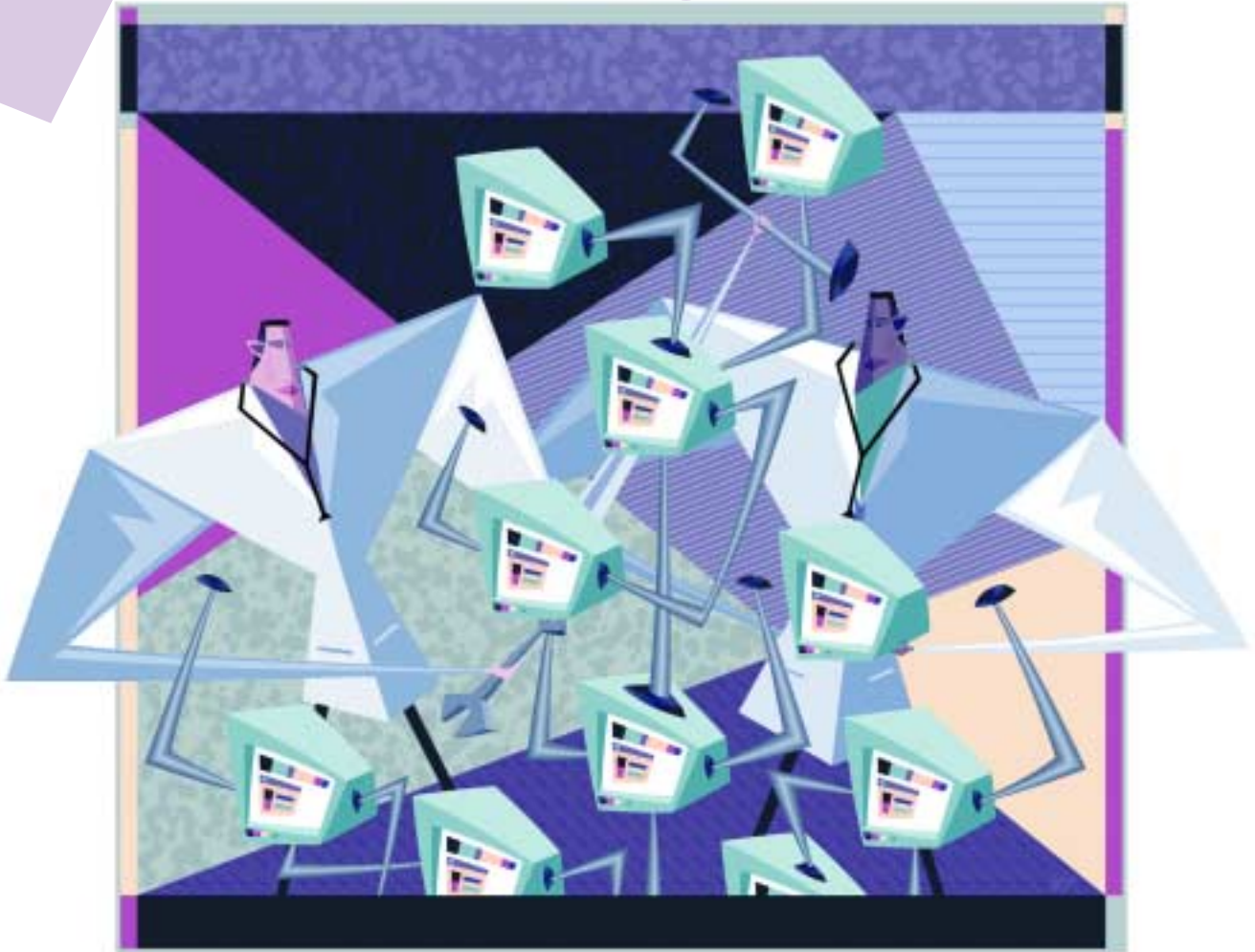# Get it together

Clinics are harnessing technology to create real connectivity

By Neil Versel

The Cleveland Clinic has offered remote second opinions and consultations for nearly six years—with varying degrees of success. Though the service has been popular, communication between patients, referring physicians and Cleveland Clinic departments has been nothing short of "chaotic," according to CIO C. Martin Harris, M.D.

Then in October, the venerable multispecialty practice launched eCleveland Clinic, a completely Web-based remote consultation service that actually works.

"We treat this as a clinical program," says Harris, who also is executive director of eCleveland Clinic. It "integrates normal clinical functions with IT."

The new operation formalized the triage process, instituted electronic scheduling, improved consulting physicians' efficiency and reduced costs for patients. In other words, the eCleveland Clinic initiative finally is realizing some of the promise of computerized connectivity that, in healthcare at least, has proved so elusive for so long.

Whether it involves components of electronic medical records, referrals to specialists, links between provider networks, communication with patients, the combination of text and images, claims submission or online consultation, connectivity is an issue "that the healthcare industry has been struggling with since day one," says Matthew Morgan, M.D., healthcare informatics director for Per-Se Technologies, an Atlanta-based information technology company.

Two parts of connection

So what exactly is this esoteric notion called connectivity?

"You can talk about connectivity at two levels—integration and interfacing," says Bruce Kleaveland, senior vice president of Physician Micro Systems, a Seattle-based maker of an EMR and billing/scheduling software for ambulatory environments.

Integration generally refers to applications within the same system, while interfacing involves communication with an outside point, Kleaveland says.

Both concepts were on display at the recent Radiological Society of North America convention in Chicago, which showcased a number of integrated EMR/picture archive communication systems.

"In the past, all the other PACS systems have had to pre-guess a patient's needs" by sending a whole series of images prior to an exam, says Raymond Rouleau, director of medical imaging operations for IT vendor IDX Systems Corp., of Burlington, Vt. It left physicians with the choice of either waiting for large image files to transfer over a computer network or settling for smaller, low-quality images.

Morgan

A relatively new technology called wavelet compression is addressing this problem, says John Halamka, M.D., CIO of the Boston-based CareGroup health system and associate dean of Harvard Medical School. Compression at the rate of 25:1 allows CareGroup's server to deliver images to users who still have 56k dial-up modems.

"There's no difference to my emergency physician's eye between a 25:1 compression and a full-size image," says Halamka. And radiologists still can access the full images over high-speed connections.

Cardiology is another specialty with breakthroughs in connectivity. Wenatchee Valley Clinic added limited electronic electrocardiogram imaging to its EMR at its main Wenatchee, Wash., facility last month.

"Our goal is to replace all of our EKG machines with digital ones. We'd love to do it tomorrow, but budgets are budgets," says William Gotthold, M.D., physician director of clinical management for the 182-doctor multispecialty practice.

Wenatchee Valley has added features to its EMR system gradually since it began storing dictated notes on its computer network in 1995. Now that the EKG component is online, "Everything is all accessible in one system," Gotthold says, with X-rays being the exception.

"The bandwidth to shove the pictures out to every computer in the system is our next issue,"

Gotthold says. "Why pay to send images to a (primary care) doc who's never going to use it? I'm not sure it makes sense in a clinic. It makes sense in a hospital."

Other EMR integrators report that they are following the Wenatchee approach, adding one specialty at a time based on need and budgetary constraints.

Most medical practices already have some sort of electronic billing system in place because it speeds up the claims process and because payers usually insist on it. But most current systems require a lot of human interaction—fertile breeding ground for errors.

"By eliminating the phone calls and by eliminating the problems that cause the phone calls, (physicians) get paid faster," says David Cox, CEO and president of MedUnite, a joint venture of major health insurers that seeks to automate the entire connection between providers and payers. "A paid provider is a happy provider."

Founded in 2000, San Diego-based MedUnite is still testing its software. Meanwhile, Blue Cross Blue Shield plans in Indiana, New York and Florida are rolling out systems for real-time claims adjudication at physician offices, though only for the claims of their own enrollees.

Slow to adopt

Providers have been slow to adopt IT, some for good reason, says Lloyd Hey, M.D., founder and chairman of MDeverywhere in Durham, N.C.

"If you're going to get doctors to change their behavior, you have to have clinical value, financial value and usability," says Hey, a Duke University spine surgeon. Hey's company sells a PDA-based charge-capture system integrated with a practice management software package.

"The way to get folks to the Holy Grail is with baby steps," Hey says.

Eric Moskow, M.D., president of Cybear Group, a healthcare IT company in Boca Raton, Fla., agrees with Hey that physician executives looking to automate should avoid doing too much at once. Some functions, such as lab order entry and electronic prescribing, could become paperless, but not everything will or should be fully computerized, he says.

"My mission statement is not to make a paperless office," Moskow says.

Looking ahead

Greg Lucier, president and CEO of the information technologies unit of GE Medical Systems, a Waukesha, Wis.-based subsidiary of General Electric Co., says bringing connectivity to the operating room will be one of the next big things in hospitals and surgery centers.

For hospitals and physician offices, once billing, results reporting and clinical information get integrated, "the focus very well could turn sharply toward patients," Lucier says.

"Getting the patient involved is definitely the

next horizon," says Tom Carli, clinic administrator for Spokane (Wash.) Internal Medicine. The seven-physician practice offers its patients personal health records, accessible through a password-protected, secure Web site, and e-mails patients when test results are ready.

"Certainly, shooting lab results by e-mail is a time-saver," says Cybear's Moskow. Cybear owns MyDoc Online, a Web link between physicians and patients, and Physicians' Online, a medical information Web site with 227,000 registered physicians.

Demand for patient-centered services already is growing, says John Hummel, CIO of Sutter Health, based in Sacramento, Calif., and chairman of the Microsoft Healthcare Users' Group. "Major employers are asking for personal e-health Web pages and automated (prescription) refills," Hummel says. "We're finding that patient-physician connectivity is really working."

He says that some IT vendors have begun delivering Internet content and entertainment to computers in examination rooms. Patients can watch the show while waiting for physicians to make their rounds.

AMICAS, a Newton, Mass., provider of medical image management systems, has the technology for specialists to save patient studies, including images, onto a CD-ROM so patients can take the data to their primary care physicians. "It's more convenient than film to share with the referring doc," says company executive Barry Gutwillig.

Web's the key

But AMICAS, like many others, is pinning most of its connectivity strategy on the Web.

"The next generation truly is about real-time access" to information by any physician at any workstation, Gutwillig says. "All of that can happen when you build on Internet standards."

The ease of use of the Internet with its picture-oriented, browser-based navigation system will play a big role in IT adoption, says Peter Patterson, M.D., director of laboratory medicine at the University of Kansas Medical Center.

It is already happening in New England and the Northwest. "Everything we do is Web-enabled," says CareGroup's Halamka.

All 3,000 physicians and 12,000 employees at CareGroup's six hospitals and 72 physician-owned practices are connected via the Web. CareGroup itself is plugged in to 40 healthcare organizations and payers across Massachusetts through a collaborative program called the New

England Healthcare EDI Network.

NEHEN, as the network is known, transmits financial and administrative communications covered by the HIPAA transaction standards.

"It's basically HIPAA on a regional scale between competitors," Halamka says.

The system currently affords limited clinical function between three hospitals, but Halamka expects all participants will be sending clinical data over NEHEN by the end of 2002.

In eastern Washington state and nearby Idaho communities, 27 hospitals and more than 600 affiliated doctors are even further along in a collaboration called the Inland Northwest Community Health Information Project (IN-CHIP). The facilities and a virtual private network of 600 doctors work off one knowledge base for clinical, imaging and administrative functions, says Carli, a key architect of the system.

"Over 90% of everything that comes into our office is electronic," Carli says. This includes most nonclinical information. Referrals, for example, are sent electronically to specialists, while the system handles about 95% of patient insurance eligibility checks.

On the clinical side, all hospital data, pathology laboratory reports and imaging from the past year and a half, as well as three years' worth of exams, are in reportable fashion on the in-house EMR server. From there they are accessible via the IN-CHIP network through a Web browser, Carli says. All 27 hospitals and the VPN use the same imaging software and the same lab software, which follow Health Level 7 standards.

The project started in 1997 when the institutions decided there was a need for standards.

"As a community, we've done very well with connectivity because all the entities in our community have chosen to participate," Carli says.

About 150 miles to the west, Community Choice, a consortium including Wenatchee Valley Clinic and a group of hospitals in north-central Washington, won a federal grant a year ago to tie their facilities together.

"One of the things we're trying to generate is a system whereby we can have regional medical records," Gotthold says.

Instead of establishing a central data hub, Community Choice is creating its network by connecting facilities' existing repositories.

"The goal is (that) any doctor in the region will be able to access a patient's records wherever they were created in the region," Gotthold says.

Before that goal is achieved, two things have to happen, says Lucier of GE Medical.

"You've got to automate the other care areas in a hospital, and all these care areas need to be integrated to each other," he says.

"There is so much more integration yet to happen." MP

Carli

Low bandwidth remains a connectivity barrier

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