



Remote medicine

Robot helps doctors check on patients and answer questions without being present

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SACRAMENTO -- Like any concerned spouse, Georgette Huceby had several serious questions about her husband's medical condition after surgery last week.

Floyd "Huck" Huceby, 75, of Vallejo went into Sacramento's UC Davis Medical Center operating room Wednesday to have a cyst removed from one of his kidneys. But as it turned out, urologist Dr. Lars Ellison made the decision during the operation to remove the entire kidney.

The following day, Georgette Huceby wasn't prepared to ask her questions at early-morning rounds. But she learned that one of the doctor's associates would be coming by at midday, so she prepared herself for that visit.

A little after lunchtime Thursday, "Dr." Rudy Runder rolled into Huck Huceby's room to find the patient sitting up in a chair, still a little groggy from his ordeal the day before but alert enough to joke with two student nurses attending to him.

What Huceby saw was a 5'2-foot-tall, 200-pound, armless robot with a 15-inch flat-screen monitor for a head, a zoomable video camera for eyes, two 6-inch wireless antennas for ears and a speaker and microphone mounted about stomach-level on a wedge-shaped base moving about freely on three wheels.

It was no surprise that the robot -- known affectionately around the UC Davis oncology ward as Rudy -- would be making the rounds that day, since Huceby agreed to be part of a medical trial led by Ellison to test the safety and effectiveness of what has become known as "telerounding," conducting traditional bedside rounds to evaluate a patient from a remote location using a service robot.

Ellison's partner and co-investigator on the trial, Dr. Michael Nguyen, was operating Rudy on Thursday while sitting at his desktop computer in his office several blocks away, and it was Nguyen's face that Huceby saw on the monitor and his voice over the speaker.

Rudy has remarkable "ears," picking up patients' weakened voices and those of observers standing off to the side, allowing either Ellison or Nguyen to have clear conversations much like they would on regular rounds.

And Rudy's camera "eye" allows the doctor to zoom in to provide a view of the patient's vital signs and surgical incision.

We think using a robot that allows us to personally visit and check up on our patients after surgery will prove safe and effective. This is another form of telemedicine, which is becoming increasingly important, because it can enhance the quality of care by helping doctors, nurses and other health-care professionals do their jobs more efficiently and effectively," Ellison said.

Rudy wouldn't be able to roam the hospital's hallways if it weren't for the installation of a private wireless Internet network, which UC Davis Medical Center recently installed hospitalwide.

To navigate Rudy from his "parking spot" -- a nondescript hallway where he can be plugged in overnight for recharging -- the doctor uses a computer, video camera with built-in audio capabilities and a joystick similar to ones used for video gaming. That setup costs about \$1,800, Ellison estimated. He has a similar setup in his home.

UC Davis leases Rudy for \$3,000 per month from its manufacturer, InTouch Health of Goleta in Santa Barbara County. An earlier trial using Rudy was conducted at Johns Hopkins Hospital in Baltimore, also led by Ellison, and similar robotic trials are under way at Sentara Norfolk General Hospital in Norfolk, Va., and the National Institutes of Health in Bethesda, Md. The overall project calls for recruiting 300 patients before the study is concluded.

"It's really surprising. I'm really impressed with how quickly people embrace this. They know immediately it's not the robot that's talking to them, it's me," Ellison said. Earlier this year, Mission Hospital in Mission Viejo became the nation's first regional acute-care hospital to purchase an InTouch Health telerounding robot.

"This robotic technology provides us with an advanced clinical tool that increases opportunities for physician-to-patient communication that is crucial for consistently delivering high-quality care to our patients," said Peter Bastone, president and CEO of Mission Hospital. "The system offers our medical experts and patients additional access to each other beyond traditional bedside visits."

Mission Hospital's mobile robot is being initially used for remote patient rounding in the medical-surgery department. The first remote-control terminal is now operational and located in the medical offices of Dr. John Shaver, a Mission Hospital trauma and general surgery specialist.

"Patients and their families want as much access as possible to their physician for direction, consultation and care. It's not unusual for medical tests and other results to come in after regular in-person rounds for a day are completed, so I think patients will appreciate that we will be able to get back 'in front' of them more frequently rather than waiting until the next day's visit," Shaver said.

The robot came to Mission Hospital after an extensive technology assessment by the Mission Innovation Institute. The group evaluated the technology after researching existing tests.

The site trials at Johns Hopkins Hospital showed positive patient attitudes toward the remote robotic platform, which convinced Mission Hospital to install the system.

Ellison also sees other potential benefits to using a robot such as Rudy. It could allow rural surgeons to maintain their care of patients at geographically remote hospitals and protect health-care workers' safety when a patient has a highly infectious disease or is suffering from a biochemical exposure.

UC Davis Medical Center started its trial in August, with Ellison and Nguyen remotely visiting one of their patients each week after minimally invasive surgery. Huckleby was their sixth patient in the trial. The 20-year Navy veteran and longtime printing-supply salesman had little to say about his visit, but Georgette Huckleby was enthusiastic.

"I think it's a great idea, especially around here," she said, referring to the vast expanse of the regional medical center. "It's either that or give the doctor roller skates."

Student nurse Natalie Smith of Stockton, in her first day on the oncology floor as part of her training through Sacramento City College, was impressed with Rudy and its interaction with Huckleby. "He seemed to enjoy it," she said.

"For us, it's better than a phone call with the doctor. You're able to communicate one-on-one with the doctor and understand what he's saying," said fellow student nurse Araceli Navarro.

Twenty-two-year floor nurse Paula Gates -- who gets credit for naming the robot Rudy Rounder -- has a little different take. She's seen Rudy with his patients since the first day.

"So far, the patients have had a good initial response. But once they've processed it, upon review, then they reconsider if they've been seen by the doctor. It is very interesting technology," Gates said.

Meanwhile, Georgette Huckleby caught Rudy on its way out of her husband's room and, without missing a beat, started peppering the doctor with her questions and concerns. When they were finished and Rudy rolled off down the hallway, she said, "I feel better. He answered my questions."