



UC DAVIS CHILDREN'S HOSPITAL



UC Davis Children's Hospital uses videoconferencing to provide immediate specialty care to critically ill children who have no access to pediatric emergency and critical care doctors.

CHALLENGE

Dr. James Marcin joined the staff of the University of California, Davis, Children's Hospital in 1998. At that time, says Dr. Marcin, "there was a need in California to ensure that all sick children had access to pediatric specialists. One example city is Redding, CA, which serves many rural areas, but is not big enough to have its own pediatric intensive care unit."

In fact, because there is no nearby intensive care unit (ICU) for young patients, Mercy Medical Center in Redding admits approximately 120 sick children to its adult ICU each year. Having access to a pediatric critical care specialist offers youngsters an additional measure of care and specialized expertise, which can be very beneficial.

With this in mind, Sacramento-based UC Davis Children's Hospital began its Pediatric ICU Telemedicine Program — the first such Pediatric ICU telemedicine program in the country. Now, children visiting emergency rooms and being emergently admitted to ICUs in rural and remote areas can be seen by Dr. Marcin and his colleagues without waiting to be transported the 150+ miles to UC Davis — significantly expediting time to treatment, including in life-threatening situations.

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DR. JAMES MARCIN



SOLUTION

To get the Pediatric Telemedicine Program running, Dr. Marcin worked with expert technicians in the UC Davis Center of Health and Technology's Telemedicine Program, outlining the requisite features for a viable telemedicine consultation.

"When we see kids in an adult, remote ICU, we need high-resolution images — and that is a function of the camera as well as telecommunications technology," he explains.

"The systems have to be very reliable — more reliable than in an outpatient setting, because if I have a sick child, I need to connect with certainty and quality, 100 percent of the time."

"The ease of use is also important; I need equipment that is mobile on the other end so I can see good images of the patients and also talk to the parents," continues Dr. Marcin.

Taking into account such challenges, UC Davis technicians recommended an equipment package that fit the needs of both Marcin and his counterparts in distant communities. Now, UC Davis Children's Hospital can connect via videoconferencing with institutions throughout California and beyond the state's borders. Among those institutions are 10 emergency rooms and four in-patient hospitals, including Mercy Medical Center in Redding.

RESULTS

Thanks to high-speed connections and the latest technology, says Marcin, "We've been able to connect and see children in ERs where, unequivocally, a picture is worth a thousand words. We've been able to consult at a distance and even offer diagnoses in child abuse cases. We've been called up in ERs, as well as ICUs."

One of the more dramatic interventions occurred when a 10-year old boy was rushed to a hospital in the rural town of Willits, approximately 115 miles north of the UC Davis Medical Center in Sacramento.

"He was in a diabetic coma," reveals Dr. Marcin, "and he was non-responsive. We hooked up via video conference and the internal medicine specialist on duty there told us an emergency surgeon was enroute to the hospital and would be at least 15 minutes."

But given the nature of the situation, there was no time to wait. Because he was in a diabetic coma, the child had become dehydrated and needed intravenous fluids immediately. However, the veins normally used for IVs had collapsed, and the doctor on site needed to access the youngster's femoral vein — a procedure he had not performed in more than 15 years.

Using the "eyes" of their video connection, Marcin and his colleague, Dr. Kourosh Parsapour, talked the physician through the procedure of inserting a life-saving catheter. As a result, the child was stabilized enough that he could eventually be transported to UC Davis for follow-up.



Dr. Marcin recalls another incident in which “an adolescent girl was admitted to an adult ICU, but her doctor was across town. The child was literally dying. The UC Davis doctor spent more than 90 minutes over videoconference ordering all of the treatments to stabilize the patient until the doctor arrived. Without that intervention, she may have died.”

Videoconferencing also helps when patients are being transported from a rural ER to UC Davis.

“For example,” explains Dr. Marcin, “suppose the doctor wants to know whether to put the patient on a respirator during transport. That’s something we have no way of knowing without seeing the child. We can look via videoconference and tell whether it’s necessary or not. That saves time and money, not to mention reducing a child’s suffering by avoiding any unnecessary medical interventions.”

In addition to providing unprecedented access to emergency and critical care pediatric specialists, videoconferencing offers significant cost savings.

As Dr. Marcin explains, “Because kids can be treated in their own, local community, there’s no need to pay for transporting them here to Sacramento — which is \$8,000 to \$12,000 by helicopter or plane. And factor in hospital operating costs, which are higher in metropolitan areas than in rural areas, and the savings increase.”

In fact, Dr. Marcin states that the program has “saved a significant amount of money since the program’s inception 7 years ago.”

Something that can’t be measured in terms of dollars, though, is the peace of mind for both parents and doctors.

“Parents are so grateful to have immediate access to regionalized sub-specialties such as pediatric cardiology, endocrinology, gastroenterology, and oncology,” notes Dr. Marcin. “And for scheduled visits in the outpatient setting, the parents no longer have to travel with the kids to the hospital; they can stay in their local communities and get better coordinated care with their primary care physicians and not miss work and school.”

Physicians are also grateful for the technology. “When we can see the child, we’re a lot more confident in what we say and in the recommendations we make,” states Dr. Marcin. “So many times, consulting doctors worry whether they’re recommending the right thing — that happens a lot less when you’re using videoconferencing.”

“Telemedicine is a way to address the disparities in access and quality of care,” Dr. Marcin declares. “My goal is that if a sick kid goes to an ER or any hospital and needs pediatric sub-specialty care, they would get immediate access to the care just as if they were coming to UC Davis.”

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