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Clinical Portals: Democratizing Data

**EXECUTIVE
SUMMARY**

While the term “eHealth” fell by the wayside about the time the Internet bubble burst, that doesn’t mean the web has not lived up to its promise in healthcare. Clinical portals provide dynamic proof of that fact. Even as integrated delivery systems continue to invest heavy time and resources into EMRs and EHRs, they’ve discovered that web-enabled or web-based clinical portals are great short-term fixes for the need to share discrete patient information with physicians, especially in the community.

The best analogy for a portal: an Internet browser for patient information for the purpose of remote viewing. Portals are relatively easy and inexpensive to launch compared to core clinical systems and, because they’re easy to use and accessible from anywhere there’s a web browser, they often make doctors happy. What’s not to like? The devil’s in the details, and for portals the details have a lot to do with early physician involvement and adoption.

In this issue of Information Edge we explore the issue of clinical portals for physicians with experts from the University of Pennsylvania Health System in Philadelphia, Texas Health Resources in Arlington, University Hospitals Health System in Cleveland, FCG’s Emerging Practices research group in Lexington, Mass., and KLAS, a market research firm in Orem, Utah. Clinical portals arrived on the scene literally at the dawn of this century, so we now have the benefit of several years’ experience by leaders in the industry.

By making secure clinical information available over the web to authorized users, clinical portals are linking hospitals tighter to physicians in the community and even beginning to play a role in the development of regional health information organizations (RHIOs). In that sense portals are democratizing clinical information in the best sense of the word.

Two approaches

Hospitals and integrated delivery systems are developing clinical portals using two basic approaches, according to Keith MacDonald, research director at FCG’s research group. In the first approach, vendors like Cerner or Epic offer portals as separate add-on modules to their existing clinical information systems. In the second, hospitals using a hospital information system from a vendor that *doesn’t* offer a web-based portal must install an overlay or wraparound solution, typically a separate web product (often from another vendor) that sits on top of the existing application and provides a user-friendly view to selected information from the hospital’s disparate systems. McKesson, Siemens and many integrators provide such wraparounds.

Portal functionality can differ based on whether it’s aimed at employed physicians, or at physicians in the community with whom the hospital wants to establish referral relationships. Depending on the purpose, portals display an array of functions ranging from allowing physicians to simply access clinical information, enabling them to act on that information and ultimately to being able to communicate with patients.



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NEW
MEMBER



The Scottsdale Institute is proud to welcome new member Billings Clinic.

Billings Clinic is a leading community organization and the largest employer in Billings, Montana. At its core is a multi-specialty group practice of over 200 physicians and non-physician providers. It is a not-for-profit organization; governed by the community, with physician leadership at all levels.

The downtown Billings Clinic campus consists of a 272-bed hospital that includes a 14-suite Family Birth Center and a 15-bed Transitional Care Unit as well as the Billings Clinic, the region's largest multi-specialty group practice. Off of the main campus are branch clinics which include Billings Clinic Heights, Billings Clinic West, the Wellness Center and Aspen Meadows Retirement Community. Primary and specialty-care clinics are located in Bozeman, Colstrip, Columbus, Forsyth, Miles City and Red Lodge, Montana as well as Cody, Wyoming.

Welcome Mark Rumans, MD, Physician in Chief, Dennis Regan, MD, Medical Director and Chris Stevens, VP & CIO, and the entire Billings Clinic team.



Keith MacDonald,
research director, FCG's
EP Research Group,
Lexington, Mass.



“Hospital systems usually install laboratory and pharmacy systems first and then provide access to their owned physicians working from home,” notes MacDonald, adding that often includes viewing patient laboratory tests remotely. “It typically starts with viewing patient information remotely to save time. The application often looks different compared to the core clinical IS because it’s web-based but it’s often the same information as what’s available from within the hospital. Other functionality may include being able to communicate with patients about clinical referrals or other information. Hospitals then typically turn on the capability for writing orders remotely from home. The advantage is physicians can log on to the system using any computer that has a browser—at home or elsewhere.”

Although he has no hard figures as to market penetration, MacDonald reports anecdotal evidence that suggests a relatively low percentage [less than 20% of hospitals with more than 200 beds, according to KLAS] of hospitals have actually implemented clinical portals. And while costs depend on the product, number of licenses and particular configuration, he says, “The business case is clear: portals make it easier for physicians to access information.”

A portal at Penn

A few organizations that are IT leaders have developed their own portals.

“We began building a home-grown portal in 1999,” says Eric Pifer, MD, chief of medical informatics at University of Pennsylvania

Health System in Philadelphia. “At the time the goal was to aggregate data from all legacy systems in one easy to distribute system so doctors wouldn’t have to log on to multiple systems,” he says.

Penn’s ambulatory EMR had a system for remote viewing of results but it lacked the ability to interface with inpatient data except for EKG, let alone radiology images. “With the web growing, we thought the roll-out would be simple and flexible. The only thing we lacked was a patient identifier because at the time we didn’t have a robust master patient index (MPI),” says Pifer.



Eric Pifer, MD, chief of
medical informatics,
University of
Pennsylvania Health
System, Philadelphia

From the start, Penn built the portal with well-integrated clinical applications, says Pifer, but the portal took longer than expected to engage physician users. The portal finally took off when the IT staff made it possible for doctors to customize their views. “We had a good web programmer and met with lots of doctors, building the portal like a My Yahoo site. We gave doctors lots of tools and options, like ‘Click here if you want to retrieve data on EEGs.’ They liked that a lot,” he says.

Giving physicians the portal also took traffic and therefore performance pressure off Penn’s core clinical systems because the portal was built with its own patient-demographics function that allowed it to run queries from legacy databases. The primary users of the portal are medical residents, nurses, nurse practitioners, medical school faculty and community physicians.

Secret agent

The portal has proven useful in unexpected ways. For example, as Penn expanded its

EMR capabilities, IT staff ran into the limitations of the HL7 interface with legacy systems. But the portal offered an inexpensive solution: “We built a context-sensitive link that takes the patient context out of an API [application programming interface, a messaging format] and runs a query into the portal, spawning a web search. We linked the EMR to the portal. So, if you’re working in the EMR and there’s a clinical-application piece not integrated into the EMR, the web portal can act as an agent to go find it,” says Pifer.

“Portals are not like CPOE. They’re not difficult to roll out, they’re more like web browsers—much, much easier than a clinical IS. We have a website to get a user name and password, then we validate them,” he says.

While the goal is to keep the portal separate from the operational system, it’s considered an integral if transitional part of Penn’s long-term clinical-IS strategy. The goal during the next five years is to make it fully integrated with a functional EMR—and to make it the vehicle for all patients to stay in touch with the health system. Says, Pifer: “The bottom line is we want to phase the portal out, to transition from heavy reliance on the portal to reliance on the longitudinal healthcare record as a primary source.”

Texas-sized portal

Les Swanson has a unique perspective on the issue of clinical portals. As an executive in the 1990s at a leading business-forms vendor where he focused on the hospital market, Swanson learned first-hand hospitals’ dependence on paper—and the use of IT in eliminating it. While hospitals accounted for 15% of the firm’s sales, they provided a whopping 33% of its profits. But the lucrative market of paper forms was eroding due to automation. “We were losing 7% of our sales each year to IT,” he says.



Les Swanson, director of physician support services, Texas Health Resources, Arlington, Texas



Today as director of physician support services at Texas Health Resources, an Arlington, Texas-based 13-hospital integrated delivery

system serving 29 counties in north central Texas, his job is to accelerate that trend, particularly by overseeing CareGate, THR’s physician portal. Working on both sides of the equation has given him an invaluable perspective. “I’ve been thinking about workflow in hospitals for 20 years,” he says, a task that continues as he rolls out enhanced versions of the portal to more and more physicians in the community.

Launched in 2000, CareGate is a secure web portal that gives physicians controlled access to patient information, a suite of communication and informational tools and that facilitates for them CME and other training. The goal is to provide remote and rapid access to information and an efficient bridge between physicians, patients and the hospital.

In encouraging physician adoption of CareGate, Swanson finds himself falling back on his extensive marketing experience, demonstrating CareGate to boards of THR hospitals and promoting it to community physicians. “There’s no such thing as one way to market to physicians, and all of THR’s physicians are community-based. You can’t issue an edict,” says Swanson.

Dazzle them

When CareGate first went live, the organization had been using a clinical-messaging product from Kinetra, with about 1,000 physicians using either fax or primitive file-

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July 11

KLAS on Clinical Market Share

- Kent Gale, CEO, KLAS Enterprises, Orem, Utah

July 13

Management Tool for Product Recalls: Risk and Safety Management Alert System

- Denise M. Abshire, supervisor, Central Supply/Materials Management, Christus St. John Hospital, Houston

July 18

IT Benchmarking Peer Group

- Derek Mazurek, senior analyst, Spectrum Health, Grand Rapids, Mich.

July 24

AHRQ on Demonstrating the Value of Healthcare IT

- Scott Young, MD, director, Health IT Portfolio, Agency for Healthcare Research and Quality, Rockville, Md.

July 25

Lessons Learned from 100% Implementation of CPOE in Community Hospitals

- William McClatchey, MD, CMIO, Piedmont Health System, Atlanta

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*Upcoming Events continued***July 31***Go Lives or Saved Lives?**Aligning IT Incentive Comp with Clinical Outcomes*

- Jonathan Manis, CIO, Provena Health, Frankfort Ill.
- William F. Morgan, system director, Support Services, Provena Health, Frankfort Ill.

August 3*Certification Commission for Healthcare Information**Technology: Test Results*

- Mark Leavitt, MD, Chairman, CCHIT, Chicago

August 7*Mobile Applications for High Acuity Care: Technology, Clinical Utility, and Physician Adoption*

- Neil A. Martin, MD, professor and chief of Neurosurgery, UCLA Medical Center, Los Angeles

August 10*IS Governance Leadership Model: UHHS Case Study*

- Ed Marx, CIO, University Hospitals Health System, Cleveland

August 15*KLAS on Cardiology*

- Jeremy Bikman, director, Medical Equipment, KLAS Enterprises, Orem, Utah

August 21*HIE's and PHR's Implement the CCR Standard*

- David C. Kibbe, MD, MBA, director, Center for Health Information Technology, American Academy of Family Physicians, Chapel Hill, N.C.

more events on next page

sharing versions to retrieve the most basic information about their patients. At the time only about 15% of physicians were using the Internet, so the new portal's design was deliberately colorful and featured a variety of links for non-clinical functions like travel reservations, stocks and weather. "The idea was to appeal in particular to office managers," says Swanson. Clinical information shared primarily amounted to billing face sheets, laboratory, radiology and dictated reports. Staff commonly used the system to print hard copies for insertion into paper office records and patient charts.

In 2001, THR added Cerner's Web PowerChart, which provided a flow-sheet view of the clinical data; THR added to that a printing module it developed in-house. Swanson says the experience of internal design and development taught them an important lesson: "The beauty of in-house development capabilities is that we can constantly add and tinker based on physician input."

That kind of iterative process of portal development is kept alive through several in-house teams: a creative team that includes software developers and clinicians; a physician help-desk team; connectivity team; and an education/promotion team, all of which have come together using project management tools to build and refine the portal in a physician-friendly manner.

In 2003, THR unveiled a new CareGate design that addressed physician demands for less scrolling, fewer clicks, more clinical information "and just plain old easier utilization," says Swanson, adding, "We learned that our doctors really dislike to scroll and click—and they really, really dislike passwords."

Part of the IT fabric

In March 2006, the organization rolled out yet another version featuring a brand-new logo tied to the color, fonts and themes of its "EHR at THR" campaign. "We wanted to

visually and subtly link CareGate, THR and the EHR into a culture that easily accepted information technology as mainstream patient care and good business," he says.

While laboratory, radiology and fetal-monitoring information are enterprise-wide applications available on the portal, THR allows hospitals to customize CareGate for their specific needs, using either purchased or in-house-developed modules. Those include internally developed applications for tumor registry, anticoagulation and crossover, and purchased applications for ICU monitoring and cardiology.

"CareGate is the centerpiece of our physician remote-access capability," says Swanson. THR has purchased MyChart from Epic and will implement it as part of this plan, as physicians will have the same view of information whether from an inside hospital workstation or from a remote location. "The product brings patients, physicians and hospital together. Patients can see test results and share secured physician communication," he says, adding that some markets—as yet, not Dallas—are even considering reimbursable e-visits. In that scenario, a patient accesses the system via the hospital's public portal, the physician communicates over secured servers on the patient's issues and the hospital supports it on the same clinical data repository in which all inpatient information is managed.

Swanson cites a litany of CareGate benefits:

- Remote and real-time access to patient information for physicians, caregivers, administrators and office staff;
- Reduced costs in terms of paper distribution and storage;
- Less faxing from medical records departments to physician offices, which allowed a redistribution of FTE's away from a job that had high turnover;
- Less paper shuffling, fewer lost records;
- Competitive advantage from using the portal as a recruiting tool for prospective physicians;

- Secured email for sharing patient information between physicians;
- Virtually unlimited potential for distributing patient-education resources;
- An excellent method for increasing physician use of computers in a positive and friendly manner.

Virtual freedom

“Physicians who work in different hospitals like the fact they can get patient information while *not* at the hospital. There are lots of stories about remote access being important to timely patient care,” says Swanson. One such documented case involved a radiologist who was driving from Houston to Dallas and was alerted by cell phone that a pediatric patient required immediate attention. He pulled over, flipped open his laptop, reviewed the patient’s medical images and successfully resolved the situation then and there.

Just under two-thirds of THR’s entire medical staff are registered users of CareGate, according to Swanson, who acknowledges that many still delegate portal use to office staff. However, with the advent of the EHR that will change. Portals of the future must be bi-directional to successfully involve physicians, he says.

To provide help for physicians, THR has developed a Physicians IT Resource Guide that offers them a variety of technical services including lists and links to independent network support companies. “Technology has always played a role in the staffing composition of Physician Support Services,” says Swanson. “Any conversation about physician portals has to include consideration of the connectivity available and what kind of support will be made available to physicians. It’s useless to have PACS on a portal that has only dial-up capabilities.”

New technology brings new challenges. “On the one hand, it allowed us to add functionality to the portal, adding to CareGate’s popularity. On the other, it affected THR

support structures and physician connectivity choices. For example, in the early days of CareGate, THR allowed physicians leasing space in its professional buildings to also lease access to the hospital network because there were limited options for high-speed Internet access. The wider commercial availability of high speed Internet access allows THR to work with physicians on making other connectivity choices, which in turn will conserve the support resources THR expends on physician to THR network connectivity.

Swanson sees such challenges as just part of the terrain. He says THR has been quite fortunate to have the right combination of creativity, connectivity, funding, leadership, and physicians to make the portal successful early when other organizations’ portals couldn’t get off the ground. “By now, we have a culture of physician expectation that will carry the portal forward. Physicians have seen THR implement a tool for them quite successfully and that adds to the expectation that the EHR will also be done correctly for them. Again, linking the two closely together has advantages.”

Gateway to northeast Ohio

A major integrated delivery system in Ohio views its portal as a unifying strategy.

University Hospitals Health System



Edward Marx, CIO,
University Hospital
Health System,
Cleveland

“We’re a multiple hospital system, each one with its own clinical information system from the best-of-breed days,” says Edward Marx, CIO at University Hospitals Health System (UHHS), which includes a Cleveland-based 947-bed tertiary

Upcoming Events continued

August 22

Data Warehouses in Support of Patient Flow

- Roberta E. Testor, MA, MSS, director, IT Knowledge Systems, Children’s Hospitals and Clinics of Minnesota

September 8

The Leap of Faith: The Leapfrog CPOE Evaluation Tool – A UPenn Case Study

- Eric Pifer, MD, CMIO, University of Pennsylvania School of Medicine, Philadelphia
- David C. Classen, MD, MS, VP, FCG, Long Beach, CA, and Associate Professor of Medicine, University of Utah

September 12

KLAS on EMR Systems: Large, Medium and Small

- Adam Gale, EVP and COO, KLAS Enterprises, Orem, Utah

September 19

A Case Study in Defining the Nurse Informatics Specialist Role

- Mimi Hassett, MS, RN, FHIMSS, director, Clinical Informatics, Berkshire Health Systems, Pittsfield, Mass.

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The portal plays a key role in UHHS' strategy for patient safety and quality of care, physician satisfaction and, finally, competing in the northeast Ohio market, which includes a giant like the Cleveland Clinic. "To capture referrals you need to communicate excellently with your referral base," says Marx, "and the institution that can do that the best will thrive."

medical center affiliated with Case Western Reserve University that serves northeast Ohio. "None of them really spoke to each other, so if you're a physician or nurse you had to go into multiple systems and log on," he says.

UHHS knew there was no substitute for an EHR, but was seeking an interim strategy that was fairly inexpensive, quick and could still deliver the kind of data physicians want.

Enter Nathan Levitan, MD, UHHS' CMO, who defined the vision that eventually led to the implementation of FCG's FirstGateways, a physician/patient web portal that took only six months to go from conception to Go-Live in early 2004. It visually brought together 20 disparate systems, including PACS, laboratory, radiology and core clinicals that a physician can access within a millisecond.

"Physicians love it," Marx says, adding that the gateway is so easy to use it only requires five minutes of training. "One of the criteria was ease of use. I've never heard a complaint about that aspect of the portal." Users can go online 24 hours a day, seven days a week, go to a log-on page and, after a couple clicks, go to their own home page. By entering a patient's name and some case-mix information, they can then review a patient's medical record, which queries the user as to the desired information such as laboratory, PACS or other information. "You can view a trend analysis if you wanted to see a patient's blood sugar analysis on a graph," he says.

It also has e-prescribing so referring physicians can order medications for their patient online. The system creates an EMAR, or electronic medication administration record, for review by patient-safety experts and JCAHO.

Extra! Extra!

The portal also includes a key feature CMO Levitan wanted: a customizable home page for physicians. If an oncologist, for example,

wants to view the latest in oncology news on his homepage it's possible to configure the page to include that feature. Physicians or office staff can also perform administrative tasks like looking up bylaws, signing medical records or communicating with each other. The UHHS portal includes an online reference library created as part of the desktop of the computer display. "One-stop shopping is the goal," notes Marx.

By the end of the year, UHHS plans to leverage the personal health record module in its core clinical IS. "The patient will have online access to their medical record via the portal. The patient can go in and look at some basic results, get second opinions. It will be very broad, patients will be able to review their bills in a very understandable format and then pay them online," he says.

The portal plays a key role in UHHS' strategy for patient safety and quality of care, physician satisfaction and, finally, competing in the northeast Ohio market, which includes a giant like the Cleveland Clinic. "To capture referrals you need to communicate excellently with your referral base," says Marx, "and the institution that can do that the best will thrive. If you're a doctor in Timbuktu and it takes weeks to communicate with Hospital A and you can communicate in real-time with Hospital B, who are you going to give your allegiance to? We want to engage physicians so they're closely aligned with the health system."

In that same vein, UHHS purchased an enterprise license for FirstGateways so it could not only engage community physicians but also bring online UHHS' tertiary regions—hospitals that refer patients to UHHS high-level medical subspecialties and other entities like extended care facilities and retirement homes—to reduce duplicative tests. Viewing the portal as a tool for regional and national communication has led the federal government, via a grant to Northrup Grumman, to allow UHHS and others to develop a prototype health

information network, similar to a RHIO, in northeast Ohio. Marx says the technology firm selected UHHS as a partner partly because they were impressed with the clinical gateway.

“This has proven so successful that our strategy has shifted. The EHR got easier approval because of the portal’s success,” he says. While the portal was and is still viewed as an interim solution, it makes it possible to build out workflow from UHHS’ legacy applications that even the EHR can’t incorporate. Says Marx: “We could live on this for quite some time.”

Conclusion: A democratic technology

KLAS Enterprises, an Orem, Utah-based market-research firm that focuses on vendors in healthcare IT, has studied the clinical portal marketplace and found that about 40% of physicians use clinical portals, a figure that will jump to 63% in three years and more than 80% in five years. While other clinician users like nurses and therapists account for about an equal if slightly larger group of users, that group will expand to nearly double that of physician users in three years and nearly triple the size of that group in five years.



R. Scott Holbrook,
executive VP, Business
Development,
KLAS Enterprises,
Orem, Utah



“Most hospitals over 200 beds have from 25 to over a hundred vendors to deal with that can provide data to the CDR or EMR,” says R. Scott Holbrook, executive VP at KLAS. “Every device that has a

chip has the potential to add data or images to the patient record. IT is asked to aggregate the information together. It is impossible for one vendor to bring all information together, therefore, every hospital is an

integrator. Typically, the larger the hospitals or healthcare systems face the greater integration tasks. Nobody wants physicians to have different views of the information each time they access the system. The goal is to simplify the task with single sign-on and allow the physician to drill down into the data from a single screen portal front-end. As this task is accomplished by integrators and vendors, the use of portals will grow. The good vendors will provide access to more than their own information to give the ultimate view. Portal views will be tailored by physician type and individual preferences in the future. Convenience and ease of use will drive physicians usage.”

KLAS’s study found that portals clearly help to increase the use of clinical data in organizations and the more data the greater the desire for access. Availability of lab results and electronic signature to sign off transcription are two important keys to physician use. The number of interfaces to the portal will grow with time. Patient-monitoring information and PACS will substantially add to the data captured and will increase the integration/interface requirements.

In terms of technology, KLAS found that access to the portal can be either web-based, web-enabled or Citrix-based, but that physicians care only about easy access to the data from anyplace. Portals are in some sense a “no-brainer” for the CIO because they have high visibility and can generate respect in the organization for IT, especially with physicians. Also, most portal systems can be implemented within six months, a relatively short time compared to other projects.

Hospitals often consider using the portal as the stepping stone to CPOE—and some vendors market their systems with this in mind. Providers also are beginning to see that portals are a great way to implement a RHIO.

“The good vendors will provide access to more than their own information to give the ultimate view. Portal views will be tailored by physician type and individual preferences in the future. Convenience and ease of use will drive physicians usage.”

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