

Wireless health care, in S.D.

New institute will be nation's 1st in its field

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2:00 a.m. March 30, 2009

A new institute will help develop technology such as wireless pills. (Nelvin C. Cepeda / Union-Tribune) -

Imagine a pill with a tiny, inexpensive radio inside that uses the electrolyte in stomach acid as a power source when swallowed. The radio sends a message to a home network or other wireless device, which ultimately alerts a doctor when and how often a patient is taking a critical medicine.

Now picture a patch the size of a Band-Aid that monitors seven heart functions and can wirelessly alert a doctor when a patient needs to come in for treatment to avoid a heart attack.

Despite approval by the U.S. Food and Drug Administration, these and other wireless health care technologies are not yet available to consumers because the inventors have not completed the scientific studies necessary to prove the devices' value to the medical world.

San Diego is about to step to the forefront of efforts in the United States to get wireless health care inventions out of the laboratory and into medicine cabinets. Drawing on the region's strong life sciences and wireless industries – and with a \$45 million gift from a pair of Rancho Santa Fe philanthropists – San Diego will become home to the nation's first wireless health care research institute.

Qualcomm, Scripps Health and the Gary and Mary West Foundation plan to launch the West Wireless Medicine Institute today. The nonprofit plans to build a headquarters at an undisclosed location among the life sciences companies in Torrey Pines.

The institute will employ researchers to develop biosensors – tiny devices that measure body functions. It will also work with outside companies that have developed sensors or other wireless medical technology to guide them through the demanding clinical testing necessary to establish whether the devices can save lives and reduce the cost of health care.

There are dozens of devices developed by companies in the San Diego area that need clinical validation, said Eric Topol, who will serve as the institute's chief medical officer and a member of its board. Topol is chief academic officer and also the Gary and Mary West Chair of Innovative Medicine at Scripps Health.

“There are hundreds of devices out there waiting in the queue,” Topol said. “They may have FDA approval, but until they're validated, until you can show that they improve medicine, the medical community won't use them.”

To date, only one wireless health care device has been clinically validated in the United States: a heart monitor from San Diego-based CardioNet, Topol said. The institute will use CardioNet's clinical testing as a prototype for validating other devices, he said.

Not all the wireless health gadgets will pass clinical testing. And some that do will make niche improvements to medical care. But others have the potential to revolutionize health care and eliminate expensive hospital stays through remote medicine, Topol said.

“If you have a sensor that can remotely detect edema, fluid retention, in a heart patient, you can intervene before they have a heart attack,” he said. “If you prevent one hospitalization per thousand heart patients, you would save billions per year.”

The new nonprofit is the result of converging interests in wireless health care from the three founding partners. Scripps and Qualcomm have worked together to create a physician-scholar program under which two physicians will spend two years at Scripps immersed in the study of wireless health care.

Scripps' Translational Science Institute, headed by Topol, has a \$20 million grant from the National Institutes of Health that includes a focus on wireless health care.

Scripps will provide the new institute with the expertise of its scientists and physicians, including the work of Topol, who has designed or overseen clinical research studies involving more than 200,000 patients.

Entrepreneur-turned-philanthropist Gary West has a long-standing belief that the health care system is broken and that developments in wireless health devices provide an opportunity to put medicine back on track.

Through “a chance communication,” West learned that Scripps and Qualcomm shared his interest.

The Wests founded and sold several successful telecommunications and telemarketing firms, most notably the Omaha, Neb.-based West Corp., which the couple sold in 2005 for \$1.5 billion, according to Forbes magazine.

A year later, they launched their foundation, which has contributed to a number of causes in San Diego and Orange counties, as well as in Omaha. The foundation awarded \$11 million in grants last year and has funded medical education, senior centers, charter schools and programs to provide police dogs to law enforcement and companion dogs to older adults and injured veterans.

“We were looking at philanthropic opportunities,” West said. “We looked for an intelligent way to invest this money that would benefit society the most.”

“I used to have 35,000 employees and every year I watched the health care cost go up per employee while the level of benefits went down,” he said. “I came to the conclusion that the system was broken. It doesn't work. I've chosen to invest a significant amount of money and work with these two partners because I believe this institute is something that can make changes.”

West, who ranked 1,014 on the Forbes list of the world's billionaires last year, will serve as the institute's chairman.

Qualcomm is interested in remote health care, in part, because it represents a natural extension of its core business, wireless technology. In 2005, the company founded the Wireless-Life Sciences Alliance, an organization of companies developing wireless health care technologies.

Qualcomm CEO Paul Jacobs has said he's interested in the field because it has the potential to be good for society as a whole and for San Diego's economy in particular if an industry takes root here.

Wireless health care, fueled by interest from major companies such as Qualcomm, Intel, IBM, Microsoft and AT&T, is expected by industry analysts to grow to a nearly \$2 billion industry in the next five years.

As a founding sponsor of the institute, Qualcomm made an undisclosed monetary contribution. The company is also making senior-level engineers available to the institute, said Donald Jones, Qualcomm's vice president of health and life sciences. Jones will be an institute board member and its chief technology officer.

Jones said there are a wealth of devices with intriguing but unproven potential, such as a wireless stethoscope that can be mailed to patients who face a daunting commute to reach a doctor's office.

"Will a wireless stethoscope result in remote patients getting more frequent medical attention? That's the expectation, but we don't know. Engineers can tell us that all these sensors work," he said. "But do they improve clinical outcomes? Are physicians able to better make diagnoses? That's the part that's missing. That's the part that we're going to accelerate."

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