Special Audio Transcript

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| Headline: | When It Comes to the Future of Wireless Sensors in Health Care: The Sky's the Limit |
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At Palomar Medical Center in Escondido, Calif., a wireless device that promises to change the way patients are monitored in the hospital is being put to the test.

This is a special report for *iHealthBeat*, a daily news service of the California HealthCare Foundation. I'm Kenny Goldberg.

The Visi Mobile System, made by Sotera Wireless, features a smartphone-sized monitor that's attached to a patient's wrist. Through the use of sensors on the chest and thumb, the device continuously tracks a patient's vital signs, including heart rate, respiration rate and skin temperature.

This information is fed directly into a patient's electronic health record.

Palomar is the first hospital in the world to use the device.

Ben Kanter, Palomar's chief medical information officer, says the sensor technology is truly remarkable.

***(Kanter): "For example, Visi can measure a patient's blood pressure without having a cuff on the patient and without having a needle introduced into their artery. Really in the past, the only ways we could measure blood pressure would be to come in there, disrupt your sleep, roll you over, put a cuff on, measure it and then leave the room. Or, if we needed something continuously, we'd actually have to place a catheter in your artery, of which there are significant complications, potentially."***

Currently, only patients in intensive care units are monitored continuously. But Kanter says a large number of patients who die unexpectedly do so outside of the ICU. Recognizing when a patient is starting to fail is crucial. He says the Visi system will help staff do just that.

(***Kanter): "For us, the plans are to take the information that's coming from Visi, integrate that completely within our computerized medical record, and have rules within the computer that are constantly evaluating this flow of information and making sure that when***

***something is beginning to change, it's alerting our nursing staff or our medical staff."***

From wireless patient monitoring systems, to an ingestible product that signals when a drug has been swallowed, sensor-driven medical devices that once seemed unimaginable are now on the market.

Joe Smith is chief science and medical officer of the West Health Institute, a San Diego-based not-for-profit focused on lowering the cost of health care.

***(Smith): "I think we're really at the front door. We're on the cusp of a bit of a revolution, where we can imagine in-body, on-body or near-body sensors to provide information to us and the people who take care of us, about how we're doing, in ways that I think are remarkably promising."***

Thanks to a new generation of smaller and cheaper sensors, and advances in technology, the market for wireless health monitoring devices is exploding. Consulting firm Deloitte predicts the market for these devices will grow to $22 billion in the U.S. by 2015.

Some of the products in development could have a significant effect on health care delivery.

***(Smith): "I think the notion of turning care from being an episodic, kind of doctor- or hospital-centric care model, to one that's more continuous and ambient wherever you are, with perhaps on-body or even in-body sensors, that will speak to the progression of your disease and the need for subtle course correction, I think that offers an opportunity to dramatically improve the way we care for patients and achieve better outcomes."***

For example, the startup MedSensation is working on a device designed to make it easier for physicians to diagnose breast cancer. It's developed a prototype robotic glove called the Glove Tricorder. The device is equipped with temperature sensors and ultrasound pads that could enable doctors to "see" inside the breast.

Mehran Mehregany directs the Case Western Reserve University Wireless Health program. He believes whether products like the Glove Tricorder ever make it to the marketplace is more a function of economics than engineering.

***(Mehregany): "Depending on the scope of their products and its requirements, you may need six months and a million dollars, or you may need two years and $3 million to get it to the manufacturing prototype. I think the harder part is how to make a sustainable revenue model out of it."***

Financial considerations aside, the biggest challenge the industry faces is to develop devices that could make health care more accessible and affordable.

That's where the Qualcomm Tricorder X Prize comes in. The global competition will award a total of $10 million to companies that come up with a device that can measure 15 different health conditions and monitor five vital signs. As if that isn't tough enough, all of the device's components taken together can weigh no more than five pounds.

Mark Winter, senior director of the prize, admits it's a tall order. But he says the winning device could really fill a need.

***(Winter): "It's no secret to anyone that one of the biggest problems today is just being able to get in to see your care provider on a regular basis. Either insurance doesn't cover it or the provider doesn't have the time to do it. So to be able to have a device that can provide this kind of real-time reporting and exchange of information with a patient, we think is a revolutionary step forward."***

The initial judging for the competition will be held next year, with the final awards granted in 2015.

This has been a special report for *iHealthBeat*, a daily news service from the California HealthCare Foundation. If you have feedback or other issues you'd like to have addressed, please email us at IHB@chcf.org. I'm Kenny Goldberg. Thanks for listening.