Can technology transform health care? CIO Dan Drawbaugh thinks it can—and he’s doing it.

Chief Of The Year

PHYSICIAN, HEAL THYSELF! MUCH EASIER SAID, APPARENTLY, THAN DONE.

The U.S. health care industry has been slow to transform itself, largely because doctors and hospital administrators have been laggards in adopting new information technology. Researchers, including those at the Institute of Medicine, estimate that the use of health care IT, such as electronic prescription systems and digitized medical records, could prevent tens of thousands of deaths and more than a million medical mistakes each year, and save billions of dollars in costs related to inefficient and redundant processes and medical complications.

But for most health care organizations, where paper still rules, these changes aren’t cheap or easy. Researchers estimate that fewer than a quarter of the nation’s hospitals have deployed electronic medical record systems. President Bush has set 2014 as the deadline for the digitization of most Americans’ health records.

Fortunately, there are exceptions. The University of Pittsburgh Medical Center, under CIO Dan Drawbaugh, is among the most aggressive, having deployed e-medical record systems in 18 of its 19 hospitals. In addition, computerized physician order-entry systems and clinical support tools are used in several of UPMC’s hospitals, and it plans to ex-
Mountains of electronic data won't help, Drawbaugh says, unless you have the right tools.
In Depth / Chief of the Year

Attend that technology to most of the others within three years. A service-oriented architecture and Web services are the software underpinnings of it all.

The goal is interoperability among UPMC’s many disparate IT systems, which include applications from more than 120 vendors, so that the center’s thousands of doctors and clinicians have quick, easy, and reliable access to patient data in the form of text, images, voice, and video. “This technology will provide very integrated, interactive delivery of patient information that moves with the patient,” Drawbaugh says.

UPMC execs are big believers in the transformative nature of IT. “Technology is the backbone of a world-class health care system,” says CEO Jeffrey Romoff. “Under Dan’s IT leadership, UPMC has been at the forefront of developing a truly integrated information system and advanced solutions to ensure that every patient gets the right care at the right time.”

That kind of thoughtful planning has made Drawbaugh a central figure in health care IT circles. “UPMC is a terrific leader in the field, and Dan in particular has been a pioneer and role model, which is important as others embark on this journey,” says Janet Marchibroda, CEO of eHealth Initiative, a nonprofit group trying to improve health care quality, safety, and efficiency through the adoption of IT. Given the critical nature of the work at hand—and his team’s embrace of that challenge—Drawbaugh gets the nod as InformationWeek’s Chief of the Year for 2006.

Joint Ventures

The range of facilities and health services under the UPMC banner includes 19 tertiary, community, and specialty-care hospitals; a health plan with more than 700,000 members; 400 physicians’ offices and 4,000 physicians with privileges at UPMC hospitals (2,300 of whom are employed by UPMC); and an extensive network of home-care, rehabilitation, and senior-care services. UPMC provides care to about half the 1.2 million residents of Allegheny County, Pa. Its master index, which includes people who at some point received care at UPMC, contains data on 4 million patients.

One of Drawbaugh’s key strategies is partnering. Over the last 18 months, he has signed an eight-year, $402 million deal with IBM to overhaul UPMC’s three data centers and a $300 million deal with Alcatel to overhaul the center’s telecom and network infrastructure. The IBM deal involves consolidating 162 Unix servers to 61, 624 Windows/Intel servers to 244, and 40 storage systems to two. Alcatel will integrate UPMC’s 31 voice mail systems, 156 telephony systems, and 26 call centers onto a single network infrastructure with an IP backbone for converged data, voice, and video.

But these aren’t just straight vendor-buyer relationships. As part of the IBM deal, for example, each party is investing $25 million—which may grow to a total of $200 million—to codevelop and commercialize health care software and systems, such as biosecurity and clinical support tools. With Alcatel, a $50 million joint investment will be used, initially, to develop a system to enable first responders—fire, police, health care professionals—to “access critical information and applications during a crisis,” according to UPMC.

Drawbaugh and his team have struck other such deals on a smaller scale, such as a $35 million licensing and equity-investment deal with dbMotion, a provider of Web-based clinical data-sharing and integration software, and a $20 million joint investment agreement with clinical technology provider Cerner. These ventures are loosely modeled on UPMC’s most successful technology commercialization to date: Stentor, a company UPMC created in the late 1990s to sell digital imaging products based on technology developed at UPMC. Stentor was sold in 2005 to Philips for $280 million. “From UPMC’s perspective, these opportunities will lead to billions of dollars” of return, Drawbaugh says.

Revenue for the nonprofit organization was $6 billion in fiscal 2006, ended June 30. UPMC officials say operational costs are 18% lower today than they were seven years ago.

A Chief Of Note, Even Beyond The Clinic

Dr. C. Martin Harris has been CIO and chairman of the information technology division at Cleveland Clinic for 10 years. During that time, he’s led the health care provider’s efforts to use IT to improve quality and personalization of care, communication between patients and doctors, and the management of chronically ill patients. Harris is also executive director of the e-Cleveland Clinic, a program of clinical offerings via the Web, such as nutrition counseling and the remote monitoring by doctors of diabetic patients.

But Harris’ influence isn’t felt solely within the walls of the prestigious clinic. He has played significant leadership roles in a number of health industry groups, including the eHealth Initiative, a nonprofit organization. Harris was the only CIO nominated by President Bush to the 11-member Commission of Systemic Interoperability, which a year ago released a report to Congress recommending national adoption of standards-based e-health systems.

—MARIANNE KOLBASUK MCGEE
adjusted for inflation, partly because of tech deployments that helped UPMC bank the economies of scale from roughly a dozen acquisitions over the past decade or so.

But cutting costs isn’t the same as lowering prices. Just because there are cost savings within a hospital or health care system, that doesn’t mean the price of care will go down, especially in regional markets where one player is dominant, says Glenn Melnick, professor of health economics at the University of Southern California and an economist at Rand Corp. “Market competition drives down prices,” Melnick says. “That’s the same in any industry.”

The biggest health care IT savings will happen only when there’s nationwide adoption of key systems, such as e-health records, he says. That’s when the industry can more easily share information, cut out inefficiencies, reduce medical errors, and improve the management of care for the chronically ill. “Market power keeps prices up,” he says. “The big potential savings [from IT] is in reducing the use of health care services.”

UPMC isn’t just an efficient operation; it has earned a reputation for providing outstanding care. This year, for the seventh time in eight years, U.S. News and World Report ranked UPMC among America’s best hospitals, 14th in a list of 5,000 and among the top 50 in 14 specialty categories.

While tech-enabled improvements are hard to quantify in terms of lowering overall health care costs, providing doctors and nurses with timely, accurate information can eliminate unnecessary procedures and help them make better decisions or red-flag potential errors, which reduces complications that result in longer hospital stays. UPMC is working on technology to deliver timely and accurate information to the bedside, including a portable bar-code system, in use in three of its hospitals, that helps eliminate drug errors, and a prototype “smart room” that integrates radio frequency identification technology, e-health records, and wall-mounted screens to automatically display relevant patient information when a caregiver walks in the room.

**London Calling**

When the folks at UPMC say they want to export technical and clinical expertise beyond western Pennsylvania, they’re not talking about selling to companies in Ohio. Cancer centers in Ireland use advanced radiation and imaging technology developed at UPMC. The center is also talking with health care providers in the United Kingdom, which is undergoing its own government-managed technology transformation. In mid-November, representatives from Newcastle Primary Care Trust, a regional health provider in the United Kingdom, visited with Drawbaugh’s team to evaluate how UPMC technology capabilities might work for their clinicians.

Back in the States, some of UPMC’s joint tech endeavors are focused on improving the business side of health care. In January, UPMC announced a deal with CombineMed, a decision support software vendor that sells technology co-created with Carnegie Mellon. They launched a company, CombineMed, that provides computerized sourcing services to health care organizations. CombineMed’s “expressive bidding” platform lets suppliers offer complex bids that might include multiple proposals or specific constraints, such as rebates or payment terms. System tools let buyers analyze those bids, thus helping health care providers optimize their supply chains, Drawbaugh says.

In CombineMed’s first event earlier this year, UPMC and two other hospitals purchased more than $400 million in supplies from about 100 companies that bid about 40,000 items. Cumulatively, the health care providers saved about 8%—or $32 million—on their purchases, Drawbaugh says. A second event is planned for early next year.

As patient care evolves to providing clinicians with access to integrated data, voice, and video information, Drawbaugh anticipates that the use of virtualization software, which helps cut hardware costs and improve
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From the point of view of patients, “That’s my data,” Drawbaugh says—and they want access.

performance, will play an increasingly critical role. As part of its server consolidation, UPMC is using VMware’s Virtual Infrastructure 3 virtualization software to move applications onto IBM System x3950 eight-way servers running ESX, says Paul Sikora, UPMC’s VP of IT transformation. Virtualization let UPMC upgrade an imaging management system for about $250,000, using only 23 servers; one vendor had proposed using 43 servers at a cost of $523,000. “It’s like quadrupling the gas mileage in your car,” Sikora says.

And any of UPMC’s IT initiatives that involve patient data must take into consideration one important aspect—the patient. From the patient’s viewpoint, “that’s my data,” Drawbaugh says. For UPMC, that means a Web site that now lets about 1,000 patients access their data, like medication information, diagnosis, and treatments. By February, that information will be available to about 1 million of UPMC’s health plan members, he says.

CHANGE AGENTS

Drawbaugh is quick to credit the IT organization’s highly supportive 953 professionals, the biomedical engineering staff of 180, the 15 executives who report to him—including eight business-unit CIOs—and especially UPMC’s corporate leadership team, most notably CEO Romoff. “I’ve served on boards where they’ll spend two years discussing ROI,” Drawbaugh says. But with Romoff, “that takes about 10 minutes. He has a vision of where we want to see the organization go. We believe in execution.”

Often, the longer someone works in one place, the easier it is to get complacent and resist change. Not so for Drawbaugh and his team.

Drawbaugh, who’s 47 years old, began his career in 1983, as director of biomedical engineering at Shady-side Hospital in Pittsburgh. He was named CIO there in 1990, then became CIO at UPMC when it acquired Shady-side in 1996. “I never thought I’d be in the same place of employment for 23 years,” he says. But that longevity has given Drawbaugh an astute understanding of the organization’s evolving needs, and it’s cultivated trust and sweat equity, including a close working relationship with Romoff, who’s been at UPMC for 30 years.

Of his 15 direct reports, nine have been with UPMC for 15 years or more. On the clinical side, Drawbaugh works closely with chief medical officer Loren Roth, a 30-year UPMC veteran. “We pick up the phone every day, on weekends, whenever,” he says. “There’s a level of collaboration that allows you to get things done.”

Having a strong, smart team he can count on lets Drawbaugh engage in strategic thinking, to explore those key partnerships. That’s where a CIO should be spending his or her time, he says: “If your network’s not up, that’s where you’ll be spending your time instead.”

While Drawbaugh spends much of his time looking ahead, his inspiration to pursue a career in health care technology came from a painful experience as a 6-year-old, when his mother was diagnosed with breast cancer. Dealing with that situation along with his father, a mechanical engineer, sparked young Drawbaugh’s fascination with health and medical devices.

“My motivation to get in health care was to affect people’s lives,” he says.

The type of data physicians will have access to over the next five years will be much more complex and comprehensive than it is now. Today, we think of electronic medical records as the point-of-care system, Drawbaugh says, but the next several years will see the integration of more sophisticated and extensive medical data, such as DNA and protein–related information.

But providing physicians with mountains of electronic data instead of reams of paper reports won’t help patients if there aren’t decision support tools that help clinicians quickly gather all the most pertinent pieces of an individual’s health history, as well as the latest relevant research. Those tools are part of Drawbaugh’s ultimate goal, and for very personal reasons.

“When my mother was treated for breast cancer, there was a 17-year period between scientific research that said one treatment was superior and the time the research was put into practice,” he says. “The time frame is too long.” The work he’s doing on health care IT is meant to help close that gap, as quickly as possible. “I’d like to be there in five years.”

That can-do approach is what makes Drawbaugh an exemplary IT leader, one who deserves to be singled out. Much more of that will be needed to heal this country’s ailing health care industry.

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