"The Gray Sheet" ON THE WEB
MEDICAL DEVICES, DIAGNOSTICS & INSTRUMENTATION

December 17, 2007

Medical Monitoring: Interoperability Lags Behind Technological Capacity

By Chloe Taft

Companies have developed advanced devices that are capable of monitoring patients' physiological and device information in the hospital, at home and in a variety of other settings, but stakeholders say the market is limited by reluctance among device firms to advance interoperability.

"I no longer believe that technology is really the issue that prevents us from getting things done. We have the technology ... We've cracked the code on things like mobility and wireless devices and broadband," said Bill Crounse, the director of Worldwide Health at Microsoft, during the **World Healthcare Innovation and Technology Congress held in Washington, D.C., Dec. 9-11**. "The remaining barriers are really all-around barriers to adoption."

Those barriers are many, and include lack of financial incentives for physicians to integrate the collected data into their practices. The industry is making a big push to improve reimbursement for remote monitoring, for example, which includes devices like implantable defibrillators that can communicate data on arrhythmias wirelessly to a physician through the device-maker's Web-based network (1"The Gray Sheet" Nov. 5, 2007, p. 5).

But another major hurdle remains in that many of the devices and information systems on the market are not designed to talk with each other, limiting the value that individual devices can leverage to change health care delivery as a whole.

A push to change that model is playing out differently in the hospital setting compared with ambulatory remote monitoring, Tim Gee, principal of Medical Connectivity Consulting, explained in an interview with "The Gray Sheet."

Hospitals Seek Interoperability, Not One-Stop Shop

Device manufacturers have traditionally approached the market with an instinct to control it by making customers dependent on proprietary systems that do not integrate with their competitors', according to Gee.

As far as enabling greater connectivity to integrate clinical information from a wide range of sources, "the medical device vendors in acute care lack sufficient incentives, frankly, to really push this as quickly as the technology would allow," he said.

Philips, GE and Siemens are major players in the patient monitoring and information systems market. Plus, nearly all devices used in the hospital, from infusion pumps to ventilators to diagnostics, have serial ports that allow data to be exported.

Although some of those companies are involved in workgroups and alliances to set connectivity standards for hospital devices so that they all work with each other, "they're moving at a glacial pace," Gee said.

Part of the reason is that few providers, who as purchasers of the systems could pressure the makers to change, are involved in the process, he said.

Traditionally, the major patient monitoring firms have encouraged hospitals to seek "end-to-end" solutions, whereby one firm provides all the information systems.

But for many providers, no one vendor is the best at everything. "You can reach a point where the benefits of a single vendor solution are outweighed by the compromises in functionality that some of the lousy parts of that single vendor solution create," Gee said. Partners HealthCare, for example, a network of hospitals that includes Massachusetts General and Brigham and Women's in Boston, has purchased systems from a variety of firms.

"We have several flavors of Meditech, several flavors of Siemens. We've got a home-grown [electronic health record] as well as a GE product," said Cathyann Harris, a Partners specialist in clinical informatics research and development, at the conference in D.C.

The process for getting those products to speak to one another is not an easy one. "We are a victim of our own innovation," she said.

Third-party software solutions that play middleman to allow disparate devices and systems to communicate through a central server, have emerged to address providers' connectivity problems.

In an enterprising move, Philips announced plans earlier this month to buy one such company, Emergin. Emergin's "middleware" interfaces with over 200 different devices and monitoring systems, including those of Philips' competitors, to allow hospitals to organize and deliver device alerts to clinicians irrespective of the product brand from which they originate (2"The Gray Sheet" Dec. 10, 2007, p. 14).

Philips, the market leader in patient monitoring, says it will keep supporting other companies' products on the Emergin system because that is what providers will demand. Still, Gee suggested that a competitive mindset could lead other players in the space to pursue different middleware connectivity solutions instead of continuing to work with a company now owned by their largest competitor.

Remote Monitoring Looks Outside Of Hospital

Meanwhile, Gee suggested that the connectivity between devices used for telehealth outside the hospital is further along.

In 2006, device manufacturers with an interest in remote monitoring - such as cardiac rhythm device makers, as well as the patient monitor players - joined forces with a number of technology companies, led by Intel, to form the Continua Health Alliance. The goal of the alliance is to develop design guidelines and a product certification system to promote interoperability across medical products.

With many Continua members coming from technology companies not traditionally associated with health care, their business perspective reflects experience from standardizing technologies like Wi-Fi and USB ports (3"The Gray Sheet" Oct. 22, 2007, p. 18).
"In a lot of other markets the vendors recognize that by developing standards and opening certain parts of the solutions up, you create more value for the customer, which grows the market faster and bigger for everyone," Gee said. "That's exactly the thinking behind the companies involved in Continua."

In addition, as the remote systems link back into hospitals and doctors' offices, providers again have a role to play in pushing for better interoperability.

Kaiser Permanente, another Continua member, for example, conducted a pilot project in which congestive heart failure patients in the Sacramento, Calif., area were remotely monitored for a number of clinical measures using Honeywell HomMed's telehealth monitors.

Based on the success of the program in reducing repeat heart attacks and hospital stays, Kaiser plans to roll the program out nationwide.

However, it will use a different suite of monitoring products in the future, said Michael Robkin of Kaiser Permanente Information Technology at the D.C. conference, because the Honeywell HomMed systems do not integrate with Kaiser's electronic medical record and data warehouses.

Going forward, device makers will need to come up with more enterprising solutions to connectivity, as opposed to putting the burden on providers to construct solutions, Gee said.

Incorporating standard wireless network connections into their devices is one step, he said.

"The medical device companies are becoming chimeras, where they're part IT company, and they're part embedded system company," Gee noted. But, as long as their mindset remains that of an embedded system company trying to protect the "black box" of proprietary system design, it will be difficult to move forward, he said.

- Chloe Taft (c.taft@elsevier.com)