology**

A few years ago, executives at Brunswick, Maine-based Parkview Adventist Medical Center knew they needed a new hospital information system.

They also knew they wanted a single vendor for all the modules. So, the 55-bed hospital bought every module of the Meditech system from Medical Information Technology Inc., Westwood, Mass. The first module went live in August 2005.

But CIO Bill McQuaid also knew clinicians hate signing in and out of multiple modules when looking up patient data. So when Meditech's electronic medication administration records, bedside medication administration, medication reconciliation and nurse documentation modules went live in May 2006, the OneSign single-sign-on software from Lexington, Mass.-based Imprivata Inc. also went live. Accompanying biometrics technology from the vendor authenticates users by their fingerprint instead of a password.

"I used single-sign-on and biometrics as tools to get buy-in from the clinicians," McQuaid recalls. "The technologies eased acceptance of those modules and others to come."

Now, every computer in the 55-bed hospital's obstetrics, medical/surgical, intensive care and emergency units, as well as in five owned clinics, have the single-sign-on/biometrics technology.

Single-sign-on is a technology nearly any hospital could handle by itself, McQuaid believes. Implementing single-sign-on for the first round of Meditech modules took two days, he adds.

The hospital bought the Meditech and Imprivata software from Forward Advantage, a Fresno, Calif.-based reseller. McQuaid gave IP addresses and other settings to Forward Advantage so the software came pre-configured.

He spent a day synchronizing One-Sign with user directories and programming the software to recognize the various Meditech modules. McQuaid and his five-person I.T. staff spent the second day implementing the software with Forward Advantage technicians on hand to help resolve any problems.

Now, 300 clinicians and other authorized staff use OneSign. About five users have fingerprints that won't work, so they have a username and password. Single-sign-on is not in the laboratory or radiology departments because staff there generally work off one application all day. "To buy more licenses didn't make sense, they would have doubled the cost," McQuaid says.

Nor is the technology in the operating room, where gloves would hinder biometrics authentication.

The payback on its single-sign-on/biometrics investment has been far fewer help desk calls on password issues, better I.T. acceptance by clinicians and less time spent in meetings with staff members arguing against new technologies, he adds. As new Meditech modules are implemented, future users "are actually calling and asking to get their fingerprints done."