

HealthLeaders

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Sharing the Data Bridge

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Technology's Promise

THIS SPRING, DAVID BRAILER, M.D. PH.D., THE NATIONAL COORDINATOR FOR HEALTH INFORMATION technology—a.k.a. the EMR Guy—came through Nashville on the last day of his first year in office. It was the final of dozens of stops he made in that first year to spread the gospel and promise of what electronic medical records can do for the future of medicine. In some sense, he has been preaching to the converted for the past year because vendors, payors and providers each have a quality reason or financial interest in seeing EMRs become a reality sooner rather than later.

Brailer's real mission has been to energize the private sector to come to a consensus on what this initiative should look like. In June, HHS followed up with a plan to create the American Health Information Community, which is chartered to "help nationwide transition to electronic health records—including common standards and interoperability—in a smooth, market-led way." HHS also funded four RFPs to create the processes for the data infrastructure, and budgeted \$86.5 million in fiscal year 2005, and another \$125 million in fiscal year 2006. You can almost hear the drop hit the bucket.

When I had the chance to sit down with Brailer in Nashville a few months ago, he talked excitedly about the people who were already in the technology trenches trying to make these systems work. One hospital's health data team talking to another's about a common data language is what the government wants to see. As *HealthLeaders* Technology Editor Gary Baldwin discovered, a project called HealthBridge in Cincinnati didn't wait for the government to give them a push to create a local data sharing collaborative. Started in 1997, the collaborative is now able to share lab results, radiology and other reports from 17 hospitals with 3,000 local physicians.

What is so encouraging about HealthBridge is that in a typically competitive healthcare market, healthcare leaders managed to reach agreement on a vision of what they could do to make the effort work for their mutual benefit. This was eight years ago, before the idea of so-called regional health information organizations was even an acronym. In Cincinnati, healthcare leaders took an amazing risk, and they did it without government backing, prodding or paying.

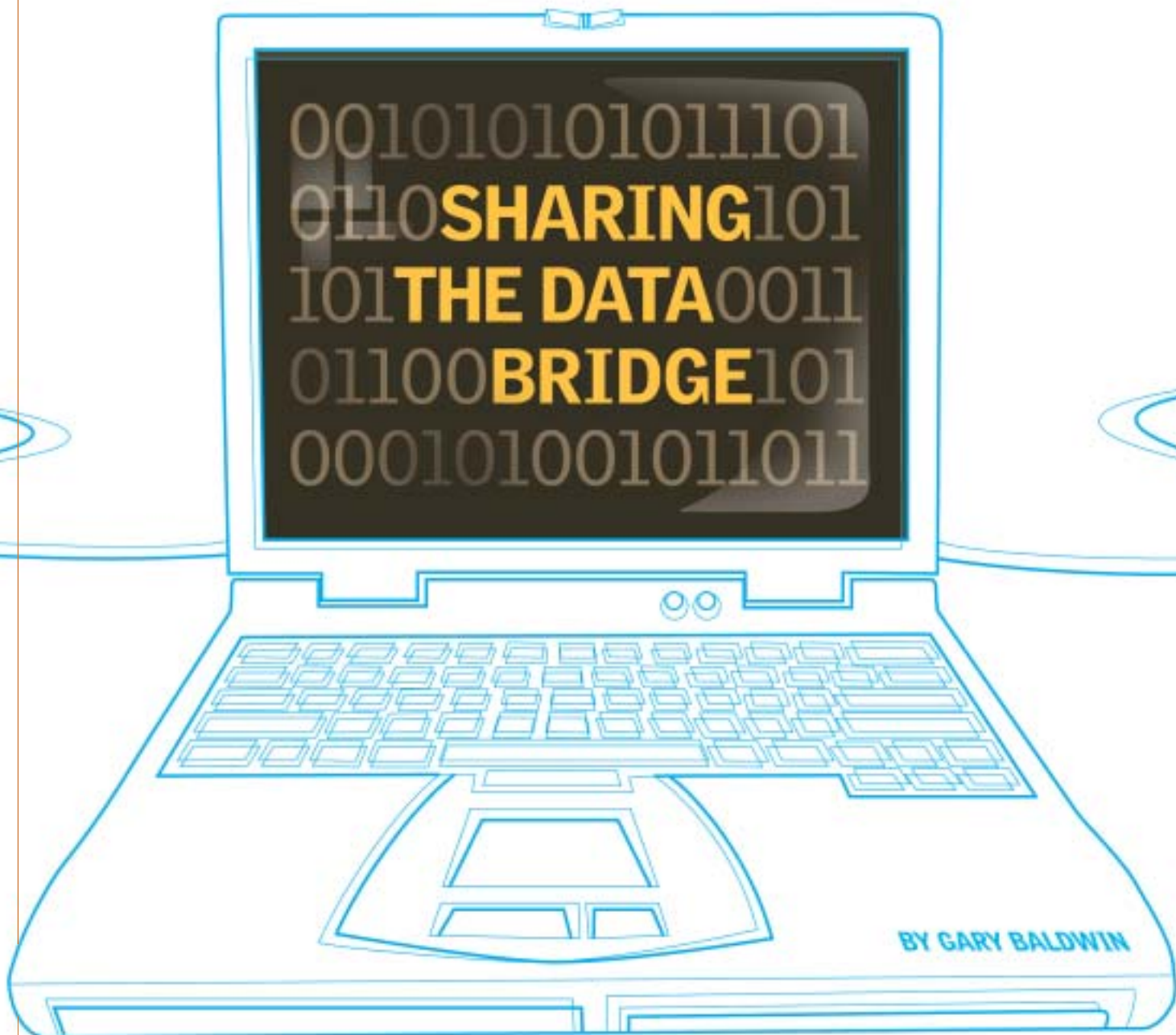
What is so special about this project is that there is nothing particularly special about the circumstances that faced HealthBridge. There are still hurdles in the particular project, mainly in getting payors back into the game. Still, HealthBridge seems to offer some hope that the human barriers to the use of this technology can be overcome, with a little cooperation.



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INDUSTRY LEADERS LONGING FOR TECHNOLOGY COLLABORATION MIGHT LOOK TO CINCINNATI. HEALTHBRIDGE HAS BEEN DOING IT THERE FOR YEARS.

● **TOO MANY PCs.** Alex Rodriguez, CIO of Health Alliance, says that before HealthBridge gave Cincinnati physicians a single portal, it was not uncommon for each physician's office to have one personal computer dedicated to each hospital.



Because he lives in Cincinnati, Steven Dumbauld, M.D., can do what physicians in most other parts of the country only dream about. He can see a patient in the afternoon and have, right in front of him, lab results that were completed just hours before. It may not seem revolutionary, but Dumbauld and his 22 colleagues at the Cincinnati-based Kidney and Hypertension Center sidestep the maze that physicians elsewhere must navigate. Rather than making a phone call, sifting through faxes, waiting on a courier or scouring the mail, the nephrologists just log onto their electronic medical record system. "If I see an abnormality, I can go right to a flow chart to see how the data is trending," Dumbauld says.

Thanks to a local data sharing collaborative called HealthBridge, his EMR can aggregate the lab results from the four local hospital systems where he and his partners practice. Combined, these hospitals supply 95 percent of the tests his group orders. In days past, Dumbauld depended on each hos-

pital to deliver its own results. But now, he and approximately 3,000 other physicians in Cincinnati are the beneficiaries of a collaborative data sharing effort, one that remains a misty vision elsewhere. "I don't know how they did it," he says. "The hospitals here are very competitive."

Delivering on the promise of collaborative technology, HealthBridge is redefining how competitive hospitals can share

"We've built a better mousetrap, but not that many people know about it"

data with their physicians. Formed in 1997, the group enables four local Cincinnati IDNs—encompassing 17 hospitals that comprise the bulk of the region's care delivery—to push out lab results, radiology reports and other clinical documents across a community-sponsored platform. Launched with the goal of

facilitating physician access to hospital IT systems, HealthBridge also serves as a common physician portal. By cooperating on HealthBridge, the hospitals have streamlined physician access to their data and reduced distribution costs. Dumbauld's colleagues, for example, also use HealthBridge to sign their hospital charts remotely, accessing multiple IT systems through one secure Web site. "For us, using HealthBridge is a no-brainer," he says. "The data just come across automatically."

Its community-negotiated software contracts aside, HealthBridge sports some impressive accomplishments. In January, the collaboratively governed organization pushed out more than one million clinical documents—most in digital format. In addition, HealthBridge supports public health surveillance through a data feed to the University of Pittsburgh. De-identified emergency room data is scanned for signs of outbreaks of viruses, with alerts sent back to Cincinnati. More recently, the group embarked on a lab-ordering venture that could standardize how physicians request tests.

Moreover, HealthBridge has done it all without government backing. The group's seed capital came from loans from its hospital members. Their monthly dues cover 80 percent of HealthBridge's annual \$2.6 million operating budget, with the remainder coming from access fees paid by transcription and

billing companies. The only grant money it has received was a \$29,000 local contribution for its public health alert program.

A NATIONAL ROLE MODEL?

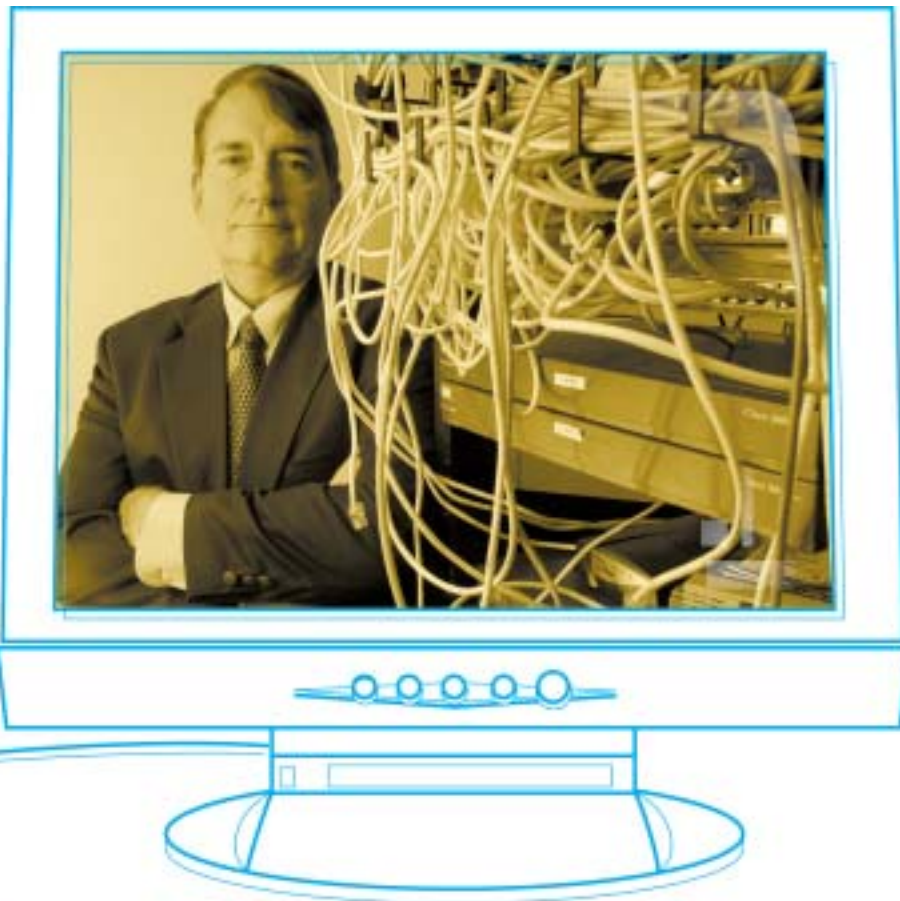
In contrast, the rest of the industry lags far behind, with many crying that they lack the funds needed to meet the data sharing goals endorsed by the Bush administration. They may just lack imagination and collaborative spirit, HealthBridge's founders say. HealthBridge may not be a "regional health information organization," or RHIO, the government prototype espoused by David Brailer, M.D., Ph.D., the national healthcare information technology coordinator. Its data sharing is limited to physicians and their billing companies. But HealthBridge has done the heavy lifting—most notably the difficult financing and governance issues—needed to make broader data sharing work. Its founders hope, for example, to lure local payors—whose early support faded—back into the digital fold, perhaps in a pay-for-performance initiative.

If anything, HealthBridge proves that the hurdles to data sharing are more cultural than technological. Laying the collaborative groundwork was not easy. But Cincinnati could easily serve as a national starting point if other industry leaders pay heed. "When we first heard David Brailer talk about RHIOs, we

laughed," says Lynn Olman, president and CEO of the Greater Cincinnati Health Council, HealthBridge's overseer. "We wondered, where have you been for the last 10 years?"

HealthBridge's lack of notoriety may be explained by the group's admittedly low profile. It's been too busy building connectivity to exert much energy publicizing it. "We've built a better mousetrap, but not that many people know about it" outside Cincinnati, says board member James Gravell, the executive vice president of Mercy Health Partners, one of HealthBridge's founding members. "Having a ubiquitous medical record across the community has been the dream of the country for years. We have the basic building blocks and the vision to make it happen."

● **WORTHY COLLABORATION.** Robert Steffel went from being CIO of TriHealth to being CEO of HealthBridge. He says he knew that for the data sharing effort to work, collaboration among all the players was essential.



FIVE REASONS HEALTHBRIDGE WORKS:

Is the success of HealthBridge due, in part, to unique circumstances in the Cincinnati healthcare community? Or are these circumstances repeated, in whole or in part, in other markets? Judge for yourself, but here are five reasons that HealthBridge has been able to share technology costs among five competitive hospitals.

1 Integrated hospital networks.

HealthBridge's IDN members—which encompass 17 hospitals—have largely standardized and consolidated their own information technology operations. It has been a major success factor for collaboration, says Alex Rodriguez, CIO of Health Alliance, a six-hospital system. Rather than running disparate systems at its member hospitals, Health Alliance has built its clinical information systems on software primarily from Burlington, Vt.-based IDX Systems Corp., he explains. "Standardization has propelled our ability to gather data and move it to HealthBridge," he says. "If we had four different lab systems at our hospitals, it would have been much more difficult."

2 Market size.

The size of Cincinnati's healthcare market has facilitated HealthBridge's

success, says CEO Robert Steffel. Its population of **2.2 million** is served by some **4,000 physicians**, offering enough critical mass to warrant joint purchasing, but small enough to maintain the familiarity needed to make collaboration work, he says. "We're not too big and we're not too small," he says. "If the area is too small, you can't get the economies of scale. And in a small community, you might only have two health systems and they hate each other's guts. But the thought of doing this in Chicago makes my head hurt."

3 Leader longevity.

The hospital CEOs and CIOs who spawned HealthBridge knew and trusted one another, says Lynn Olman, president and CEO of the Greater Cincinnati Health Council. Not only that, these leaders stuck with their organizations. Their longevity contributed to a community-minded spirit that she says prevails in Cincinnati. Without it, HealthBridge would never have moved off the drawing board. "Technology is just the enabler," adds Steffel. "What makes it happen is the interaction of people."

4 Knowing what NOT to do.

HealthBridge's leaders invariably point out that it has not built a clinical data repository, a centralized storehouse of records searchable

by patients. Patient privacy issues kept HealthBridge away from this model, says Olman. "It was a 'Big Brother' issue," she explains. "The misuse of information was the big fear. If we had information on people, it could harm their ability to get health insurance." It explains why HealthBridge settled on its physician-centric distribution model. "I would rather route information based on **4,000 physicians** than **2 million patients**," Steffel adds. HealthBridge does maintain a data archive of nearly 16 million records, he says. But they are kept in separate data files that correspond to the roughly **235 physician offices** on the network.

5 Physician orientation.

HealthBridge may have sidestepped sticky privacy issues by organizing its data distribution around physicians. But it is still crucial to give physicians options in how to use the information, Steffel says. The software that drives its clinical messaging feature is flexible enough to accommodate their needs, he says. For example, physicians can choose which data they want to flow into their "inbox," requiring immediate attention, and which to send into a historical archive. Other physicians may want results by fax or mail. HealthBridge can accommodate both, Steffel says.

—GARY BALDWIN

MARKET FORCES AT PLAY

Two factors converged to lay this foundation. First, local hospital leaders—who already had a forum in the Health Council—knew they needed to streamline physician access to their various legacy systems. Reimbursement was tight and these leaders could ill-afford unnecessary expense. Second, employers were clamoring for action to curtail costs. By the mid-1990s, each hospital had set up its own computer connection in physician offices, leading to a proliferation of stand-alone, single-purpose boxes—the very inefficiency the employers disdained. “You could go into the doctor’s office and have one PC for each hospital,” recalls Alex Rodriguez, chief information officer of founding member Health Alliance, a six-hospital system. “We had duplicative infrastructure to exchange information. We decided to collaborate on infrastructure and compete on content.”

Local CIOs initially envisioned HealthBridge as a community portal, using the Internet as its platform. Ray Pierangeli, senior vice president and CIO of Mercy Health Partners, developed a Web prototype for \$3,000. By logging on to just one site, Pierangeli demonstrated that physicians could replace the various computers that cluttered their offices with just one. In a critical move, HealthBridge’s founders decided to bring Pierangeli’s vision to life themselves, rather than turn it over to a vendor, as several other communities had done. The vendor-driven model, then known as the “community health information network,” or CHIN, would have been far more expensive.

In 1997, five local health systems and two payors lent \$250,000 each to form HealthBridge, which was incorporated as nonprofit subsidiary of the Health Improvement Collaborative (itself a subsidiary of the Greater Cincinnati Health Council).

Although the payors later dropped out—and had their loans repaid—the founding health systems remained, later welcoming two new hospital members. Robert Steffel, who had been CIO at TriHealth, became CEO of the new organization. “My colleagues thought I was nuts for quitting a steady job for an uncertain prospect. But for this to work, I told everyone that we needed to get involved. You can’t buy collaboration from a vendor.”

HealthBridge has remained standing while CHINs toppled. Although several factors have figured in HealthBridge’s success (see sidebar, p.31), its founders cite joint financing as providing early momentum. Rather than waiting on a vendor, the CIOs were, in essence, compelled to put their servers where their money was. The founding members—Mercy, TriHealth, Health Alliance, Children’s Hospital, and Franciscan Health System (later bought by Mercy)—began building the Web interfaces that would supplant the proprietary connections in doctors’ offices. “We understood that collaboration would make us successful,” says Rick Moore, vice president and CIO of TriHealth. “It only takes one to drop out and you don’t have HealthBridge anymore. If we didn’t collaborate, we were wasting our own money.”

THE PRICE IS RIGHT

Through HealthBridge, physicians can access numerous applications and databases housed—and controlled—by the member hospitals. The service is free for physicians with their own Internet connections (some opt to pay the organization to serve as their ISP). The portal does not enable a single sign-on to these applications. Nonetheless,

THE CASE OF THE MISSING HEALTH PLANS

One aspect of the initial HealthBridge design has eluded its idealistic founders. “The lack of participation by payors has been the most disappointing thing,” sighs Ray Pierangeli, CIO of Mercy Health Partners. Although HealthBridge leaders will not openly criticize local payors, they do acknowledge that the collaborative venture could accomplish much more with their support.

In fact, two local payors were among the original founding members of HealthBridge. ChoiceCare, a physician IPA, and Blue Cross

Blue Shield of Southwest Ohio both anted up **\$250,000 loans** to become founding members. ChoiceCare was later bought by Louisville, Ky.-based Humana Inc., while the Blues plan was purchased by Indianapolis-based Anthem Inc. Anthem was among the first members to offer online content across HealthBridge, enabling online eligibility checks.

But Anthem called its loan at the end of 2001, with Humana following suit three years later. Having national owners likely figured in the payors’ pullouts, HealthBridge leaders say.

“The payors already had the IT to connect with hospitals,” says HealthBridge board member Lynn Olman. “They did not see any efficiency” in participating.

That may change, hopes HealthBridge CEO Robert Steffel. HealthBridge could support pay-for-performance initiatives and help health plans reduce both administrative costs and medical expenses, Steffel says. “We have not given up hope on the payors,” Pierangeli says.

—GARY BALDWIN

● **ONE FINAL PIECE.** Ray Pierangeli, senior vice president and CIO of Mercy Health Partners, has seen much of his vision of how sharing information technology can boost care delivery come true. But he says there's one aspect of the initial HealthBridge design that has eluded its idealistic founders: lack of participation by payors.

it helps physicians keep tabs on their patients' data, says Alfonso Barnes, M.D., an early supporter of HealthBridge. Barnes is a solo gynecologic oncologist who signs his charts at Mercy remotely through the network.

HealthBridge's technological architecture, Barnes says, helped the organization overcome its biggest initial hurdle: letting the hospitals maintain control over their own computer networks. "The hospitals didn't want HealthBridge to be a repository for their data," he says.

The hospitals still maintain security over any internal application accessed through HealthBridge. To gain access to some applications, physicians must enter several passwords. "The balance between security and access is sometimes troublesome for the physicians, because they have to go through so many steps to get to the applications," says Rodriguez, the CIO of Health Alliance.

But from the CIO perspective, offering physicians remote access to in-house systems through a community portal makes sense. "As long as we use HealthBridge, we can put content in one place and not fool with so many interfaces," Rodriguez says. "We can point physicians to a common place. It simplifies our architecture."

OPERATION PUSH

Although the portal enjoyed early success, HealthBridge's major milestone was a clinical messaging feature launched in 2000. Prior to clinical messaging, physicians were constrained by HealthBridge's "pull" technology. With the messaging system, the hospitals gained the capacity to "push" information out to them. And for the first time, the hospitals could justify HealthBridge through a more definitive return-on-investment formula than the portal alone offered. By using a common tool to distribute lab results, radiology reports,



transcribed documents and admission-discharge-transfer summaries, they could identify savings.

Driven by software from Mountain View, Calif.-based Axolotl Corp., the clinical messaging technology relies on a complex array of standards-based interfaces that remain hidden to physicians. Axolotl CEO Ray Scott explains how it works:

"My colleagues thought I was nuts for quitting a steady job for an uncertain prospect. But for this to work, I told everyone that we needed to get involved. You can't buy collaboration from a vendor."

Each hospital pushes out reports from its own systems to a local Axolotl server. That server, in turn, periodically pushes aggregated data to a central HealthBridge server. From there, reports are collated from the various hospitals and sorted by patients against a community index that the software maintains.

Organized around the physician of record, these "messages" are then distributed to physicians electronically, via

DOWNLOAD ON HEALTHBRIDGE

- » **Headquarters:** Cincinnati, Ohio
- » **Incorporated:** 1997 as a not-for-profit organization
- » **CEO:** Robert Steffel
- » **Staff members:** 12
- » **Annual budget:** \$2.6 million
- » **Members:** Mercy Health Partners, TriHealth, Health Alliance, St. Elizabeth Medical Center, Children's Hospital, Drake Center (limited services only).
- » **Market share:** Members represent \$3.5 billion of \$4 billion local market.
- » **Expenses:** \$5.5 million during first five years
- » **Services:** Distribution of clinical documents, access to member IT systems, physician transcription and Internet connectivity
- » **Transaction volume:** 1.14 million clinical messages sent March 2005
- » **How sent:** 91% electronic, 5% fax, and 4% print
- » **Data standards used:** HL7 (clinical messaging interface to hospital systems), LOINC (standardized nomenclature for lab results).
- » **Major hurdle overcome:** A 1999 IRS challenge, later withdrawn, on nonprofit status
- » **Key vendor partner:** Axolotl Corp.
- » **Next on the horizon:** Order entry system for labs

SOURCE: HealthBridge

fax or through the regular mail. Many physicians, like Barnes, receive the messages electronically but print out the results that they want for their own charts. But even that option—an apparent contradiction to the value of disseminating data electronically—benefits the hospitals, Steffel says. They no longer must mail and track reports being generated by multiple departments. By organizing data around physicians, HealthBridge also sidesteps sticky privacy issues, he adds.

The clinical messaging lure was enough to convince St. Elizabeth Medical Center, across the Ohio River in Edge-

wood, Ky., to join HealthBridge in 2000. The three-hospital IDN easily recoups its monthly dues (which are based on hospital size) of nearly \$31,000, says Tony Farley, director of information systems. In 2004, St. Elizabeth sent some 2.4 million clinical messages to HealthBridge, about three-fourths of which went directly to physicians electronically. Even though St. Elizabeth still mails out the remaining results, Farley estimates the IDN has reduced expenses by nearly \$62,000 a month by cutting back its distribution load.

A THING OF BEAUTY

Streamlined, auditable results delivery is only one of the benefits HealthBridge offers, members say. Improved physician relationships are a big plus. “HealthBridge has cut down dramatically the number of phone calls coming in to the hospital from physicians,” Farley says. “Under the old outpatient system, a doctor would not know when a lab test had been done, or even to what hospital a patient went to have it done. That’s the beauty of ‘push’ technology.”

As HealthBridge’s next big project unfolds, physicians will be able to push back. The group is looking to provide a Web-based lab ordering system. Instead of faxing or phoning in orders, physicians will be able to enter them directly through the HealthBridge portal, designating the lab of their choice. Labs often receive orders with incomplete information, a vacuum the electronic system can fill, Steffel says.

Steffel concedes that physicians may not stampede to the ordering system. But the mere fact they have the opportunity is ample evidence that, when it comes to data exchange, HealthBridge is a model the rest of the industry would do well to consider. ■

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