

# Health care takes digital leap forward

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Imagine a doctor listening to the heartbeat of a patient half a world away. Or a young child opening wide into the peering lens of a high-definition camera. And doctors collaborating online, exchanging digital X-rays, MRIs and potential diagnoses.

Telemedicine's future took another leap forward Tuesday with the launch of the California Telehealth Network, the most ambitious foray yet into the rapidly developing field that links doctors and patients via high-tech tools.

"What it means is that no matter where you are in this huge state, you'll have access to the expertise you need and the best medical care," said Dr. Thomas Nesbitt, director of the Center for Health and Technology for the UC Davis Health System.

Initially, just 50 clinics, hospitals and other health care providers in California will tap into a broadband network that could eventually link nearly 900 facilities statewide by the end of 2011.

"California is showing the way," said Gov. Arnold Schwarzenegger during a Tuesday ceremony at the UC Davis Medical Center.

The medical center will serve as the control center for the new network and will help the state develop its telemedicine infrastructure. The telehealth network is expected to cost \$30 million, with about \$22 million from the federal government as part of the Federal Communications Commission's Rural Health Care Pilot Program, an effort to improve health care in rural America.

With the telemedicine network, more Californians, particularly those in far-flung areas, will have access to medicine's best and brightest, Schwarzenegger said.

"It should not be a matter of how rich you are or where you live," he said. "We are celebrating the future of medicine, also known as telemedicine."

That future couldn't come soon enough for the family of Rennee Wilson, a young Shasta County girl whose skull was fractured earlier this month during a traffic accident near Redding.

The 3-year-old was in need of immediate care, and the trip from Redding to the UC Davis Medical Center in Sacramento would have consumed precious hours and possibly exposed the patient to additional medical trauma.

Instead, using video cameras that streamed real-time images from Redding to Sacramento, doctors collaborated on saving the girl's life. From 160 miles away in Sacramento, Dr. James Marcin, a UC Davis associate professor of pediatrics critical care, assisted the intensive care physicians in Redding.

Using the latest telemedicine technology, he consulted with his remote partners on digital images that revealed a fractured skull. He recommended the drugs to administer and even when the Redding doctors should remove the ventilator after she could breathe on her own.

"They needed my brains more than they needed my hands," Marcin said.

The girl's family was thankful that they didn't need to travel to Sacramento for her critical care. "The

technology was awesome," said Phillip Potter, the child's grandfather.

Telemedicine has been around for years. But until recently, much of the technology has been crude – landline phones that offered no video, dial-up Internet that took an eternity to transmit images or grainy black-and-white videos that were of little use to diagnose an ailing patient.

Today, broadband technology is allowing sophisticated instruments to tap into the Internet's high-speed digital currents. For example, stethoscopes can be connected to equipment that allows a doctor to remotely listen to a heartbeat. Other equipment allows doctors to examine a wound or see into a patient's mouth, ears and other parts of the body.

That means physicians now have the ability to treat a patient without ever being in the same room or physically touching them.

"When telemedicine started, no one knew what high-definition was," said Nesbitt, the medical center's technology director. "Now we can look into someone's ear to get a clear picture of an eardrum and look directly into an eye."

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