

Stop shuffling paper

Case study: Document management offers efficiency, access

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about the author

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Spend a day in any private medical practice and you're sure to hear at least one employee ask, "Where's the information?"

This three-word question reveals an inescapable truth about nonautomated systems: If the paper with the needed information is located in one place, there are many other places where the paper is not. This is a problem when multiple people in various locations need the same piece of information to deliver patient care or perform administrative tasks.

Document/digital image management (DIM) can help. This technology has transformed the mortgage and banking industries by replacing paper-based workflows with automated efficiency and tracking and audit capabilities. Medical practices are now welcoming DIM, as well.

With costs on the rise, reimbursement in decline and Health Insurance Portability and Accountability Act (HIPAA) privacy require-

ments in effect, document management is emerging as the next-level technology for medical organizations.

They generate dictation and charges. In contrast, document management applications serve not as real-time capture mechanisms but as electronic repositories of information, collected by the system as the information is received via fax, electronic transmission, hand delivery or mail.

Document management technology is not synonymous with high-speed scanning, either. High-speed scanning merely converts paper-based information into electronic form. While scanning has a role in document management — providing a means to input information into the system — it remains narrow in its focus.

Unlike both EMR and scanning technologies, document management applications rely on workflows to organize tasks, with the goal of automating redundant chores, improving access and decreasing error. Because of its versatility, a DIM system serves as more than a passive repository of electronic data. It's a repository with a brain.

A DIM system keeps information in the patient chart in a logically ordered and easily accessible fashion. Instead of sifting through layers of paperwork for a document, medical office personnel can quickly click through DIM's electronic filing system. Multiple people can read the information at the same time, either on site or remotely via a secure Internet connection. A physician, nurse or nonphysician provider can access the system in the office, from home or from a remote site, such as a patient-care unit or surgical center. S/he can quickly locate test results, office notes, prescription histories and other pertinent patient care information.

In addition, a DIM system allows sharing of patient information as needed. A specialty practice, for instance, can use it to automatically send office notes or referral letters to referring physicians via overnight fax. Referral sources or other authorized users can obtain their patients' information via Internet log-ins.

The system has become a single, flexible repository for all patient-related information that arrives in our office.

reader take-away

- Learn what document-image management (DIM) is — and isn't
- Learn DIM's capabilities and limitations
- Learn how an 11-physician orthopedic group applied DIM to achieve operational, economic and strategic objectives and replace a paper-based system

A repository with a brain

To understand what document management is, it helps to know what it isn't.

A DIM application is different from an electronic medical record (EMR) system, though a few EMR applications may contain some elements of document management.

EMR systems capture patient information gathered in real time at the point of service.

Audit functions track patient data access, system user access, document access and task completion. Security features permit access on the basis of specific patients, tasks or document types.

Through the reliable capture and methodical organization of information, document management creates an electronic health record. This offers a strategic benefit for practices preparing for health care's ongoing transition from paper-based administrative systems to electronic ones.

Document management in action: Gains in our practice

Our private, 11-physician orthopedic practice learned about document management in 2001. We were experiencing the challenges that affect medical organizations elsewhere.

Escalating volumes of paperwork arriving via fax, electronic transmission and mail contributed to costly inefficiencies. Our paper-based system did not afford the wide access to information that our staff required. With the HIPAA deadline for privacy of personal health information nearing, management of compliance became an unavoidable concern.

Declining reimbursement, coupled with increasing costs, compelled us to seek operational and economic relief through automation.

We had acquired an EMR system several years earlier. Although we used it for some limited functions, capturing data at the point of service wasn't among them. Our physicians felt uncomfortable interrupting patient visits to log information in real time. Additionally, the EMR system still left us with volumes of paper to manage, since not all of our external sources could provide us information in electronic form.

Scanning data into a repository didn't solve the basic business problem. We still required a mechanism by which we could manage our administrative processes.

Our experience with the limitations of EMR applications taught us a lesson about technology: An innovation doesn't become a solution until it meets specific operational needs.

The gained efficiencies provided a positive return on investment in less than a year.

With that in mind, we compiled a list of outcomes we wanted our new system to achieve:

- **Minimal disruption to operations and patient care** — We wanted intuitive, easy-to-use technology. We wanted it to integrate with our existing systems, cause little change to our practice patterns and build on our accumulated technological knowledge.
- **Improved access to patient information** — We wanted simultaneous access to information for our clinical and administrative staffs, eliminating our reliance on paper charts' availability to complete certain tasks.
- **Operational efficiency** — We wanted an application that was more than a passive electronic repository of information. It also needed to organize tasks into logical and efficient workflows.
- **Automation of redundant tasks** — We needed the ability to capture, sort, file,

see **Shuffling**, page 48

Document management and the attributes of innovation

Predicting which technologies will become dominant and which will fade into obsolescence is the work of economists, strategists and academics.

But because technologies build on each other, anyone who makes information technology decisions may find it useful to understand why certain innovations are likely to endure. No medical practice wants to invest time and money in a technology with uncertain long-term usefulness or unclear ability to integrate with existing and/or future innovations.

Measured against the economist-identified attributes of innovation (see box page 48), document/digital image management technology may prove a smart strategic bet for medical practice administrators.

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store and retrieve patient information that arrived via fax, mail, hand delivery and electronic transmission. We also wanted automated alerts within the system to reduce the incidence of overlooked or incomplete tasks, as well as disseminating information and automating the release process for referral letters.

- **Systematic management of HIPAA compliance** — The system needed audit functions that would enable us to track patient data access, system user access, document access and task completion — all critical to compliance.
- **Return on investment** — We wanted the new system to pay for itself quickly in operational efficiencies and improved access to patient documentation.
- **Ability to integrate with current and future technologies** — Finally, we hoped

to find an application with an open architecture so it could link with our existing systems and with newer technologies as they evolve.

The right technology at the right time

We selected a document management application and went live with the system in February 2002.

Since its implementation, the system has become a single, flexible repository for all patient-related information that arrives in our office. It has also provided unprecedented access to clinical data.

Document management has allowed us to streamline many previously inefficient and costly workflows. The system:

Document management and the attributes of innovation¹

Attribute	Innovation characteristic	Document management
Relative advantage	The innovation is technologically superior (in terms of cost, functionality, "image," etc.) than the technology that it supersedes.	Achieves cost savings through increased efficiencies and improved workflows.
Compatibility	The innovation is compatible with existing values, skills and work practices of potential adopters.	Provides an intuitive system built around established values, skills and work practices.
Simplicity ²	The innovation is relatively easy to understand and use.	Built using dominant technologies, document management is both familiar and intuitive.
Trialability	The innovation can be experimented with on a trial basis without undue effort and expense, or it can be applied incrementally and still provide a net positive benefit. ³	Users can select features that produce immediate business value and add to the features as the operational need arises or as stakeholders are willing.
Observability	The result and benefit of the innovation's use can be easily observed and communicated to others.	Cost savings and workflow efficiencies are immediately apparent.

- Provides a mechanism for capturing and organizing paperwork sent from external sources;
- Automatically organizes and manages phone messaging; and
- Contains built-in measures to restrict user access and generate audit trails of who accesses data and when — essential to HIPAA compliance.

Because the system is intuitive and familiar, our staff found the software easy to master. Most training focused on acclimating employees to the redesigned work processes. From a cost perspective, the gained efficiencies provided a positive return on investment in less than a year. On every level, document management achieved the operational, economic and strategic objectives we defined at the outset, freeing us from an inefficient, inadequate and expensive paper-based system. X

Notes

1. Fichman R, Kemerer C. Adoption of software engineering process innovations: The case of object orientation. Sloan Management Review 1993;34(2):7-22.
2. Modified from Fichman and Kemerer. The chart on attributes of innovations lists the third item as "complexity — the innovation is relatively difficult to understand and use." This is a deterrent to technology adoption, while the other attributes encourage adoption. For consistency purposes, "complexity" was replaced with "simplicity," and the characteristic definition was modified accordingly.
3. Modified from Fichman and Kemerer. Incremental implementation as part of the trialability concept was not included in the original attributes of innovation chart. Its inclusion here recognizes that incremental technology adoption is emerging as a practical strategy for health care organizations.

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