

ST. LOUIS POST-DISPATCH

WEDNESDAY | JANUARY 18, 2006

Reprinted with permission of the St. Louis Post-Dispatch, copyright 2006

Technology brings virtual ICUs to smaller hospitals

By Rachel Melcer
ST. LOUIS POST-DISPATCH

With the click of a mouse and the whir of a zoom lens, Dr. Dellice Dickhaus began rounds last week in the intensive-care unit of St. Marys Health Center in Jefferson City — though she never left Creve Coeur.

Dickhaus is medical director of Advanced ICU Care, a cutting-edge company that uses technology to bring scarce intensive-care specialists to hospitals that otherwise could not afford or attract them.

Its nine doctors and dozen nurses on Jan. 10 began using remote bedside cameras and microphones, electronic record-keeping and health-monitoring software over the Internet to virtually see patients in Jefferson City and at St. Clare's Hospital in Weston, Wis.

Today, Advanced ICU was to announce it has closed on \$2.5 million in venture-capital and angel investment, which will fund sales efforts to extend the team's reach across the country. The round was co-led by Catalyst Capital Management of Chicago and Arboretum Ventures, based in Ann Arbor, Mich.

"We've already had some impact on the patients that we're monitoring," Dickhaus said, two days after the service launched.

At St. Marys, Advanced ICU nurses were asked to keep an electronic eye on a patient who had a tendency to climb out of bed and wander, which could result in injury. With the team on watch, the patient didn't have to be physically restrained, said Marilyn Russell, R.N., director of the hospital's intensive-care unit, or ICU.

In another case, she said, Advanced ICU's software — which correlates electronic health records and sounds an alarm if there is a dangerous turn in heart rate, blood pressure, lab results or other vital signs — alerted care givers to a patient who was at risk of sepsis, a potentially fatal disorder.

Advanced ICU "is going to be able to pick up on the more subtle things that could lead the patient to have a code blue, which is when (his) heart or breathing stops," Russell said. "They see that this person is at risk before it happens, versus we'll see it happening and then try to fix it."

In fact, studies say that care by intensivists, or critical-care specialists, can reduce the risk of patients dying in the ICU by as much as 40 percent. Intensivist staffing is one of four key quality and safety measures of hospitals that the Leapfrog Group identified. Leapfrog, a consortium of Fortune 500



The intensive care team at St. Marys Health Center in Jefferson City talks via webcam with doctors and nurses working at Advanced ICU Care in Creve Coeur.

Kevin Manning | Post-Dispatch

employers and other big purchasers of health care, is working to make the system more effective and affordable.

But there aren't enough of these highly trained physicians to go around. There are 6,000 intensivists to care for nearly 5 million ICU patients in the United States, according to data cited by Advanced ICU. Intensivists are on staff at just 20 percent of intensive-care units.

That shortage led to the founding in 1998 of Visicu, a Baltimore-based company that sells electronic care software, mainly to hospitals or groups with more than 40 intensive-care beds.

Advanced ICU is the first physician group to license Visicu's eICU technology, said David Schopp, president of Advanced ICU. It sells a complete service — software plus nursing and physician care — to hospitals with fewer than 40 beds or those that cannot attract enough intensivists to staff their own operations.

St. Louis is "an intensivist-rich city," because it has two training programs for these physicians, and there is another in Columbia, Mo., Schopp said. So, Advanced ICU expects to be able to hire enough specialists to ramp up operations.

The company was founded by a 15-year-old practice of intensivists who work together at DePaul Health Center in Bridgeton and St. Joseph Hospital of Kirkwood.

They were asked to find intensive-care physicians and nurses for St. Marys in Jefferson City, but were unable to find enough who were willing to live and work there. That was the inspiration for Advanced ICU, said Dr. Isabelle Kopec, vice president.

"It really is a fantastic solution.

It helps extend scarce resources," she said.

Visicu's software is used by about 30 hospitals or groups to monitor nearly 3,000 patients. The program requires electronic record-keeping, which alone is a significant advance for many facilities.

Job satisfaction increases and turnover goes down among hospital nurses working with an eICU, said Christina Longnecker, Advanced ICU's director of nursing. They like being able to hit a bedside button and speak with an intensivist around the clock, rather than wondering if a situation warrants paging a patient's primary care doctor in the middle of the night.

Doctors like the software's way of synthesizing information, so a patient's entire history and monitoring results

Remote control

Remote control Using eICU technology and remote specialists to monitor intensive-care patients produced positive results, one study showed. Over three years, the benefits to 2,140 patients included:

- 27 percent reduction in deaths
- 16 percent shorter ICU stay
- 25 percent lower variable costs

Source: Society of Critical Care Medicine

are available on a single screen, rather than in a pile of paper records, Kopec said.

"Patients love it, because they know a doctor (always) is watching over them," she said.

In addition, patients can remain in local hospitals, rather than traveling to big-city units, which is inconvenient and may separate them from loved ones, Russell said.

Advanced ICU physicians say using the system is like treating patients with their hands in their pockets — they can do everything but reach out and touch. To maintain their physical skills, they do rounds at DePaul and St. Joseph hospitals.

The company is monitoring 22 beds now. Its goal is to be watching more than 70 by year's end and 1,400 in five years, Schopp said. He doesn't anticipate the need for any further fundraising.

Advanced ICU may need to educate some hospitals and care workers so they understand and accept the concept, he said. "But, generally, hospitals will understand the benefits of having an intensivist physician, in terms of increased quality, reduced costs and, really, saving lives."



Dr. Dellice Dickhaus (left) and nurses Christi Longnecker and Linda Hill, members of Advanced ICU Care's team in Creve Coeur, exchange greetings with counterparts at St. Marys Health Care Center in Jefferson City through the company's webcam. Kevin Manning | Post-Dispatch