Telemedicine News Roundup

Medical monitoring devices gain traction … AT&T adds a house call application to its ForHealth telemedicine suite … Telemedicine serves researchers at the South Pole … The FCC revamps its Rural Health Care program.

Consumers Go All-Out for Wearable Wireless Devices; Health Care Providers Wait and See

If you've always wanted real-time reports on your brain wave activity or blood oxidation levels, now is your chance. Wearable wireless devices are the latest trend in telehealth, according to a new study by ABI Research. By the end of 2012, nearly 30 million such devices will have shipped – 37 percent more than in 2011 – and the market is set to grow at that clip for at least the next five years.

Runners have worn heart-rate monitors for years, but new devices are available to measure everything from glucose levels to blood pressure. Some can even be built into clothing or footwear. Driving the trend is easy, low-cost connectivity between wearable devices and mobile handsets – and from handsets to the Internet – which allows users to not only view data in real time but also store and analyze it.

Today's popular smartphones, including Apple's iPhone and Samsung's Galaxy III, come equipped with Bluetooth Smart Ready connectivity, allowing them to communicate with nearby sensors. Vendors such as Polar, Garmin, Nike and Adidas have expanded their wearable wireless sensor offerings, and start-ups have come to market with offerings that extend the use of collected data, creating what ABI analyst Jona-

New wearable devices track and transmit health information continuously.

than Collins calls a wave of innovation and investment.

MEDICAL MONITORING

Body-parameter tracking isn't only for exercise fiends and the worried well. Wireless connectivity is also entering medical markets, including home monitoring for aging in place and remote monitoring of long-term conditions.

However, the number of patients enrolled in telehealth monitoring programs is still small – about 240,000 worldwide, according to InMedica, a division of IHS – and telehealth device revenues grew by only 18 percent between 2011 and 2012. The slow adoption of telehealth devices by medical providers isn't due to lack of interest in their medical potential (though InMedica points out that tools and technologies still need to be refined). Rather, InMedica attributes this slow growth to poor economic conditions in Europe, which restrict health care funding, and to regulatory uncertainty in the United States.

According to InMedica, although the Center for Medicare and Medicaid Services (CMS) began penalizing U.S. hospitals for readmissions in October 2012, many health care providers are still unclear about the potential impacts on their institutions and have yet to implement post–acute care plans. Providers told InMedica that fee-for-service makes telehealth a challenge, but a system that paid them to keep patients healthy would give them incentives to move forward with telehealth.

The U.S. government certainly has an incentive to address the rise in chronic conditions such as heart failure, chronic obstructive pulmonary disease and obesity in a rapidly aging population, all of which fuel the explosion in health care costs. CMS is already interested in telehealth, listing it as one of 13 possible models to reduce hospital readmissions. As regulatory issues begin to be resolved in 2013, InMedica forecasts that the telehealth market will grow by 55 percent worldwide in terms of device and service revenues – but, as InMedica analyst Shane Walker warns, "There is still much work to be done in advancing the state of telehealth in the U.S."

Reinventing House Calls

Today's patient-centered model requires health care providers to understand more about their patients' lives outside the hospital. Remote patient monitoring (RPM) technology is reinventing the age-old notion of the house call. Now, a house call can take place over video on a wirelessly connected tablet.

In December, AT&T announced plans to deliver a cloud-based RPM application from Ericsson that uses its service enablement platform and Intuitive Health software to facilitate better management of chronic diseases and help reduce hospital readmissions.

The interactive service's video component will provide coaching, reminders and health education. AT&T has been piloting the RPM solution with large health systems, academic medical centers and home care providers. It is expected to be available in 2013.

The AT&T RPM SaaS (cloud-based) application will join the AT&T ForHealth suite of RPM services, including the facility for a nurse-staffed telemonitoring center to monitor patients around the clock.

HOW THE APPLICATION WORKS

In the new service, patients will use Bluetooth-enabled devices to check vital signs daily and make the data available to their providers. This should help improve their quality of care and potentially save time, money and health care resources.

Data is automatically collected from wirelessly connected devices, such as blood pressure cuffs, weight scales and pulse oximeters, and sent over AT&T's network to the cloud-based system.

Health care providers can access the information through a highly secure portal.

As data is collected, it can be shared among multiple caregivers and physicians through a secure infrastructure, eliminating information gaps and duplication in reporting and helping provide a well-rounded view of each patient. The Intuitive Health application helps providers implement and manage care plans and integrate the resulting data with clinician workflows.

"Live, on-demand, two-way video enables a personal connection for the patient and doctor, extending the relationship beyond the hospital walls," says Dr. Geeta Nayyar, chief medical information officer of AT&T ForHealth. "Video makes it possible for a physician to see clinical signs and indicators such as skin color, mood and affect and determine whether a patient is utilizing devices and medications appropriately."

Texas Doctors Treat Patients in the South Pole

More than 1,400 U.S. scientists, researchers and support staff in Antarctica spend their winters isolated in darkness and bitter cold, with temperatures reaching 76 degrees below zero. But even though no aircraft can arrive to bring help, Antarctic workers don't have to wait for the brutal polar winter to end to be treated for medical emergencies. They can call on a telemedicine network 9,000 miles away, operated by the University of Texas Medical Branch at Galveston (UTMB) and powered by Polycom telepresence equipment.

UTMB conducts 110,000 telemedicine consults a year, but its small program supporting three U.S. research outposts in Antarctica underscores the value that telemedicine brings to people in remote, harsh or dangerous locations.

"Our specialists help provide the second tier of care that's difficult or impossible for 'doctors on ice' to handle themselves," says Dr. Scott Parazynski, director and chief medical officer of UTMB's Center for Polar Medical Operations, which has provided telemedicine services to polar stations since 2003.

"It's incredibly expensive to transport a person to or from the continent, and in the middle of winter it's physically impossible to get people off the South Pole. So if you can remotely diagnose and treat the patient and then supervise his or her care, you're much better off."

Though serious medical emergencies at the polar stations are rare, the ability to speak face to face with a specialist, consult a radiologist, or even have a surgeon walk an "ice doctor" through a procedure ensures that care is available on demand. At McMurdo Station, the largest polar outpost, which houses more than 1,200 people and a hospital staffed by multiple physicians, nurses and aides, UTMB specialists routinely see 35 to 40 patients a week via teleconsultation. The telemedicine program also assists two smaller stations and two Antarctic research vessels.

A LIFE-SAVING SERVICE

Access to specialist care can mean the difference between life and death. After a patient at McMurdo complained of heart attack symptoms, UTMB called

in a cardiologist to remotely direct a cardiological ultrasound that helped assess the damage to the patient's heart.

Last August – in the middle of the polar winter – UTMB's anesthesiology department played a crucial role in an emergency appendectomy that saved a patient's life. "We're not set up to do general anesthesia and surgery, but this was a notable exception. We were lucky to have a surgeon there and to be able to direct the anesthesia over the Polycom video system. It was pretty remarkable," says Parazynski.

Access to specialist expertise can make a profound difference in health outcomes, particularly when every minute counts and transporting patients is not an option. In stroke cases, for instance, the sooner neurologists can evaluate a patient, the faster they can determine whether using clot-busting drugs such as TPA will minimize damage to the patient's brain. In 2011, a station manager suffered a stroke, and neurologists at UTMB relied on the telemedicine network to determine whether

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a daring winter evacuation would be needed to save her life.

A flu outbreak – such as the one that hit McMurdo in 2007 and 2008 – can prove devastating to operations in the closed environment of a polar station, and this makes access to virologists essential. Six months of darkness can also take a psychological toll, triggering depression. Parazynski says, "You've got 24 hours of night for months at a time, so little things that could be shrugged off in a normal environment become big as mountains. We've got a fairly active peer counseling network down there, but there are occasions when we use psychology colleagues to help with these issues."

VIDEO SOLUTIONS DELIVER CARE

Galveston, Texas, is nearly 9,000 miles from the South Pole. For telemedicine to result in effective, efficient care, UTMB physicians must be able to see and hear patients with crystal clarity. "The better the video resolution and the clearer the audio, the greater the likelihood that our experts back in Galveston can pick up on subtleties that grainy video wouldn't highlight," says Oliver Black, systems analyst services manager at UTMB. "With Polycom RealPresence video solutions, we're able to share very clear video in an extremely challenging environment."

Not surprisingly, network connec-

tivity in Antarctica is limited. "The issue down on the ice is bandwidth, but it's greatly improved over what we had when we first started," says Black, who keeps a videotape of the first telemedicine transmission from Antarctica – a grainy, jittery, black-and-white videoconference that reveals how far the program has come. "We didn't even have enough bandwidth for color back then," he added. "What we have today with Polycom is truly excellent video quality."

Black's team manages calls with the Polycom RMX 2000 real-time media conference system – part of the Polycom RealPresence Platform – which powers UTMB's vast telemedicine network. In the future, says Black, the program may equip even more remote polar locations and field camps with mobile devices that use the application. He adds, "It would be very helpful to be able to deliver telemedicine consults and care to those people whenever they need it."

FCC Sets Up Healthcare Connect Fund

In December, the Federal Communications Commission established the Healthcare Connect Fund to reform and modernize its universal service program for health care.

The FCC says telemedicine over robust broadband networks helps physicians diagnose and care for stroke victims, premature infants and psychiatric patients in rural areas – to name just a few examples.

The existing Rural Health Care program, established by the 1996 Telecommunications Act, was not effectively structured to expand the reach of broadband health care networks. In 2006, the FCC launched a pilot program to learn how to more effectively support these networks (see the August-September 2012 issue of **BROADBAND COMMUNITIES** for more details), and it now funds some 50 active pilot projects.

In a report released last summer, the FCC highlighted lessons learned from these pilots, including a South Carolina consortium that saved $18 million in Medicaid costs by using telepsychiatry

and a group of health care providers in the Midwest that saved $1.2 million in patient electronic intensive care unit services. The full report is available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-12-1332A1.pdf.

Using the lessons learned from these success stories, the new Healthcare Connect Fund will help expand health care providers' access to high-bandwidth connections by

- Removing unnecessary limitations on technology and provider type.
- Encouraging collaboration between rural health care providers and urban medical centers, enabling remote hospitals and clinics to draw on the medical, technical and administrative resources of larger providers.
- Increasing fiscal responsibility by requiring participants to contribute 35 percent of the costs, while affording health care providers access to lower rates through group buying.
- Supporting broadband services purchased from diverse communications providers and allowing health

care providers to construct new broadband networks when that is cost effective.
- Covering upgrades to higher-speed service required for health care applications.

In addition, the FCC established a new pilot program to test the expansion of broadband health care networks to skilled nursing facilities. These facilities are often remote from doctors and testing facilities, which requires frail and convalescing patients to travel to receive medical care. Broadband networks should relieve them of the time, expense and stress of such travel. Up to $50 million over three years will be available for these competitively awarded pilots.

The new programs will be funded out of savings achieved by group purchases through consortia and other increases in efficiency, which the FCC says could cut the cost of broadband health care networks in half for both providers and the Universal Service Fund. ❖