

FEATURE | HEALTHCARE

How Tennessee nurses swapped laptops for iPads in a bid to reduce infection

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COMMENT



Lee Medical nurses are using iPads in conjunction with the FileMaker Go database app

Almost every day brings reports of medical practitioners finding new uses for tablets and developing software to make them more valuable.

For instance, one Tennessee nursing firm that specializes in placing and monitoring vascular access devices (VADs), also known as catheters, says its iPad deployment has improved workflow efficiencies in ways never before possible. “This is a force for disruptive change that will force other large clinical systems to adapt,” says Charles Lee, CEO of Lee Medical Inc. in Franklin, Tenn.

The Holy Grail of the patient safety movement is the reduction of hospital-acquired infections. A VAD, which delivers drugs and nutrition and administers pain control and anesthesia, can be a source of infection if the catheter not properly inserted and maintained throughout its lifespan. The Centers for Disease Control estimates there are 250,000 cases of Central Line Associated Bloodstream Infection (CLABSI) in the United States annually, with a mortality rate of 25-35%. And because they are considered preventable,

the federal government is no longer reimbursing hospitals for treating CLABSIs, which average \$91,000 per patient to treat.

Since 2007, Lee Medical has been using laptops and a home-grown application built around a FileMaker database to help its 25 specially trained vascular access nurses track catheters in approximately 60 hospitals and other facilities comprising 6,000 beds.

Their VAST (Vascular Access Surveillance and Tracking) solution ensures continuity of information about each device and patient as they move between facilities.

“Mobility is key for our nurses because they really work across the continuum of care from hospitals to skilled nursing facilities to the home, and even in correctional facilities,” says Michele Lee, president and director of clinical operations.

“That continuity of care after discharge from a hospital can cut down on the number of times catheters have to be removed and new ones inserted. Anywhere there is a problem starting, our nurses can nip it in the bud.”

Lee Medical claims that VAST has helped it reduce bloodstream infection rates to less than .05 per 1,000 catheter days, a staggering figures given that the group puts the typical infection rate somewhere between 2 and 18 infections per 1,000 catheter days.

Although Lee officials were pleased with VAST, they were intrigued when the iPad was introduced in spring 2010. They immediately began brainstorming about how their nurses might take advantage of it.

“We thought about building our own app from the ground up,” Charles Lee recalls, “but as soon as FileMaker Go hit the app store [in July 2010], we downloaded it and began working on an iPad version of VAST.” It only took a few days to develop a prototype. “FileMaker Go is empowering because we can adapt it rapidly without spending a huge amount of IT dollars,” he says.



With iPads replacing the laptops, VAST - which based on FileMaker Go - can get data to the point of care faster, stresses Michele Lee. The laptop solution relied on WiFi and had 75 to 80% coverage, but with 3G network access the iPads have nearly 100% coverage. (To safeguard patient confidentiality, the data only resides on the server, not on the iPad itself.)

Lee Medical is working with an acute-care hospital on a pilot project to allow its VAST data to be contributed directly to the hospital's electronic medical record chart. In the meantime, nurses can fax their reports to medical facilities directly from their iPads.

The Lees say they have better buy-in from nurses with the iPad than with the laptop version. "The graphical user interface is friendly and intuitive to their work flow," Charles Lee says. "If the nurses know their jobs, the interface follows their work flows."

He adds that hospital customers are "amazed and mesmerized" by the access to data the nurses have. "They are all clamoring for solutions for the iPad," he says.

The Lees are not resting on their laurels. They envision the next version of VAST incorporating features that take advantage of location-based services, audio and video for training modules, and speech recognition. They are also pre-populating forms with provider and demographic information, so nurses can just input the most recent, relevant data.

They also are reaching out to customers hungry for data to report to federal quality initiatives. "Our customers are not tracking vascular access thoroughly," Charles Lee says, "and we can offer them reports with lots of data points. This is a game-changer."

David Raths is a Philadelphia-based freelance writer focused on information technology. He writes regularly for Healthcare Informatics, Campus Technology and Government Technology magazines.