

CHARTLESS HEALTHCARE

TURNING LESS INTO MORE

BY LARRY MACKE

REALIZING THE "PAPERLESS OFFICE" DREAM that accompanied widespread adoption of desktops two decades ago has remained about as elusive as the personal jet packs that many hoped would emerge from the Space Age. But while the rocket-powered dreams of millions have all but fizzled out, serious strides have been made toward reducing or eliminating paper use in many varied areas.

Given the choice, most of us would opt for the jet pack. After all, the links between paper reduction and better quality of life tend to be rather esoteric if not entirely elusive. There is at least one area, however, in which these advancements are aimed directly at increasing not only quality but also quantity of life.

The advent of electronic medical records (EMR) has been changing the administrative side of patient care for more than 20 years, although adoption of the technology and practices vary widely. Many organizations and institutions have struggled with the transition, largely because paper has been as integral to healthcare as the slide rule was to calculations, and because so many parts of the system have been trading on this common currency for so long. But the change is happening, and it will become the norm.

Common sense suggests that those embracing the transition are bound to fare better than those merely reacting, and that those driving the evolution will do better still. One of the latter is Marshfield Clinic, a multispecialty physician group practice formed in 1916 that provides approximately one-third of the primary care delivered in the northern, central, and western portions of Wisconsin, covering 60 percent of the state and roughly a million people. But don't let the rural setting fool you: Marshfield has developed a real jet pack of an EMR system.

THE UNIVERSAL BENEFITS OF A HOMEGROWN APPROACH

A culture of innovation – the Marshfield Clinic Research Foundation began 50 years ago to pursue healthcare delivery and public health studies – has helped propel the Clinic toward the paperless future. Furthermore, Marshfield was established as a physician-led organization, and so development of an EMR system could not occur without the

involvement of the physicians, nurses, and other care providers who would be using the system. This was an organic effort with organizational support.

Consequently, Marshfield didn't just go paperless: it went chartless, and its homegrown system became the first internally developed ambulatory health record database in the nation to be certified by the Certification Commission for Healthcare Information Technology, a national certification body for electronic health records and their networks, in 2007. The system now is being marketed to other institutions as CattailsMD.[™]

Marshfield called upon Paul Olinski, who had been CIO of the Clinic's Diagnostic and Treatment Center – a joint venture between Marshfield Clinic and Ministry Health Care – to take CattailsMD to market. Central to the challenge of getting a healthcare organization to embark on an entrepreneurial endeavor was obtaining buy-in from a management that spends much of its time wrangling with rising costs, regulatory change, and the evolution of healthcare technology. Olinski says that the ways in which the Clinic's EMR system was helping address these concerns was instrumental in capturing the mindshare needed to be successful.

Some of the benefits of going chartless are broadly apparent, such as savings on paper, printing, and the manpower cost of handling physical records. The latter was \$4.50 per record pulled, with some two million transfers per year, according to a study conducted prior to going chartless. There's also the recapture of the space and other resources required to house patient records, which is saving Marshfield an estimated \$7 million annually. Transcription costs, which can range from \$300 to \$1,000 per physician per month, can be all but eliminated. These savings are reason enough for nearly any institution to go chartless, but the best value may be the new process efficiencies that result and how those improvements can affect patient care.

THE BEAUTY OF PORTABILITY

A physical medical record can only be useful in one place at a time. If a patient needs to see another provider and hopes to sustain some

continued »

continuum of care, as well as avoid duplicate tests, then the entire record – or at least portions of it – must be moved to another place, with all attendant delays. And as anybody who has ever had to deal with the transfer of medical records will attest, there are indeed delays. The variety of media in a physical medical record, from paper records to X-ray film to computer disks, only slows the process because access to the data is governed by the limitations and demands of the source material: Review may require examination of paper records, use of an X-ray light box, and/or processing of electronic files via desktop interface.

In contrast, the EMR is available whenever and wherever the care provider needs it. Every record, image, test result, prescription, and clinician's note is digitized and accessible via desktop, laptop, and PDA. Whether it's 10:20 on a Tuesday morning or 11:30 on a Sunday night, the information is always current and available, which means that on-call physicians can access the full range of records, make care recommendations, and write orders and prescriptions without having to get to the clinic or hospital to review the chart. In the care environment, this portability makes review of patient records easier than ever before, saving time and facilitating the decision-making process.

That a group practice in the midst of rural Wisconsin would come to be recognized as an EMR leader becomes even less of a surprise in light of its long-standing technological commitment. The organization's IT department was established in 1964, and in 1985 it began developing an EMR that includes electronically coded clinical information on all patients dating back to 1960. Physician adoption of the EMR effort reached 100 percent in 1994, and in 2003 the Clinic began issuing tablet-style personal computers (Fujitsu Stylistic® ST5000 or LifeBook® T4000) to providers. In fact, Marshfield was ready to begin going chartless in 2000, but developers felt that the user interface technology wasn't quite where it needed to be.

The wait appears to have been worth it. The tablets allow providers to handwrite notes and draw diagrams on the screen, and

Every record, image, test result, prescription, and clinician's note is digitized and accessible via desktop, laptop, and PDA.

CattailsMD is one of the only EMR systems that supports the use of digital "ink-over" forms. Portability also requires durability, and robust tablet construction is backed up by a swap program for units that may become damaged. Flexibility is another benefit, as data can be entered via voice, script, or typing.

The CattailsMD software, however, is where the rubber meets the road. The system's easy-to-use dashboard application gives an overview of patient status via six windowpanes: problems, prevention reminders (i.e., immunizations and tests), vital signs, allergies, medications, and appointments. The panes include imbedded links to notes and other information including demographics, primary care provider, insurance, digital signature, and best practice guidelines. Providers can access laboratory and radiology results, and share them with patients at the point of care, improving communication and collaboration.

Another feature enabled by integration of care data is the iList, or intervention list, which helps identify and track patients with chronic medical conditions such as diabetes or high blood pressure who may not be meeting treatment goals, or other at-risk patients who would

The Marshfield Clinic main campus in Marshfield, Wisconsin, where CattailsMD was developed as a chartless system used to record patient data.



Photo: Michael Haas, Marshfield Clinic



benefit from closer monitoring. Nurses and physician assistants can follow up on these alerts by notifying patients and ordering assessments in advance of scheduled physician appointments, thereby enhancing care and maximizing patient-physician interaction. Similarly, the preventive services (PreServ) application organizes clinical information to highlight preventive and chronic care services during regular patient visits. One outcome for Marshfield has been a dramatic increase in foot exams for diabetic patients, an important preventive practice, in the first year of going chartless.

CattailsMD also offers a patient portal for Web access to such functions and data as scheduling, medications, test results, immunizations, vitals, prevention services, care management, problems, and allergies and adverse reactions. Such access encourages patients to be more involved in their care and improves satisfaction.

Many care improvements achieved by the Clinic may also be attributed to its participation as one of 10 clinics in the Physician Group Practice Demonstration project through the Center for Medicare and Medicaid Services (CMS). This project provides incentives for efficiency initiatives that result in reduced healthcare spending. Marshfield decreased Medicare spending for 42,000 patients by \$25 million in the first two years of the five-year demonstration, which netted the Clinic performance payments of \$4.6 million and \$5.8 million for those years.

TOWARD BETTER CARE EVERYWHERE

Although integration of data provides some of its best benefits at the point of care, it's the aggregation of data that helps CattailsMD to deliver on a broader promise of EMR. More than reducing paper use and associated costs, and beyond improving care for a given patient, EMR offers the potential for improved population-based health research and, consequently, better care practices.

Every patient encounter yields data that is extracted, transformed, and consolidated into an electronic warehouse. Marshfield's data goes

back to 1960, and the pool broadened considerably in 2008 when Milwaukee-based Ministry Health Care, which operates hospitals and medical groups in the Clinic's service area, including the 500-bed teaching institution and regional referral center adjacent to Marshfield's main campus, agreed to purchase CattailsMD and join Marshfield's health record. More than 1,000 physicians in Marshfield, Ministry Medical Group, and Ministry hospital locations share access to 2.5 million patient records, the largest patient database in Wisconsin.

Olinski notes that the partnership improves care because the records are now directly accessible whether patients go to Marshfield or Ministry facilities for treatment, which will reduce unnecessary treatments and procedures. The growth of the database also contributes to its quality, with a greater number of data points reducing the margin of statistical error inherent in any research conclusions.

Electronic storage makes the population data more accessible and useful than ever before, facilitating investigation into the relationships between care patterns, patient risk factors, long-term outcomes, and morbidity and mortality. Stringent safeguards are in place to protect patient privacy, and the system is audited regularly to ensure the integrity of security.

Performance integrity was paramount in the design of the core network, which was designed in collaboration with Cisco Systems and the former Berbee Information Networks Corporation, now

part of CDW. Redundancies and downtime servers in separate locations have enabled steady growth in system availability toward a target of four-nine availability (99.99 percent).

MAKING IT HAPPEN

To institutions considering adoption of CattailsMD, Olinski promises highly collaborative implementation. Project managers conduct the planning and configuration analyses, followed by specification, implementation, and testing of interfaces to other systems. A training plan that minimizes impact on the medical staff is planned and executed, using a train-the-trainers approach to achieve long-term self-sufficiency for the institution. After the system goes live, support staff continue to work with the client until a comfort level is attained, which he says typically takes less than one week.

Olinski also offers the following advice to institutions embarking on EMR initiatives:

1. Build multidisciplinary teams to define the desired workflows, and provide training early in the process on the types of systems that will be considered to facilitate the discussions that must take place among IT, clinical, and administrative staff.
2. Talk to others who have implemented the systems being considered because the gap between current workflows and new system workflows can be hard to grasp.
3. Avoid having too many concurrent projects with end dates that can't be changed.
4. Perform joint testing with the vendor.

The chartless environment may not offer as much "gee whiz" as personal jet propulsion, but it does provide the promise of progress toward alleviating concerns currently at the heart of public discourse on healthcare: the costs and quality of care. And this bodes well for improved quality of life for all people, and not just those willing to strap on the boosters and hit the red button.

continued »