



BY BARBARA ADEY

## A LOOK FORWARD

New technologies are changing the nature of healthcare delivery

**E**merging network technologies have the potential to improve patient care and reduce healthcare costs. But the active involvement of the healthcare community in the development of solutions is key to the successful implementation of these technologies. It's not enough to assume that the information technology community will intuit the needs of the healthcare system.

Major market forces are driving down the costs and increasing the capabilities of Internet solutions. These market forces include the migration to Internet Protocol (IP) networks from traditional networks, increasing price/performance, open standards and global deregulation of networks. In the healthcare sector, specific user requirements are also driving the application of network technology. Users are increasingly seeking health information on the Internet, and healthcare providers seek to offer a superior patient-care experience while containing costs and maintaining confidentiality.

One specific example of these new network solutions is IP telephony.

Voice and data can now be provided over a common IP infrastructure, with resulting cost benefits overall. Significantly, IP telephony offers resilience and survivability in a crisis situation as evidenced by its use to connect municipal and emergency services that were left without traditional telephone service in New York City by the September 11 terrorist attacks.

Beyond simple connectivity, however, IP telephony can provide a cost-effective information device for the majority of healthcare workers in a hospital situation. IP phones can be equipped with a screen to manage patient directories, needs for nursing support as well as other services such as nutrition, housekeeping and lab testing services.

A wearable health computer—in the form of a shirt that provides ambulatory monitoring of patients—is another example of an emerging technology application. Such a product could allow remote monitoring of chronically ill patients, saving the cost and inconvenience of a trip to the doctor's office. For a low-bandwidth application, such as the transmission of respi-

ration and heart-rate information, this solution could be supported by Internet transmission over existing telephone lines. For applications requiring higher bandwidth, emerging satellite technologies promise to provide a footprint beyond traditional urban centres currently served by high-speed modem technology.

In their ultimate implementation, emerging network technologies will enable collaboration among healthcare professionals and will transform the nature of their relationship with patients. It is incumbent upon the healthcare community to incorporate network technologies into their vision of the future, and demand applications that support a superior user experience.

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BY KEVIN J. LEONARD

## WHAT PATIENTS WANT

A simulation program is helping in the development of patient-friendly information systems

**A**s we move into a patient-centric, e-services healthcare environment, patients will expect—even demand—greater access to their own health information. While much attention is paid to designing information systems to meet the requirements of healthcare providers, seldom are the needs of patients considered. How will they interact with these systems and what information will they want from them?

Unfortunately, we have found that simply asking patient groups what

type (and format) of information they need is not productive. Patients need an environment where they are free to identify and communicate their own information needs.

To create this environment, the Centre for Global eHealth Innovation at the University Health Network and the University of Toronto has created a simulation program for the design of patient-friendly information systems. The program is intended for use as a research tool to understand patient needs.

Patients participate in a simulation exercise in which they can explore a variety of information and design options using Web-based interactive technology. Through the course of the exercise, they illustrate through their actions (which are tracked using the software) the type of information that they need. We can then observe whether the types of information specified in patient focus groups are in fact the types of information they use when immersed in real-life scenarios.

To date, we have seen that patients

have a desire for information about:

- The volume and rate of specific causes (diseases) and purposes (procedures) of hospitalization;
- Resources they can access with respect to their own diagnosis;
- The number of physicians and hospitals providing care for specific conditions and procedures;
- The number and type of high-technology diagnostic tests and treatments used by residents of a particular community;
- Healthcare expenditures for hospital care, ambulatory care, and other services;
- The number and location of primary-care physicians with open

practices;

- Patient satisfaction data from previous/existing patients of a particular provider or facility;
- Measures of community integration across the healthcare system; and
- Special programs available at hospitals, group practices, and other healthcare institutions.

Patients need to have a greater role in the design of healthcare information systems. If they don't, then many of the decisions surrounding patient information systems will be made without their involvement, and subsequently won't meet their requirements. We hope the outcomes of our research experience are a step

towards the development of further technology-based educational and training products.

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BY IRENE PODOLAK

## DOCTOR'S ORDERS

A survey of U.S. physicians offers a glimpse into attitudes towards IT

In October/November 2001, in partnership with Fulcrum Analytics, Deloitte Research conducted in-depth telephone interviews with a nationally representative sample of 1,200 practising physicians in the U.S.

Data from this study yielded an intriguing picture of physicians' attitudes toward information technologies; factors driving early adoption of these technologies among specific segments of physicians; and current usage patterns. These findings are especially important since, more than ever, skilful management of relationships with physicians is imperative for effective management of the health system.

Five key conclusions were drawn from the survey results:

■ **Physicians will adopt information technologies that create value for their practices.**

The most readily adopted will be time-saving information technology applications that are demonstrably more efficient than existing processes. Physicians are not technophobes, but they will not adopt something just because it is new. Emerging information technologies must pass a high hurdle before they're widely adopted. Simply put, time is money.

■ **Don't expect to re-engineer physicians' practices overnight.**

Physicians typically look to improvements in technology to enhance and optimize the existing process, not to create a new one, even if the new process is technically superior. Until technology and associated applications are integrated into the point-of-care, their value remains limited, and the prospect of a true revolution in practice management operations remains distant. Look for remote data access to be the logical and useful first step along this evolutionary continuum.

■ **Infrastructure matters.**

Front-end applications and tools (meaning e-prescribing tools, online electronic medical records, medical practice Web sites, personal digital assistants, etc.) are valuable only when they are integrated with robust, backbone infrastructure (meaning transaction systems and core databases.) Until the infrastructure is in place—giving real meaning to front-end devices—most physicians will stay on the sidelines.

■ **The basics are still highly valued.**

For their practices, physicians want technologies that facilitate and opti-

mize routine administrative functions. In hospitals, they want administrative information sharing and messaging. In their interactions with managed-care organizations, they want timely and efficient access to eligibility, claims information, and referral processes.

■ **Businesses in all healthcare sectors should read these trends as an opportunity.**

Physicians will have the ultimate say in how and when the revolution in information technology plays out. It is up to the innovators of tomorrow—companies that will drive the health system of the future—to identify opportunities for value creation, to deliver products that integrate seamlessly into patient care, and that ultimately capture economic value for themselves.

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