



## U.S. News & World Report Looks at the Promise of Health Care IT

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### Special Report

## Remote intensive care that's more intensive

Think of Daniel Ikeda as doctor cum air-traffic controller. The "control tower" in Sacramento, Calif., where he is medical director is a large, windowless room where he and several other specialists simultaneously track as many as 105 patients in intensive care. Ikeda is an intensivist--a physician whose specialty is critical-care medicine. Often with another intensivist, Ikeda, a pair of critical-care nurses and two health assistants sit at a cluster of five screens displaying numbers and graphs that register heart rate, blood pressure, and other clinical indicators. The patients aren't down the hall or in the next building. They are at five Sutter Health hospitals up to about 35 miles away.

Advocates of these revolutionary intensive-care units, or eICU<sup>®</sup> centers, believe they could help avert tens of thousands of deaths a year. In most hospitals, ICUs are run by surgeons and other physicians who also have additional hospital duties, although critical-care specialists are usually available. And during off-hours--at night and on weekends--supervision falls to nurses and, at teaching hospitals, residents. Studies by the Leapfrog Group, a consortium of major employers, suggest that in ICUs run by intensivists, the death rate drops by 40 percent, equal to about 54,000 patients a year.

That is why putting ICUs under intensivists' care is a key Leapfrog goal. But the supply of about 6,000 intensivists meets only about one eighth of the need. And if more of the specialists were available, small hospitals could ill-afford them anyway.

**Distress signal.** Enter the eICU facility, which provides multihospital systems with remote monitoring by specialists. In Sutter's eICU center, patients' medical records, prescribed medications, physician notes, and real-time readings from bedside sensors are displayed on five computer screens facing the doctor or nurse on duty. One of the monitors can show color video cam images of the patients, and there is an audio hookup. Ikeda and his fellow intensivists constantly scan the monitors. At a sign of distress, the eICU specialist can alert the patient's nurse or attending physician, or even prescribe treatment.

Today, Ikeda takes a quick look at a patient's heart and breathing rate, blood pressure, and level of oxygen in his bloodstream, and dons a headset. With a few mouse clicks, the patient's image pops up on a screen. Ikeda clicks on a doorbell icon. There's a "ding" at the other end. "Mr. Adams," he says, "hi, it's Dr. Ikeda. I'm calling from the eICU center. I just wanted to check to see how you're feeling."



*Daniel Ikeda, M.D., critical care specialist, communicates with nurses in the intensive care units at Sutter Medical Center, Sacramento, California, using Sutter Health's eICU remote monitoring system.*

*Photo courtesy of Sutter Health*

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As the patient responds, Ikeda pans the room. He'll often chat with a doctor who happens to be around or answer questions from family members. He zooms in for a tight shot of the man's face to gauge his coloring and condition. "It's not as if I can replace a physician," Ikeda says. "My job is to get that physician to the bedside with all the information he needs."



*Kelly Rooker, RN, CCRN (standing), Daniel Ikeda, M.D., critical care specialist, and Donna Fleshman, RN, CCRN, monitor patients in Sutter Health's eICU Center in Sacramento, California.*

*Photo courtesy of Sutter Health*

Sutter's eICU center was set up by VISICU, a Baltimore-based company that has installed centers for seven U.S. health systems. Cofounder Brian Rosenfeld is a former intensivist at Johns Hopkins Hospital. "When we hypothesized this back in 1995," says Rosenfeld, "it was considered heretical that you could take care of the sickest patients and not be right at the bedside."

The eICU solution actually may be superior in some ways. Visicu's software, for example, can give eICU doctors early warning of a possible problem by tracking trends. If the heart rate, say, begins to trend gradually up or down, says Ikeda, "that is an alert to us to start looking at that patient." The eICU technology gets high marks from nurses, too. "In the nursing world," explains Kathy Beddingfield, chief ICU nurse at Memorial Hermann

Southwest Hospital in Houston, "when you need a physician immediately, you have to go through the whole process of paging them. Even five minutes in a critical situation seems like so long. With the eICU, we simply pick up the phone and say, 'Hey, I need your help,' and they camera in right away."

This is not outsourcing--the eICU centers are almost always staffed by the hospitals' own physicians and nurses. Still, not all physicians like the idea. Some doctors at Inova Health System, a five-hospital group in Northern Virginia, distrust the technology and others fear losing control, says William Hazel, a surgeon at Inova Fair Oaks Hospital in Fairfax helping to usher in an eICU facility. "They think you're messing with their patients," he says.

Ikeda has run into this before. "Physicians who complain seem to think that Big Brother will be taking care of their patients," he says, dismissing the notion with a laugh. "I am too busy to be Big Brother. I have 104 other patients."