

Health care technology blossoms in hospitals, clinics

July 12 2013, by Diane Stafford

A slip of paper at the nurses' station indicated a certain medication dose was due for a patient. Dallas Fulton knew better. Actually, his hand-held computer knew better.

Fulton, a [registered nurse](#) on staff in Truman Medical Centers' Hospital Hill [intensive care unit](#), gets real-time [electronic information](#) about prescriptions, vital signs and any other aspect of patient care. His "CareMobile" device, never far from his side, quickly showed him that the patient's physician had just changed the prescription order.

"It's faster and safer," Fulton said of the technology. "It used to be that physicians scratched orders on paper, which went to the pharmacy and then to us. Now, the order goes to the pharmacy electronically, and as soon as it's validated, it shows up in CareMobile."

The brick-sized portable device, which uses software by Kansas City, Mo.-based Cerner Corp., goes with Fulton to patient bedsides, allowing him to immediately enter and obtain [patient data](#). It also scans bar-coded patient wristbands to confirm identities.

This is the quiet side of the changes rippling through health care. A revolution in the conversion of patient information to computer records has spawned a huge industry in health care information technology. It's created such job titles as "director of nursing informatics," the job held by Amye Gilio, a registered nurse at Truman.

The two Truman hospitals and the system's health IT partner, Cerner, are recognized as leaders in IT transformation. The Kansas City-based hospital has achieved the highest level of health IT adoption as measured by Healthcare Information and Management Systems Society Analytics.

Truman reached a "Level 7" status for its [electronic health records](#), a ranking held by less than 2 percent of U.S. hospitals.

Nationally, about three-fourths of hospitals and about half of office-based doctors have adopted some kind of electronic [health records](#) system. That starts with scanning into computer systems the paperwork that has filled the manila folders that have lined the walls of medical offices for decades.

Such scanning was a natural progression into the digital age. But it was hurried along by federal incentive payments provided by the 2009 American Recovery and Reinvestment Act, stimulus legislation designed to help pull the country out of recession.

So far, the federal program has paid doctors and hospitals more than \$14.6 billion to install and "meaningfully use" electronic health records by 2014.

The industry goal is more-efficient health care. By putting patients' histories and care orders at the fingertips of doctors and nurses, digital records are expected to reduce duplication of services, reduce errors, and improve the quality of care because providers will have better information about what care is working.

According to a study published earlier this year in the *Journal of the American Medical Informatics Association*, digital records have helped avoid more than 17 million medication mistakes. But a contrary study by the Pennsylvania Patient Safety Authority found error rates doubled

from 2010 to 2011, perhaps reflecting growth in digital records use.

There is no central database for reports of errors tied to electronic health records. Some companies, such as Cerner, voluntarily report their technology problems to the Food and Drug Administration. But the FDA doesn't regulate health IT providers, so there's no reporting standard.

The Office of the National Coordinator for Health Information Technology, in the U.S. Department of Health and Human Services, is setting some health IT standards for the youthful industry.

Truman's clinicians began using the system in August 2010 and quickly found an efficiency benefit.

"I no longer have to wait for X-ray films to hold up against a light screen," said Jeffrey Hackman, a physician who serves as Truman's chief medical information officer. "Now, they show up on my computer screen right away, and I can immediately compare the new X-ray with past X-rays in our system. ...

"I may spend more time on the keyboard but less time tracking down lab results or waiting for medical records or trying to find the right nurse."

By one calculation, Truman has documented \$12 million in efficiency and safety savings since 2009.

Truman's program, like those at other hospitals, puts into practice what Cerner has been preaching - that health care IT can "create a workflow appropriate for the best possible outcome for patient and clinician."

That's the view of Zane Burke, an executive vice president at Cerner, who said the challenge is getting the right information to doctors and nurses when they need it. To get it right, he said, clinicians and IT

developers have to work hand in glove to understand the workflow, the jargon and the professional niches involved.

Costs and timing vary by hospital size, Burke said, but it easily takes tens of millions of dollars and up to three years to implement an electronic health records system approaching Truman's depth. It was a "30-month journey" for Truman, he said.

Burke acknowledged that the health IT field is crowded with competitors, and hospital systems make different choices.

Some health IT providers - Cerner, McKesson, Allscripts, Athenahealth, Greenway Medical Technologies and RelayHealth - are cooperating as the CommonWell Health Alliance, a group that aims to reach some kind of common IT platform.

For "meaningful use" of computer records to occur, health IT has to communicate across different platforms, securely and without violating patient privacy. Planners are hoping that such "seamless interoperability" will help hold down rising health care costs.

Epic, the nation's largest electronic health records vendor with an estimated half of the health IT market, is not a part of the CommonWell effort. Epic officials have said they didn't know about it and weren't invited, raising questions about the motive: Was it to increase interoperability across platforms or an attempt to challenge the industry sales leader?

That tempest will continue to play out. Burke said CommonWell's goal is to set national standards so that the different health IT systems can talk to each other, much as electronics providers have done so that Bluetooth technology can work with any mobile phone, computer or other wireless device.

In that respect, health care IT is catching up to other industries. And with the sped-up movement, hospitals and doctors' offices are integrating strict patient privacy considerations. HIPAA, the Health Insurance Privacy and Portability Act enacted in 1996, restricts unauthorized access to patient information.

Along with making sure that only appropriate workers have access to electronic patient records, health IT providers also must deflect constant attempts by computer hackers who could steal information or crash systems. Nightmare scenarios could include cyberattacks that interrupt or stop service, potentially endangering lives.

Teams of IT professionals, government officials, lawyers, ethicists, insurers, academics and health care providers have been working - even before the federal government issued its "meaningful use" standards in 2010 - to try to make interoperability safe and useful.

The two-pronged goal is for health records to "follow the patient" wherever he is and, after information is amassed, to be able to share best practices with other health providers.

The latter goal contributed to the earlier public flap about government-run "death panels." Some opponents of the Affordable Care Act feared that health IT records and government reimbursements would decide what patients were chosen for treatment. The actual intent was to learn which treatments produce the best outcomes, partly to be able to tailor Medicaid and Medicare reimbursements to reward the best.

"Our country is investing billions of dollars in [health care](#)," said Cerner's Burke. "The meaningful use question is incredibly important to our industry - to suppliers like me or hospitals. What are we doing to ensure those tax dollars are invested wisely? How do we drive better patient outcomes, drive quality of care and get costs out of the system?"

If it reaches the hoped-for outcomes, Burke said, health IT moves from being a cost element to an income-producing element.

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