



The Wow—and the Now

By Philip Dunn

Picture a health care system that uses technology to connect with its community's elderly at home. Seniors receive timely reminders to take their medicine, are asked about their health status and potential symptoms, have their vital signs checked regularly, and discuss their health with clinicians via video-conferencing—all from the comfort of their living room. At a low-income seniors housing complex, patients enjoy many of those same benefits via a health care kiosk in a central location. And, in a system-affiliated assisted living facility, seniors' daily activities are monitored via sensors and radio frequency identification (RFID) tags—alerting clinical staff to falls, wandering and even disruptions in sleep patterns.

Sound futuristic? It's not. Northeast Health, a Troy, N.Y.-based system, is using all of these technologies and more. Northeast Health—which encompasses two acute care hospitals, five assisted living facilities, and home health care services—is among the nation's hospitals exploring ways to use clinical and information technology to extend its reach and improve care.

"We're just seeing the tip of the iceberg here," says James K. Reed, M.D., the system's president and CEO.

Indeed, applications in use today are relatively low-tech compared with what's right around the corner. Scientists are working on systems in which nurses track hundreds of patients and find staff and equipment on an interactive wall; in which family members check a Web site to track a patient's progress during surgery; in which clinicians enter orders and patient data into an infection-resistant computer that hooks up wirelessly with a hospital's electronic health record; in which "smart" medication dispensers remind the patient to take her medicine and ensure that she receives a proper dose every time. These advances promise to radically alter the clinical landscape, and to do it sooner rather than later.

You've heard it all before, of course, the myriad ways technology can improve care and operations. Remember the late 1990s, when e-commerce was all the rage? Internet-based startups like Neoforma promised a world where hospitals would order supplies online, get just-in-time shipments and make group purchasing organizations obsolete. That never came to pass and most of those startups went under.

Many of the other promises associated with bits and bytes never came to pass, either, leaving hospitals disappointed and holding the bill. "Cool technology with lots of complexity added to the system and no real value," is how Eric Dishman, global director of Intel's Health Research & Innovation Group, sums up past applications.

A healthy dose of skepticism is warranted, but experts insist it's different this time. They say they've learned lessons from past disappointments and are ready to merge information and clinical technology in ways that will transform how care is delivered—in a good way. The technology they're working on seems to back that up.

"What we're looking for is ubiquitous computing in health care, so that the technology seems invisible," says Luis Taveras, a principal in Accenture's Health and Life Sciences practices.

A Boom From Boomers

It is estimated that 100 million Americans live with at least one chronic disease. Nearly 80 percent of all health care dollars spent in the nation go toward treating chronic conditions. One of the most common reasons for hospitalization, congestive heart failure, by itself afflicts nearly 5 million Americans and carries a three-year mortality rate of 60 percent. Other chronic diseases, including obesity and diabetes, are on the

rise. Add to those factors the estimated 77 million baby boomers who are about to become seniors, the trend to provide more care in the ambulatory setting, and the seemingly permanent shortage of nurses and technicians to provide care, and you have a volatile mix that worries public health experts.

Yet where some see trouble, others see opportunity. Hence, the focus on home health technology. Many experts both within hospitals and outside them envision a system in which patients are monitored around the clock via technology that is nearly invisible to the home user. Reed says these “smart homes” will take advantage of RFID and nanotechnology—“taking care of people as much as we can in a way that doesn’t involve touching them” is how he puts it.

Beyond the “wow” factor, however, developments in telehealth and home monitoring excite many observers not because they are high-tech but, in fact, because many are relatively low-tech. Accenture’s Taveras calls it “Best Buy technology,” taking advantage of old technology in new ways.

Motion sensors like QuietCare keep track of elderly patients, noting time spent in the bathroom, in bed, or engaged in other activities; the technology is similar to that commonly used in home security systems. Relatively simple home monitoring devices from companies such as HomeMed Systems and Health Hero Network collect health data from patients at home and provide an emergency call option. Trends are established over time, so that a physician can make decisions based on several months’ worth of data.

“This stuff is off-the-shelf—that’s the genius of it,” says David J. Stern, chief professional officer of Living Independently, which manufactures the QuietCare motion sensors. Adds Sandra Elliott, director of aging and senior service development at Meridian Health: “Some of these technologies aren’t really rocket science at all.”

That fits nicely with Elliott’s work at Meridian, a Neptune, N.J.-based network of four hospitals and an array of ancillary services. Meridian’s community, Monmouth and Ocean counties in central New Jersey on the Atlantic coast, is home to 1.2 million people, including a growing percentage of seniors. She sees where the business is headed—providing more services to seniors at home—and wants to do just that.

“Technology is a component of how we can keep you safe and independent in your own home,” she says. By adopting technologies now that accomplish that, she says, Meridian brands itself to the senior community, with the hope that seniors will turn to the system in time of need.

Next Stop: Winner’s Circle

While going tech is a business decision, it’s never an easy one. Nasty questions about capital expenditures and return on investment lurk around every corner. “Reimbursement has been a major barrier, no question,” Reed says. Hospitals lacking the capital to make major investments are borrowing heavily, a risky strategy despite still-low interest rates. Other approaches include cobbling together grants from vendors and foundations, and tapping into the latest Medicare demonstration project. (Health Hero Network is installing “Health Buddy” devices in homes in Oregon and Washington state as part of such a program.)

The frustrating day-to-day business questions are not top of mind, however, at Accenture’s “innovation labs.” Accenture’s technology services division maintains such labs in downtown Chicago and in Palo Alto, Calif., to test the latest gizmos and gadgets for potential applicability to health care settings. There’s nothing low-tech here—video-conferencing connections are always open in the hallway and in a model kitchen, so scientists at the two labs can hold face-to-face conversations as if they worked down the hall from each other or they can even simulate dining together.

Taveras enjoys showing off the toys. These include the medicine cabinet that uses video sensors to identify who is opening the cabinet, reminds patients what medicines to take and when to take them, and even instructs the user how to dress for the weather. There’s a nearly weightless, washable “life vest” that keeps continuous track of movement, heart rate, pulse, body temperature, even posture.

But Taveras knows it's not all fun and games. "When patients get discharged from the hospital, we tend to lose sight of them," he says. "That's expensive." Studies indicate that the 30 days after discharge are the most critical risk period for readmission. Not coincidentally, Medicare does not cover most readmissions for the same diagnosis related group within that 30-day window—giving hospitals an excellent reason to track patients at home to make sure they don't need to come back in immediately.

To Russ Bodoff, it's a fairly easy equation. Bodoff, executive director of the Center for Aging Services Technologies in Washington, D.C., looks at the number of boomers about to become eligible for Medicare, at the traditional constraints facing hospitals, and at the technologies coming down the pike.

"We can't deal with the increase in the aging population by building more buildings; we can't even hire the staff. We're going to have to do things by avoiding bricks and mortar," he says. "Those who are on top of this are going to end up the winners."