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#### Wired for Health

Written by Joanne Sammer  
Saturday, 01 May 2004

Given its location in the heart of Silicon Valley, Calif., it's fitting that El Camino Hospital, an independent community hospital in Mountain View, Calif., is a leader in implementing technology.

Last year, the hospital spent nearly 5% of its operating budget on technology—twice the national average. And those investments have paid off. The hospital is completely wireless and is working to make the entire facility filmless, paperless, and errorless.

To emphasize the importance of technology to the hospital, the hospital's management team added two new pillars to what had been a five-pillar strategic plan. To the original pillars of growth, quality, people, service, and finance, the hospital added facilities and technology last year. That means technology now is a key component of the strategic planning process.

El Camino's commitment to technology is nothing new: it was the first hospital in the world to implement a computerized physician order-entry system (CPOE), which lets physicians enter orders directly into a computer. To facilitate this process, the hospital provides both onsite access and remote access via the Internet.

Over the past few months, the hospital began equipping physicians and other medical staff with wireless tablet PCs to handle order entry. At some point, the hospital may deploy the same technology on personal digital assistants (PDAs).

“We are focusing on providing a variety of access mechanisms,” said Mark Zielazinski, CIO. “A mobile workforce requires more tools to choose from to have access to the right tool at the right time. We don't want to lock ourselves into one delivery mechanism.”

#### Logistics issues

As its systems became increasingly mobile, the hospital faced an unusual logistics challenge: keeping batteries charged. “Once you have wireless network communication, the battery life on these devices halves,” explained Zielazinski. It quickly became apparent that a battery that should supply four or five hours of power only lasted two to three hours. This can be a major problem for medical staff, who routinely work 10- to 12-hour shifts.

The hospital dealt with the battery issue by strategically placing chargers around the workplace. The charging stations have fully charged batteries, so medical staff can access fresh batteries when they put run-down batteries in for a charge. There are also areas where medical staff can dock their machines so they can use a device while it is being charged. “Our wish list for technology is a 12-hour battery,” Zielazinski said.

El Camino's wireless technology initiatives are being driven by several strategic priorities. First, the hospital wants to get as much information as possible to the patient's bedside and make sure the information is gathered efficiently and accurately. Second, the hospital is using technology to achieve magnet status for nurses, to help boost nursing recruitment efforts. In an industry with a severe nursing shortage, magnet status is a coveted designation. Currently, only three hospitals in California are nursing magnets. “To have that kind of designation would be crucial,” said Zielazinski.

#### Financial benefits

The technology initiatives have also yielded important financial benefits for the hospital. The drug order entry system has led to \$120,000 to \$130,000 in direct annual savings in drug costs. When physicians order medication, the system identifies any critical substitutions and potential delivery alternatives. For example, whether a patient can take a medication orally when it was prescribed intravenously.

Because patients are often treated by multiple physicians during a hospital

stay, the drug order entry system allows pharmacists to review all prescribed medications and suggest ways to reduce the number of errors, which cost the hospital \$3,000 to \$12,000 per incident. "If we stop 60 errors a year, and each error costs the hospital \$4,000, the technology will be paid for in one year, with ongoing benefits accruing year after year," said Zielazinski.

One of the hospital's strategic goals is to reduce wage and salary costs to 50% of net revenue within two years, down from the current level of 54%. This will require a 6% increase in productivity over next three years, through initiatives like automating lab testing, moving to paperless medical records, and implementing a just-in-time inventory system for non-pharmaceutical, medical, and non-medical supplies.

In addition to increasing operating efficiency, Zielazinski expects just-in-time inventory to reduce the size and cost of the hospital's onsite storage facility. "Automated supply chain management can save more than \$1 million annually," he said. When the hospital builds its replacement building within the next couple of years, it will require a smaller onsite storage footprint for the new facility.

"We are trying to move toward a model used by retailers," said Zielazinski. "When someone takes supplies out of inventory, the system will automatically send out an electronic order to restock that item. We are trying to get all paper out of the process."

#### Upgrading for the future

To support all the new technology, the hospital is replacing its existing management information system with an infrastructure that better reflects the hospital's rules and workflow and has an improved user interface. Instead of a system that serves as a file cabinet that requires users to search for information, the new system will send medical staff the information that requires their attention. "The system will push the information to you," said Zielazinski.

The hospital is also in the process of deploying a voice over Internet protocol (VoIP) for both landline and wireless telephones and devices. Zielazinski views this deployment as key to much of the hospital's future plans for technology. "We are integrating this with a lot of tools that, for example, will make separate pagers obsolete."

For El Camino, technology is a win-win proposition, making patients safer while improving the hospital's finances. Just three years ago, the hospital lost \$13 million. The hospital moved into the black this year, making \$22 million, thanks in no small part to technology.

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