

South Bay

# Health

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# Robots in the ICU

The high tech future of medicine is already here.



**F**ourteen-year-old Tim Copeland lay in the intensive care unit at UCLA Medical Center in Westwood in February, recovering from an operation to remove a cavernous angioma – a blood vessel malformation that can cause seizures, headaches and other neurological problems. Tim’s parents chose to bring him to UCLA so he could be under the care of one of the best neurosurgeons in the world in one of the best hospitals in the world.

Tim’s surgeon, Dr. Neil A. Martin, is chief of the Division of Neurosurgery at UCLA Medical Center with clinical subspecialty expertise in neurovascular surgery and skull base surgery. He’s also medical director of the Neurosurgery ICU and a member of UCLA’s elite “Brain Attack Team” that is leading the fight to extend the effectiveness of stroke treatments.

Dr. Martin is also a skilled intensivist – a specialist in the care of the most critically ill patients in the hospital – and a man who is very much in demand at the medical center. With responsibilities that would stress out an air traffic controller – and a schedule to match

– Dr. Martin is working to develop tools to extend his reach and maintain close contact with patients who rely on his knowledge and expertise for survival.

The day after he was admitted to the intensive care unit, Tim Copeland came face to face with one of those tools – a high-tech system that is helping to revolutionize the way Dr. Martin practices medicine. His name is Roni and he’s a robot.

“It didn’t seem that strange,” Tim said later. “It was just checking to make sure there weren’t any severe issues with my brain.”

Roni comes and goes around the ICU on little rubber wheels. He rides the elevator on his own, and stands quietly out of the way when he’s not working. If he seems to be as knowledgeable, friendly and calm as Dr. Martin, there’s a simple explanation. His movements are controlled by Dr. Martin via a joystick in his office, and the smiling face a patient sees when Roni rolls into the room is Dr. Martin’s on a bright flat-screen monitor attached to the top of the robot.

Using Roni, Dr. Martin has the ability to see and talk with patients, consult with

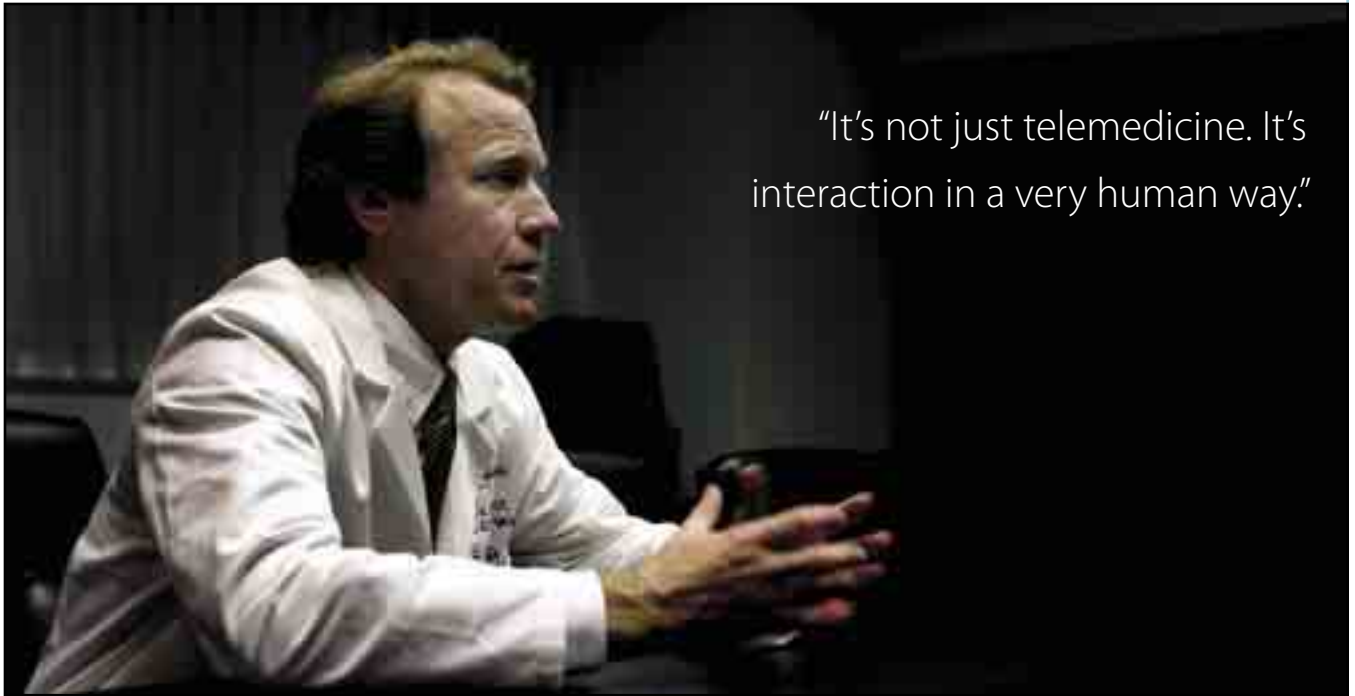
other physicians and staff in the room and interact with family members at the bedside. When he used Roni to check in on Tim the day after surgery, the surgeon was able to guide the boy through a series of movements to test his neurological functioning. A slight swelling of Tim’s brain was a cause for concern. While Dr. Martin couldn’t spend all day at Tim’s bedside, Roni could.

“It gives me a virtual presence in the ICU,” Dr. Martin said. “It’s not just telemedicine, it’s interaction in a very human way.”

Tim and his parents found the doctor’s virtual visit reassuring.

“It’s a great idea,” said Tim’s mom, Sarah Copeland. “You get to have your own doctor when you want him rather than having to rely on the doctor on duty.”

**R**oni, also known as the RP-6 mobile robot system, was developed by InTouch Health, Inc. of Santa Barbara in partnership with the U.S. Army Medical Research and Materiel Command, Telemedicine and Advanced Technology Research Center,



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*Above, Dr. Neil Martin discusses the use of robots in the ICLU. Opposite page, Roni begins his rounds at UCLA Medical Center, including a visit with Tim Copeland.*

located at Ft. Detrick, Md.

Dr. Martin, a longtime advocate of the use of technology to improve medical care, agreed to run the first clinical tests of the system in cooperation with associate professor Dr. Paul Vespa and associate professor Valeriy Nenov of the David Geffen School of Medicine at UCLA. They’re pleased with the results so far.

“This technology allows me at a moment’s notice to be at the patient’s bedside when there’s an unexpected problem,” Dr. Martin said.

In the future, Dr. Martin sees robots like Roni being assigned to combat field hospitals and other areas where access to specialists is limited. On a visit to In-Touch Health’s headquarters last fall, Dr. Martin was able to conduct rounds via an RP-6 robot at a nursing home in Texas.

“Patients love it,” he said. “Very quickly they focus not on the robot but on the face of the doctor they’re talking to. In a matter of minutes it stops being a curiosity.”

The RP-6 could help alleviate a worrisome shortage of intensivists. In the

U.S. there are fewer than 6,000 practicing intensivists, hardly enough to care for the 5 million patients admitted to ICUs every year. In fact, fewer than 37 percent of critically ill patients are fortunate enough to be under the care of an intensivist.

In the future, the virtual presence made possible by the RP-6 could be combined with another new technology being developed at UCLA Medical Center – the Global Care Quest (GCQ) system.

GCQ enables physicians to access medical records, diagnostic reports, scans, bedside monitors and medical records for any patient on the doctor’s wireless handheld device or cellular smart phone.

When the two systems are integrated, your doctor will be able to view your EKG, study your CT scan, review your medical chart and then appear at your bedside via a robot in full color in real time to discuss your medical treatment. In an emergency, it could also mean the difference between life and death.

Dr. Martin pulled a PDA out of his jacket and demonstrated how quickly

he could pull up a patient’s EKG on the device. In about 10 seconds the screen lit up with the familiar image of a heart-beat from a heart monitor connected to a patient three floors away. Then he viewed the patient’s latest MRI and put the device back in his pocket, satisfied that the man’s prognosis was good.

For Dr. Martin, the future is now. For your doctor, the future is right around the corner.

“Every physician is going to be carrying a wireless device like this,” Dr. Martin predicted. “We built this for the sickest, highest acuity, least stable patients – those with brain aneurisms, traumatic brain injuries and acute strokes. If it works for those patients, it will work for all patients.”

Find out more about  
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