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# Why Progress Toward Electronic Health Records Is Worse Than You Think

Though use of E-records is growing, the hardest trick--data sharing--has barely begun. And in at least one high-profile case, it's lost ground.

By Marianne Kolbasuk McGee, [InformationWeek](#)  
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When people talked about the promise of electronic medical records, Santa Barbara County usually came up as a role model. In 1999, a nonprofit was created to connect hospitals and doctors' offices in the California region using interoperable e-records to share patient data across practices, with the goal of improving care and cutting costs.

The effort launched to national prominence Dr. David Brailer, a physician and former CEO of CareScience, a health care quality-measurement [software](#) provider that was the prime contractor of the project. Brailer went on in 2004 to spend two years as the first national health IT coordinator, leading the charge for electronic medical records, or EMRs. Hundreds of health care execs studied the exchange with an eye on adopting its approach.

In December, however, the Santa Barbara County Care Data Exchange quietly died. A \$10 million grant ran out, and the health care community didn't see enough value to keep it going. There are still plenty of doctors using e-records in the area, but the dream of sharing data across practices, easily following patients where they're treated, has faded.

Santa Barbara serves as a reality check on the U.S. health care system's slow progress toward a real EMR network. The diagnosis: It's worse than you think.



Despite several years of concerted national effort, including President Bush's rallying cry in 2004 to get most Americans on e-health records by 2014, the use of digital records is at a precarious place. Just 10% of doctors' offices use them. And while hospitals are expanding their use, the most difficult work--the exchange of data among health care providers, especially with rivals--has barely begun. Technology itself has caused problems, such as a system outage last year of a medical records network run by health care company Kaiser Permanente. There are legal questions, [privacy](#) issues, and competitive pressures surrounding the technology, as well as concerns about return on investment. And data-sharing practices have yet to be widely tested in the real world.

You need patience, not just patients, says Overhage

Photo by Bob Stefko

It's not hopeless, and a number of ambitious projects for sharing health data show signs of progress. There's the occasional clear success, like a long-running Indiana data exchange. There's also growing interest among big employers to give personal health records to their employees, though it's not clear how those private efforts will mesh with the efforts of regional health information

organizations, known as RHIOs. Still, failures like Santa Barbara's make it harder to build the trust and financial support needed to make regional data sharing work.

"I feel the spotlight is on us," says Micky Tripathi, CEO of Massachusetts eHealth Collaborative. Backed by \$50 million from Blue Cross Blue Shield of Massachusetts, the collaborative is part of a promising RHIO effort in the Boston area. It's on pace to have the majority of doctors in a three-community pilot area on e-records next month, though Tripathi worries such efforts won't spread to smaller medical offices beyond the pilot, since there aren't financial incentives for those practices to invest. If the Massachusetts effort falters, with its combination of money, top-tier health care, and a tech-savvy population, it'll set the entire industry back. Says Tripathi, "It was said to me by someone from the top national level--with a smile, but he wasn't kidding--'Don't screw this up. It sets a tone.'"

There's a troubling lack of urgency in much of the industry toward EMRs and data sharing, despite the lives being lost to mistakes that IT-enabled health care might help prevent and the potential for cost savings. We all have a stake, as users of the health care system. Companies want more progress because they're feeling the pain of rising health care costs for employees, and they believe in IT's role in lowering that--just as they've applied tech to improve processes at their own companies. Anyone who's pushed tech-driven transformation can understand why it's difficult.

A few politicians are growing tired of the excuses. Last week, Sen. Sheldon Whitehouse, D-R.I., introduced three bills aimed at picking up the pace. One would create a private nonprofit company to develop the [infrastructure](#) for sharing health data. Another would offer grants for health care quality programs, including encouraging electronic record keeping, and the third would tie government payments to doctors who follow best practices, rewarding them for preventive care. His goal is to much more quickly start reaping the annual savings of \$80 billion to \$240 billion that Rand Corp. estimates health IT could bring. "I'm impatient," he says.

Outside pressure is needed, whether it comes from legislation, patients, or the companies that pay for health care through insurance. The experience of RHIOs--failed, fledgling, and successful--suggests today's cautious pace will continue without a significant push.

## THE SANTA BARBARA AUTOPSY

Santa Barbara's failure resulted in part from its grand ambition. The exchange promised that all health care providers in the region would be able to share patients' X-rays, lab work, prescriptions, discharge summaries, and other data--a goal that turned out to be too big.

Doctors and administrators grew tired of waiting for the promised big bang of getting all data from all sources. "If we took a more incremental approach, like first lab data, then pharmacy data, or whatever order was correct, we would've built more value," says Sam Karp, CIO of the California Healthcare Foundation during much of the time that the Santa Barbara County Care Data Exchange was being built. The foundation provided \$10 million toward the effort.

Though the exchange is shut down, hospitals and health care providers in the region still can share data through their portals and the direct data feeds provided by labs.

Santa Barbara also ran up against another big question facing RHIOs: proving return on investment, particularly for health care providers that can't raise their fees to cover capital costs and that don't get paid extra for preventing illnesses. "How do you make a business case work for everyone?" asks Karen Bell of the Office of the National Coordinator for Health IT. Bruce Fried, an attorney with Sonnenschein Nath & Rosenthal who provided legal services to the Santa Barbara County exchange, says that once the funding ran out, the hospitals and doctors didn't have a vested interest and didn't see the exchange as worth risks such as medical liability and data exposure. "At the end of the day, it wasn't clear to providers in the community what the value was in sustaining it," he says.

There will be more such failures. About 200 RHIOs have popped up over the last several years, many with the help of grant money. Only "a couple of dozen" are likely to be around in a few years, predicts John Halamka, CIO of Harvard Medical School and CareGroup Health System. "There will be a lot of stumbles," and some consolidation, he says.

## INTEGRATED SYSTEMS

RHIOs are critical to watch because they take on one of the vexing problems in health care: Clinical data is scattered across labs, pharmacies, hospitals, and the paper files of individual doctors' offices.

That's why some of the most aggressive data sharing and EMR efforts have come from integrated health systems--institutions that provide insurance and nearly all the care, so they have most of the data in one place. And as payers of health care claims, they also reap the rewards of efficiencies and savings brought by health IT. Geisinger Health, for example, has had EMRs for its 2 million patients in Pennsylvania for about 10 years. Kaiser Permanente, which has the country's most ambitious e-health effort, is in the midst of a \$4.5 billion, 10-year project. Yet Kaiser Permanente's experience--even with the advantage of closely held data and doctors who work for the company--shows how much work lies ahead of the rest of the industry.

Kaiser Permanente, which has \$34 billion in annual revenue and more than 8 million patients, launched KP HealthConnect in 2003, and it's nearly fully deployed in six of eight regions; it expects the Southern California region on the network by next year and Northern California by 2010. It uses applications from Epic, one of the largest e-record providers, including ambulatory care and an in-patient electronic medical system, scheduling software, order entry, and a Web [portal](#) for patients and doctors. All of it revolves around a single [database](#) for patient information.

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KP HealthConnect, which has 83,500 active users, tried to use by-the-book best practices for IT projects, focusing on training and involving end users, in this case thousands of doctors and nurses who helped in the planning, development, and deployment of the project. Yet it still suffered from embarrassing and costly hitches.

The biggest involved the sort of nightmare that's especially horrifying in health care, where access to data can be a matter of life or death. In the fall of 2005, the company experienced the first of two power outages, this one in an East Coast data center serving four regions. To make matters worse, the uninterruptible [power supply](#) for the data center also failed--someone trying to fix things caused a data center fire and the failure of [backup](#)

power. Another outage in 2006 at a California [data center](#) affected West Coast regions.

For 16 to 30 hours, people didn't have access to any [computer](#) records, says Dr. Andrew Wiesenthal, the lead physician on the KP HealthConnect project. Doctors and staff had to use backup processes such as paper forms to order lab tests and request drugs.

The outages weren't the only major problem. Kaiser Permanente uses thin [client](#) software from Citrix Systems to access the Epic medical record software. Because desktops are loaded from a central server, Citrix makes it easier to keep health care providers on the same software versions, since the frequent upgrades Epic provides can be done in the data center, not desktop by desktop. However, Kaiser had trouble managing the size and scope of the Citrix deployment. When doctors had trouble accessing records electronically, they resorted to backup procedures. Kaiser reconfigured the Citrix environment last year to make it more stable, Wiesenthal says. Now the workstations take snapshots of data every 15 minutes, so if power goes out, data loss is minimized.

But the biggest obstacle hasn't been emergencies or equipment cost; it's been training and lost productivity in getting ramped up. "If you think costs will be licenses to software, hardware, network, you are way off--underestimating by 100%," Wiesenthal says. In its largest regions like California, "there's not enough trainers on the planet to do this," he says, which leads to a slow transition to e-records.

Despite the project's cost, the economics work for Kaiser Permanente because, as an insurer and care provider, the company reaps savings from improvements such as streamlining processes and eliminating redundant tests. RHIOs, in which the doctors don't work for the insurer, don't have those economic advantages.

That's the situation facing Matthew Ebaugh, CIO at Silver Cross Hospital, a community hospital in Joliet, Ill., about 50 miles south of Chicago that's trying to jump-start a small RHIO in that area. There's resistance to exchanging patient data. "Other hospitals are hung up on competition," he says.

So the hospital launched a Web-based portal, built on an Oracle-based service-oriented architecture, that provides what Ebaugh calls a "unified view" of patient info. While the hospital's EMR system consists of a mix of vendors' software for lab, radiology, pharmacy, and other patient data, Silver Cross rallied the area's small physician practices, many with only one or two doctors, to select an e-record package from Misys that Silver Cross hosts. With the small practices joining together with Silver Cross, they were able to muscle about a 30% discount on the list price of the e-records package. It's a stopgap approach to wider data sharing, but Ebaugh figures that if other health care providers in the area form an RHIO, the hosted information can be brought into a larger data exchange effort.

### **GOT 30 YEARS TO WAIT FOR IT?**

The country's most successful RHIO is in Indiana, where more than 70% of the state's hospitals and doctors use a single health data exchange created by the Regenstrief Institute, which is affiliated with Indiana University School of Medicine. The exchange has navigated technical problems such as [data management](#) and access, plus made a case for ROI--including a 50% reduction in adverse drug reactions.

Yet the Indiana project doesn't give much hope to those pushing for rapid change: The system was developed over 30 years. "The secret of success is having patience," says Dr. Marc Overhage, Regenstrief's director of medical informatics. If doctors become frustrated in the first six months after deploying e-health systems in their offices because of a network outage or other significant problem, he warns, they're more likely to dump the systems and go back to using paper. The institute tries to get doctors to use e-health tools in increments, starting with Web access to lab and pharmacy data on the exchange.

For data access, the exchange uses a centrally managed, federated model--meaning data from the labs, hospitals, and pharmacies is replicated to a centralized database and partitioned for each data provider, with access rights managed using custom-developed software. To prevent rival practices from peering into patient data, the system requires some future relationship between a patient and clinician, such as a scheduled appointment within a certain number of days. The rules can change: In the past, doctors needed an appointment within 30 days to access a patient's data. But some doctors have longer waits for appointments or less frequent follow-up office visits, so the time was extended to 180 days.

The approach means a doctor's office needs just one integration interface, not one for each of 13 sources--that's the average--it draws data from. "You'll often hear that EMR stands for 'empty medical record,'" says Overhage, referring to the fact that, when a doctor's office first buys an EMR system, it has no data, so staffers must enter volumes of data before the system becomes valuable. The exchange's approach gives doctors immediate access to patient data.

## DIFFERENT APPROACHES TO DATA

The Indiana exchange is an example where the "pull" model--letting doctors grab data on their patients--is working because of the heavy involvement of a central administrator, in this case the Regenstrief Institute, that's won the community's trust.

For most RHIOs, a "push" model--in which a doctor decides what data to send to another doctor--will help build the trust needed to get started, says Halamka, who in addition to his CIO jobs is CEO of MA-Share, which provides a [peer-to-peer](#) exchange for clinical and prescription data sharing in the Boston area. It's one of four collaborative efforts, including Mass eHealth, that make up the Massachusetts RHIO.



Halamka is bracing for some stumbles

Massachusetts has a different data-sharing [architecture](#) than Indiana's. After an initial test using a centralized patient index, the maintenance for that looked like it would be more than users would pay. So the exchange uses distributed peer-to-peer networking. The MA-Share exchange provides an appliance to let members push financial transactions, e-prescriptions, and clinical summaries--so a doctor can send a [file](#) to another doctor or provide prescription data to a pharmacy.

The kind of data sharing that Halamka talks about enabling, however, is far beyond what most providers are ready for. Most don't even have digital clinical information to share, though that's improving. Nearly half of the 1,500 community hospitals surveyed by the American Hospital Association earlier this year report moderate or high use of IT tools last year, up from 37% in 2005. Nearly seven in 10 hospitals say they've fully or partially implemented e-health records, though it didn't define if partially implementing meant staff using the software or just opening the box.

## WHY DOCTORS RESIST

A mere 10% of U.S. physician practices have deployed EMRs, says Bell, from the National Coordinator of Health IT Office. It's these doctors that President Bush had in mind when he called for most Americans to have electronic records by 2014. While it's good for people to use personal health records they create or employees provide to guide their care, Bell says, the biggest benefit comes from doctors having data access to reduce mistakes, eliminate costs such as redundant tests, and improve quality of care. But don't hold your breath. "It'll be a good 10 to 15 years before we see volume" adoption by doctor practices, Bell predicts.

Cost is a factor for doctors. It cost Yogesh Trehan, a physician in Brentwood, Calif., \$30,000 to launch the eClinicalWorks EMR system in his one-doctor office--\$10,000 for software, \$5,000 for training, and the other half for hardware, including wall-mounted computers. That's with help from a program from the federal Center for Medicare and Medicaid Services to give free consulting and support to small doctor offices deciding what software to buy. A firm helped Trehan assess the software, Trehan had it installed, then the consultants returned to make suggestions on how Trehan can take full advantage of the system.

Changes in federal anti-kickback rules, which limit the products, such as software, that hospitals can provide doctors for use in their offices, will help drive adoption, Bell says. So will a new [Certification](#) Commission for Healthcare Information Technology--a government seal of approval that health IT products meet interoperability standards--since they reduce doctors' tech investment risks.

After much talk, there also might be financial incentives to reward doctors for adopting e-health records and other health care IT. In addition to the latest Senate proposal, next month the American Health Information Community, an advisory group to the federal government, is expected to recommend that feds reward doctors who use health IT, for example by higher reimbursement rates to those who use certified e-health records in treating Medicare patients. The Centers for Medicare and Medicaid Services have pilots under way to do that. Some insurers have begun rolling out similar programs.

Financial incentives are key to widespread adoption, says Steven Mandell, senior director of clinical information systems at Johns Hopkins Health System, which has been successfully using an in-house developed EMR for its 4.5 million patients since 1995. In the three-community e-health pilot project around Boston, \$50 million in funding from Blue Cross Blue Shield of Massachusetts has doctors on board, says C.J. Chaput, director of IT at Bridgewater Goddard Park Medical Associates, the largest physician practice in the project. That covered up-front costs, but funding ends next year. Hospitals and doctor practices will have to [chip](#) in for maintenance of the EMRs and the data exchange, but Chaput says it should be a manageable expense.

Tripathi at Mass eHealth isn't optimistic about the pace of change. There's no sense of urgency in small practices to roll out e-record systems, he says, and even less to share data. Doctors put in the investment and time and don't get the rewards. "I'm more and more inclined to think a mandate is necessary" to require EMRs, he says. But that would take an infrastructure in place for doctors to join, and money to fund the mandate. Massachusetts legislators are weighing such a mandate, and any national push is likely to start at the state level, he says.

Tripathi sees a danger in people thinking IT is the solution to all the country's health care problems, from quality of care to excess costs. "It's not," he says. "IT won't solve the health care problem, but you can't solve the problem without IT."

Illustration by Brian Stauffer

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