

WIRELESS HEALTH COMBINES SAN DIEGO TECH FIRMS

Originally published in the *San Diego Business Journal*

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Thanks to the efforts of a dedicated group of visionaries from biotech, telecom and local organizations and institutions, San Diego is on the verge of becoming the epicenter for an exciting new growth industry - wireless health.

Wireless health combines the best of consumer electronics, telecom, biotech and wireless into mobile and cost efficient products for monitoring our health and well-being in new ways - anytime, anywhere and unobtrusively.

Patients, providers, insurance companies and government agencies see its potential for 24-hour disease management, speeding the delivery of quality care while improving outcomes.

Controlling costs is another factor. The U.S. incidence of severe chronic diseases is fast outstripping population growth and driving health-care costs upward at 7 percent or more a year.

Expenditures are expected to climb even faster with the aging of the population. As a result, forces are under way on many fronts to develop and commercialize wireless health.

The potential goes far beyond the old concept of telemedicine, with its big equipment and large capital investments all applied to narrow markets and tethered to a medical facility. The convergence will drive a powerful new economic engine for the San Diego region.



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As a simple example of the convergence, the first all-in-one glucometer and cell phone is being tested in Korea for monitoring juvenile diabetics.

It uses CDMA technology from San Diego's Qualcomm Inc. Wireless technology developed in San Diego is being applied to creating a wide range of medical devices that will continuously monitor patients and transmit the data to a central medical service for analysis and action.

PICKING A PATH

The pathways can involve wireless, WiFi, Bluetooth, packet radio, satellite, RFID tags and broadband.

Potential uses range from the more complex applications, such as ultra-portable ultrasound devices, to consumer products sold over the counter to monitor all aspects of health, fitness, wellness and chronic and acute care. Pedometers (plus chips) can record and transmit data for weight management and fitness programs.

Benefits of continuous monitoring can include early detection of complications, faster diagnosis, appropriate treatment, fewer visits to emergency rooms and greater peace of mind for patients.

Future programs will help prompt patients to take their prescribed medications, increasing compliance, health and quality of life.

This will become increasingly important with the growing number of elderly and chronically ill in our society. A cell phone may soon become their dashboard and communication gateway to improved care.

Some of the greatest enthusiasm revolves around creating low-cost, efficient products for monitoring important health attributes remotely and sending the data to doctors for analysis.

Pioneering electronic sensor companies envision almost science fictionlike applications that are capable with the convergence of technologies, many developed in San Diego: implants to gather data for downloading at the doctor's office, a wireless pill the patient swallows (this exists today) and transmits data in a virtual colonoscopy, and a wireless Band-aid the size of a birth control patch that wirelessly connects with a cell phone for transmitting data to back-end processing for doctors, caregivers or family.

The new wireless devices can display data for the user or doctor immediately, or transmit to central data gathering services.

This creates incredible efficiencies in managing patient information, from reduced time committed to office visits or hospital rounds by doctors and nurses to the ability of a single ultrasound technician to review data collected in the field by a dozen nurses.

QUICK RESPONSE

As one example, CardioNet of San Diego has developed a mobile cardiac outpatient telemetry system that uses a modified PDA device to monitor the patient's ECG during normal daily activities.

The device automatically detects and transmits abnormal rhythms to a monitoring center, where technicians analyze the data and respond appropriately.

Competing old technology uses a clunky halter with an analog tape monitor that has to be downloaded at the doctor's office and then analyzed separately (sometimes after the patient has suffered an adverse event).

Biotech and pharmaceutical companies envision the use of wireless medicine in clinical trials for compliance and exception reporting.

Participants can get prompted to take their pills, confirm a visit or conduct their own diagnostic from their phone. Some clinicians believe they will have more accurate results when physiological data is gathered

remotely in daily living environments, rather than under the duress of visiting a medical clinic.

The early successes are catching the interest of investors. Frost & Sullivan estimated that \$330 million was invested in wireless health startups in the United States alone in 2003 and foresees a potential doubling in three to four years.

This does not include the significant investments being made inside large companies such as Qualcomm and Philips.

No matter how large the investments, no single group or technology has the assets or expertise to drive the development of wireless health care. The key to success will be the ability of different groups to create a culture of convergence and cooperation.

We believe this harmonic convergence can occur in San Diego, as nowhere else, because the region has a rich history of innovation and an unequalled spirit of collaboration among the educational, investment, regulatory and entrepreneurial communities.

These efforts are bolstered by distinctive research capabilities without equal on Torrey Pines Mesa and beyond.

Research from UC San Diego has resulted in promising new compounds in drug discovery, commercialization of technologies

in information technology, creation of new companies and founding of organizations such as Connect that have been critical to community growth.

When combined with the resources of the San Diego Telecom Council, Biocom, the AeA (American Electronics Association), San Diego Dialogue, the Supercomputer Center and other important components of our innovation economy, no other region is better positioned to become the epicenter of this new wireless health boom featuring the best of Biotech Beach and Wireless Valley.

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