

ICU DataSystems Aims To Conquer Intensive Care “Information Overload”



Ray Carson

Willa Drummond has been watching the evolution of intensive care medicine since she first became a doctor in the late 1960s, and with the advent of each new monitor, she has seen doctors and nurses struggle with “information overload.”

“It was fine when all we had to track was the heart rate and the oxygen levels,” says Drummond, a neonatal specialist, “but when the machines are tracking 80 different parameters, keeping up with the information is very difficult.”

Health care has grown up without industry standards for coding data, so few of the monitoring devices talk to each other, or even store the data they collect in a recognizable way. The result is that nurses spend an estimated five hours out of every 24 transcribing num-

bers off the machines’ displays onto paper flow charts that fold out to four feet in length. A file of these charts for one premature infant can be two feet thick before the baby is discharged.

In addition to the many different software codes, individual hospitals, laboratories and insurance companies have developed their own coding systems for treatments, lab tests and prescriptions. For example, Shands at UF has more than 11,000 of its own laboratory codes.

Drummond, a professor of medicine specializing in neonatology, says it has been “a dream, the Holy Grail” since the earliest monitors came on the market to capture their data on a computer and integrate it.

Now, Drummond and her colleagues at ICU DataSystems are on the verge of achieving that elusive goal. The company,

which licensed computer technology developed by Drummond and others at the University of Florida, recently released its first fully functional system for distilling dozens of types of clinical information about a patient into an automated, easy-to-read and easy-to-understand database.

The system, called iCURO, currently captures data coming from more than 20 popular monitors and assistive devices like ventilators and routes it all to a computer that converts the many different kinds of software code used in the devices into a common language.

“iCURO provides a better overview of many variables at the same time,” Drummond says. “It makes it much easier to figure out what to do next.”

ICU DataSystems President Chris Carnes adds, “Without a system like

iCURO, many critical pieces of information can be overlooked when emergencies compete for a caregiver's time."

From a user standpoint, the results are elegant in their simplicity. Instead of manually recording data on a flow-chart hourly, doctors and nurses can track a patient's progress by the minute on a touch-screen monitor that can hold up to 18 separate graphic displays simultaneously.

Eliminating the need for nurses to manually transcribe monitor data will not only save hours of tedious work every day, but will also eliminate the inevitable errors inherent in such a process.

"Up to 50 percent of the critical care workday is devoted to recording and maintaining paper-based patient records," says ICU DataSystems CEO Samuel Coons. "iCURO allows these highly paid, skilled workers to focus on patient care, which will translate into better outcomes and fewer medical errors."

Medical research will also benefit from the system, Carnes says, because researchers will be able to use the patient data to more effectively track how a particular treatment or drug performs.

"Data written on flowsheets cannot be reformatted for graphic inspection or used for research purposes without retyping it into a computer," says Carnes, a former UF computer science professor. "Reentering the data into a computer by typing is extremely time consuming and can require hundreds to thousands of person hours, even for relatively simple clinical studies, quality assurance reports or research projects."

Carnes says market response to the iCURO system has been encouraging. He calls the 26th Annual Management of the Tiny Baby Conference in Orlando, Fla., last February the company's "coming out party," and says the response among the hundreds of doctors and neonatal intensive care nurses at the conference was extremely positive.

Drummond credits ICU DataSystems' participation in the Gainesville Technology Enterprise Center (GTEC) with providing the company resources and expertise that have allowed it to concentrate on building iCURO. The company shares leased space in a 30,000-square-foot, state-of-the-art building with similar technology-driven start-ups.

An economic development program of the City of Gainesville, GTEC is a partnership between the City of Gainesville, Alachua County and the U.S. Economic Development Administration.

Through a comprehensive program consisting of incubation, education, networking and mentoring, GTEC management staff and a board of advisors provide basic business assistance to tenants on an ongoing basis.

ICU DataSystems has also received more than \$750,000 in funding from the National Medical Technology Testbed, or NMTB, program. NMTB's objective is to develop a comprehensive suite of technologies that can improve military and civilian health-care delivery.

"This program has funded us very well over the last three years because our technology has potential military value," Drummond says. "The idea of this funding was to get some new companies going in the directions that the military needed, where there were no obvious 'players' already."

Joseph Kays

Related Web site:
<http://www.icudatasystems.com/>

Dr. Willa Drummond (opposite page), a neonatologist and the chief medical officer for ICU DataSystems, says the company's monitoring software will allow doctors and nurses to more easily assess the status of babies like this one in the neonatal intensive care unit at Shands at UF.

Chris Carnes (left), ICU DataSystems president, Becky Roys, a nurse specialist with the company, and Willa Drummond with the voluminous, labor-intensive paper recordkeeping system most hospitals, including Shands at UF, use to record monitor data in their intensive care units.



Becky Carnon