

# **Using Document Management in a Healthcare Organization**

For HIPAA Compliance and Improved  
Operational Efficiency

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***At each step of the medical care process, large volumes of paper and computerized information are gathered and retained.***

Dramatic regulatory and economic changes in the healthcare industry are forcing every organization in the healthcare business to re-evaluate the use, storage and retrieval of patient health information. These changes not only impact large hospitals and insurance companies; they also reach down into the business operations of private physicians and clinics.

The objective of this white paper is to examine the current state of healthcare information management systems, then demonstrate how organizations can use document management to bring patient-related document storage and retrieval into HIPAA compliance and at the same time improve patient safety and care, and dramatically increase profitability and cash flow.

First, we will examine the state of healthcare information management systems and understand some of the critical issues that could be barriers to compliance, patient safety, and profitability.

## **Current State of Healthcare Information Systems**

Healthcare organizations have the opportunity and responsibility to provide needed medical treatment for patients from pre-birth to end of life. They provide services based on patient need and the skills of medical professionals. At each step of the medical care process, large volumes of paper and computerized information are gathered and retained.

The information is captured and managed within two major categories:

- Patient Billing Information
- Patient Medical Records

Each category contains complex data storage and retrieval mechanisms, because it must be referenced and updated by numerous departments and functions throughout the healthcare organization. It is not unusual for a typical healthcare provider to have more than thirty functions that impact these patient data records. Adding to the complexity, many departments also make and retain their own files of patient information, and may have their own unique patient identifiers and forms containing relevant patient information.

Federal regulations are changing the way patient records and patient billing information are stored, accessed and distributed. Healthcare organizations are not only looking for ways to comply with the regulations, they are also looking for more efficient ways to manage all the computerized and paper-based information.

Automation of the patient billing process in medical clinics, hospitals and long-term care facilities has been developing for more than thirty years. Today most organizations have a system to generate patient bills electronically and transmit them to payer organizations for reimbursement. Any organization that cannot prepare electronic bills internally will usually outsource this function to billing service providers.

***Surprisingly, only a small percentage of hospital organizations have fully implemented a clinical records system that creates a true electronic medical record (EMR).***

The next frontier for automation has been the patient registration process. This is the data input phase for both the patient billing system and the patient care medical record, and for most organizations this phase creates a tremendous amount of paper that cannot be managed by the health information management system (HIMS). The paper problem must be addressed, because it causes inefficiency, inaccuracy, redundancy and inconsistency, and it is very difficult to insure patient privacy for the information that is not under the control of the HIMS. A document management strategy can address this issue.

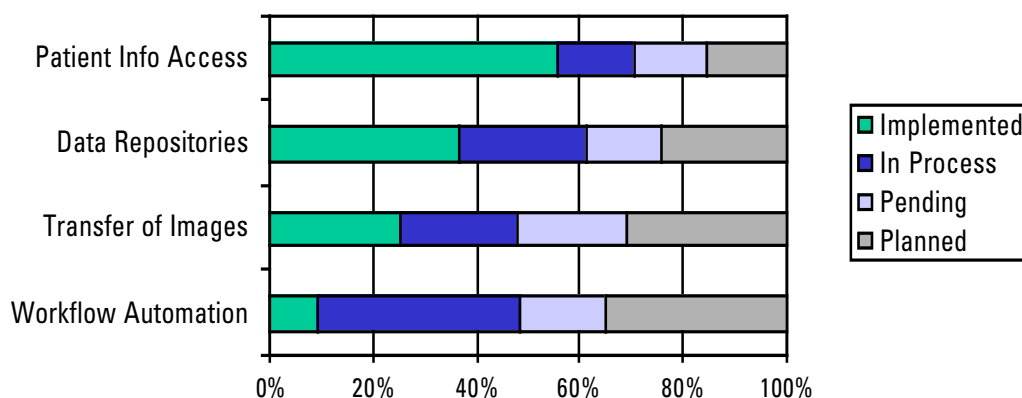
Surprisingly, only a small percentage of hospital organizations have fully implemented a clinical records system that creates a true electronic medical record (EMR). Recent reports show 72% of hospitals have no EMR, with only 21% having a full EMR<sup>1</sup>. This data implies that 80% of the organizations are using a mix of electronic information systems alongside a combination of computerized and paper-based patient records. These disparate systems, which result in multiple databases, paper files and inconsistent formats, make patient information retrieval inefficient and costly.

When healthcare organizations evaluate new information technology today, their decisions are driven by the following priorities (in order), all of which are made even more difficult to achieve by the HIPAA regulations:

1. Patient safety
2. Quality of care
3. Improvement of cash flow
4. Market share
5. Reduction of expenses without reducing critical personnel

These priorities will drive information technology expenditures in the years to come. Recent studies have shown that significant efforts are underway to address these using technologies that create and manage computerized patient records.<sup>2</sup>

### **Computerized Patient Records**



## The Problem of Disparate Systems

With the complexity and multitude of departments in a typical healthcare organization, the diversity of medical professionals, and the varying rate of adoption of computer technologies, most organizations have a potpourri of disparate patient record methodologies and automated systems installed. It is not unusual to have more than fifteen different systems in a medical clinic and over one hundred in a full healthcare organization.

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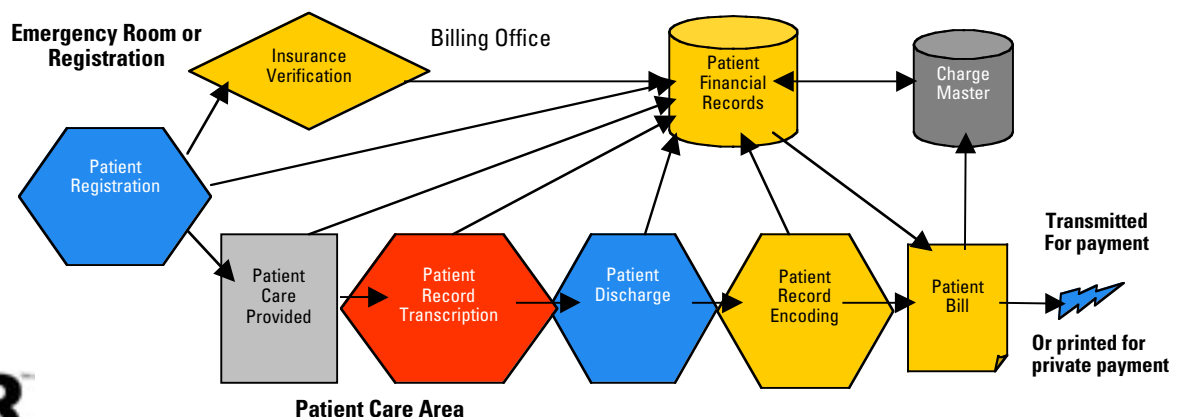
The systems include patient billing, ancillary departmental systems in radiology, laboratory, heart diagnostics, pharmacy, surgery, emergency room, room and bed assignments, dietary purchasing and many more. Each system may produce information relating to a patient and the patient's care, which becomes a permanent part of the patient healthcare information. The databases created by each area, whether automated or not, must be accessed on occasion to provide requested information about a patient, a medical service provider, or a process or procedure in the organization.

It is not unusual to have hundreds of requests per month requiring retrieval of multiple forms or reports from many departments and data repositories in the organization, offsite or onsite, remote or local. Because the information is all over the place, the total cost and time to retrieve this information can be measured at most organizations in the thousands of dollars and hundreds of hours of people's time. A document management strategy can significantly reduce this cost.

## Patient Billing Records

The information obtained at patient registration is quickly entered into a format to collect the charges for services and products used throughout the patient care history. This information is used as the key patient identifier for all subsequent documentation created during diagnosis and treatment, and is a common practice throughout the healthcare system from a Physician's office, clinic, ambulatory center or a full care facility.

The patient billing record becomes the receptacle for all cost-based information relating to the care of the patient. These patient charges are collected in the patient billing databases and maintained until patient discharge when the bills are completed for patient private payment or submission to the patient's insurance company.



***A document management strategy can provide an affordable method for data retention.***

All or part of the patient billing process may be automated to produce electronic medical bills, suitable for printing for payment or transmitting to the reimbursement organization. Federal and state regulations mandate that patient bills must be retained for many years in either electronic, microfilm or paper form. A document management strategy can provide the most affordable and secure method of retention.

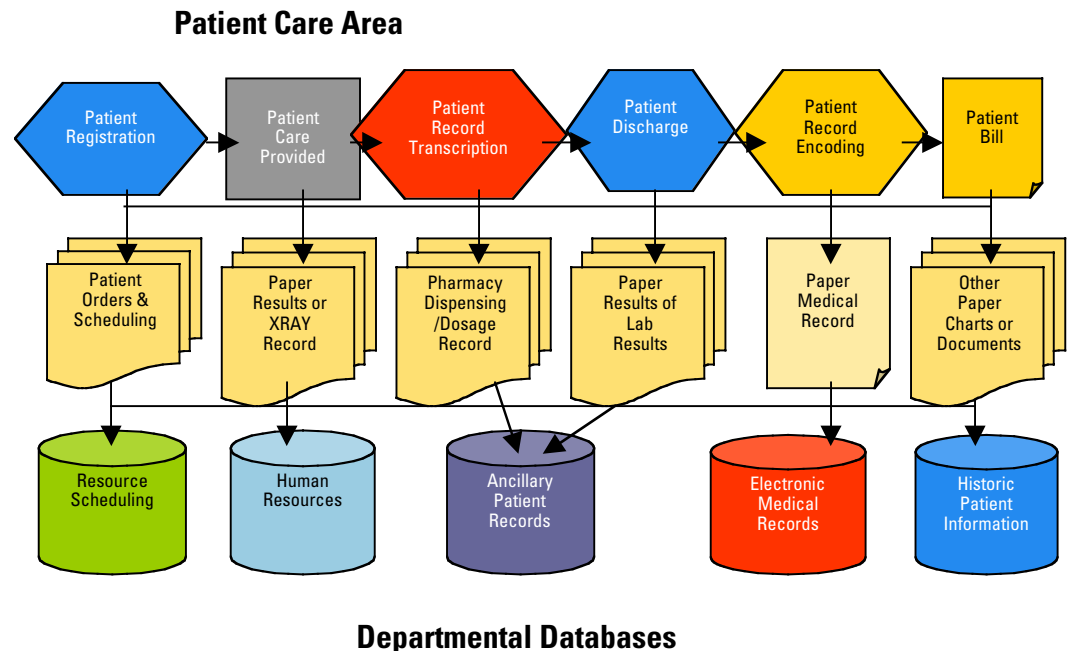
## Patient Medical Records

Immediately upon completion of the patient registration process and movement of the patient to the patient care area, a patient medical record is initiated. It documents all of the initial health-related questions asked of the patient or guardian, a record of the initial symptoms and description of the patient's desire for medical care.

Upon presentation to a medical professional, a battery of initial tests and qualifications are performed to establish the base case for the medical record. These initial results along with all further testing, procedures, medical professional notes, results, charts or other pertinent information are stored in the medical record.

It is not unusual for a physician's clinic to have up to 100 different forms and information documents. A full healthcare provider such as a hospital or long term care facility may have *hundreds* of different forms and documents in the medical record. All of this data must be retained for up to 28 years, in a file that is accessible for retrieval and reporting by authorized healthcare personnel. A document management strategy can provide an affordable method for data retention.

A typical patient medical record flow might include all or part of the following steps and databases, based on the patient care procedures:

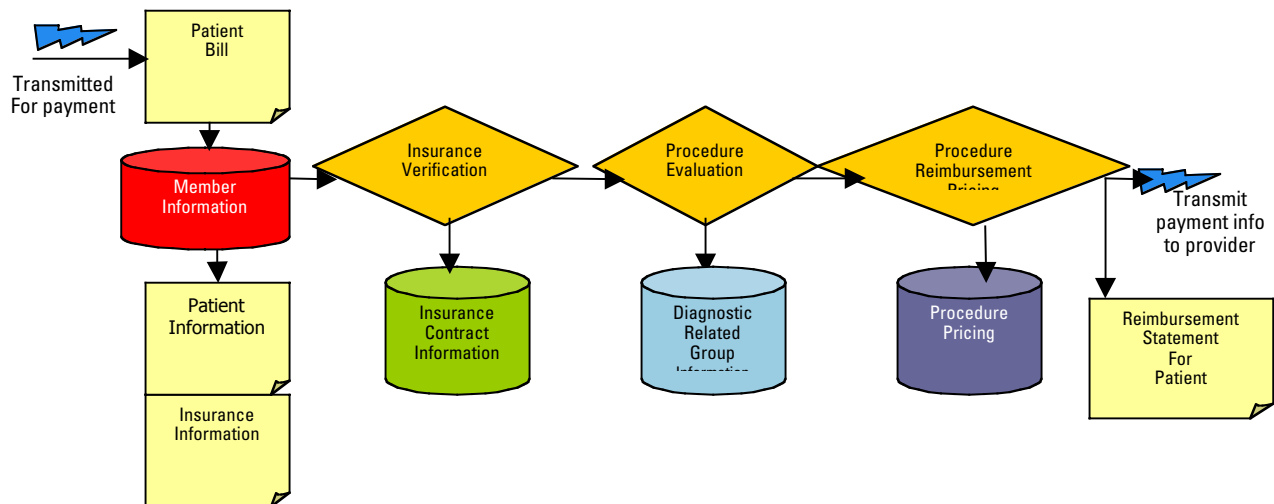


Depending on the individual organizational policies, none, part or all of the medical record may be electronic. As seen earlier, surprisingly few medical facilities have a full Electronic Medical Record (EMR) solution in use today. Most organizations have some electronic records augmented by vast storage rooms of paper records, loosely organized by some patient identifier. Paper records are costly to store, prone to misfiling or loss, and notoriously difficult to secure for compliance. Locating all the historical records for complicated cases can consume a tremendous amount of time. A document management strategy can convert the paper into digital documents. This will improve responsiveness to regulatory requests, and increase cash flow by speeding up responses to insurance requests for supporting information.

## Payer Organizations

Upon discharge of the patient, a patient bill is prepared, or in the case of a long-term care facility, an interim patient bill is prepared for payment from a variety of sources. It could be a private pay situation by the patient or some related party, one or more insurance companies with whom the patient is contracted, a governmental agency that provides payment for patient care, or a combination of all these organizations.

In the case of a payer organization, following is a general picture of the information flow and the required processes and databases.



Most of the payer organizations have an automated billing system for the reimbursement of patient bills with large databases of patient and member information, along with employer contracts. A document management strategy can integrate paper-based records and electronic databases by providing common identifiers to streamline retrieval.

## The HIPAA Effect

The Health Insurance Portability and Accountability Act of 1996, better known as HIPAA, is a new standard in the U.S. medical community for the collection, storage and transmission of patient information between providers (doctors, hospitals, clinics and the like), payers (insurance companies and the U.S. Government) and clearinghouses (centralized processing facilities that improve the efficiency of the system). In the past, there wasn't enough standardization between payers and providers, which resulted in a lot of human intervention throughout the insurance claim processing system. HIPAA is a move to standardize the entire process, which will allow for more computerization, reduce processing costs, improve timeliness of information and reduce insurance fraud while at the same time protecting patient privacy.

***Without a document management strategy in place, retrieval and compilation of this disparate information is very costly and time-consuming.***

Because HIPAA will increase the use of computers, there is an increased risk of anyone gaining unauthorized information about patients, hospitals, doctors, drugs and the like. HIPAA requires stringent security standards for anyone who may have access to this information anywhere along the chain of information processing, from the doctor's office all the way through to the large insurance companies.

## Typical HIPAA Requests for Protected Health Information

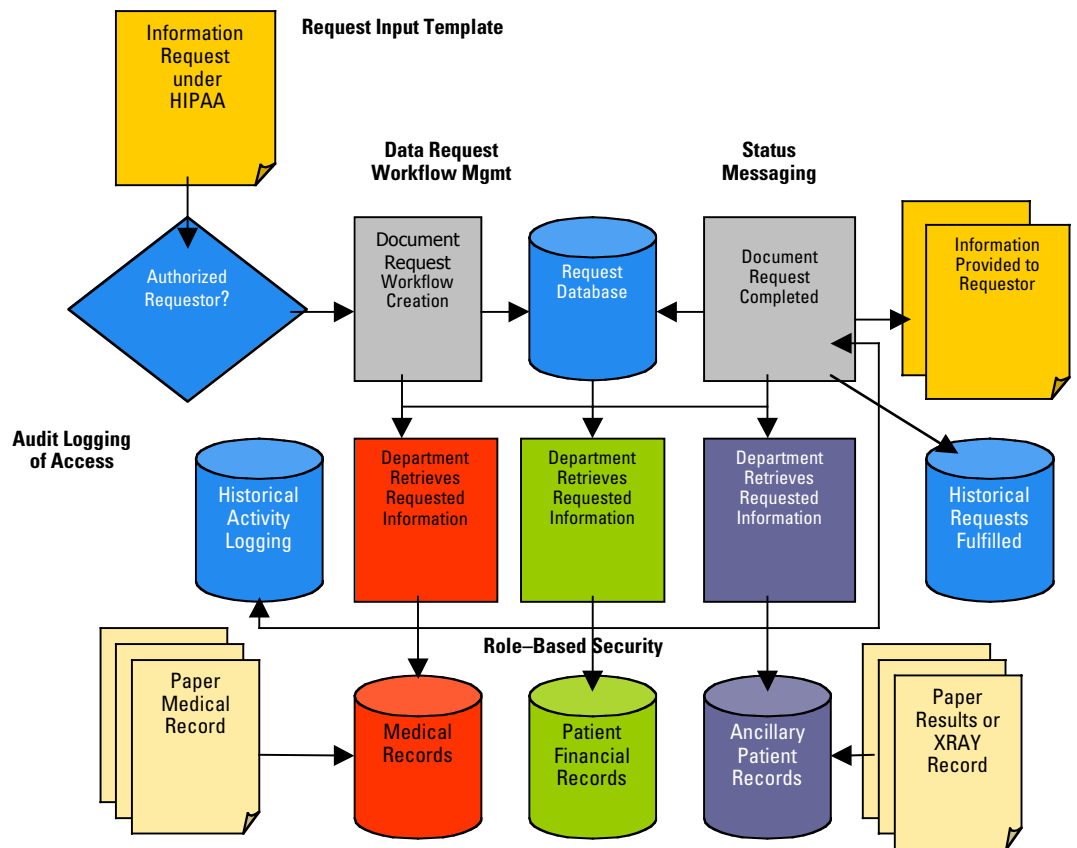
In a HIPAA compliant environment, a typical Protected Health Information request could result in the requirement to retrieve the data from several data repositories throughout the healthcare organization, with each repository requiring:

- Authentication of the requestor's right to receive the information
- An authorized person to generate the request to retrieve the designated record group
- Access restrictions of any person retrieving the designated information
- Auditing the access to it
- A continual status report for the person who initiated the request into the organization.

There is a deadline to deliver the data to the requestor. Under HIPAA, thirty days is the deadline to deliver all on-site information. If off-site information is required, the deadline is extended to sixty days. Within that timeframe, all the designated data records for that particular request are brought together into one patient report. Failure to meet these timeframes could result in sanctions and penalties. The requestor must be given the finished report for their use.

Without a document management strategy in place, retrieval and compilation of this disparate information is very costly and time-consuming. For example, one organization that receives over 900 requests per month must pay up to \$50 per request (or \$45,000 a month) just to retrieve the information from multiple departments.

The information request flow in a typical HIPAA environment would go as follows:



## Summary of Issues

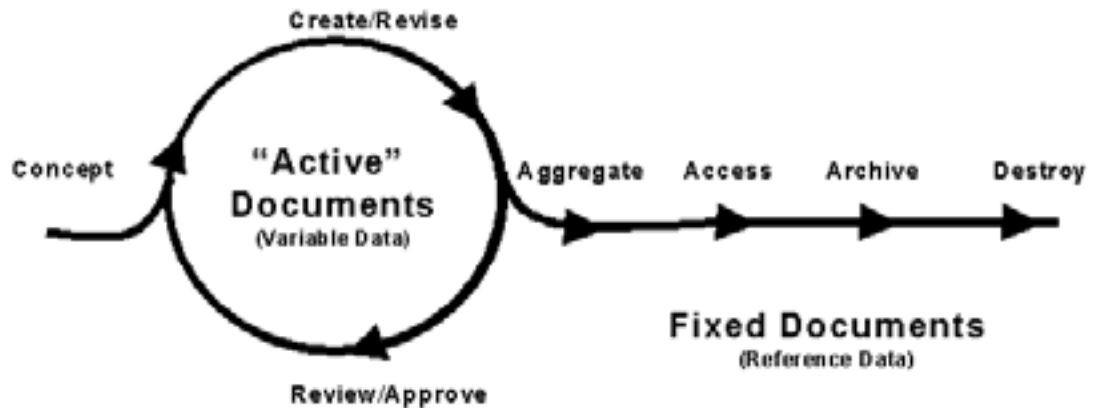
The overwhelming amount of paper-based information and the problem of disparate information management systems are huge barriers to 1) increasing patient safety while improving the quality of patient care, 2) increasing profitability and improving cash flow, and 3) fully complying with HIPAA, *and* doing all this at the same time. A document management strategy can help healthcare organizations break through the barriers and achieve these objectives in a reasonable timeframe.

## Applying Document Management to the Healthcare Environment

Traditionally, electronic document management software (EDMS) in all industries (including healthcare) has focused on eliminating or reducing the paper problem. Basic features included scanning, indexing, a security system for access, managing the storage, archive and retrieval. Over time, EDMS expanded to include group collaboration on active documents (e.g. Word), workflow, forms management and Web content management. As a result, many EDMS solutions have become increasingly complex to deploy and expensive to maintain.



A typical electronic document process has two major phases in its lifecycle, as shown in the following figure:



Source: Gartner Group

The first phase involves the active document: its creation, revision and approval. Most organizations already have methods in place for this. The second phase is the fixed document that has reached a point where a version is ready to be saved and managed through to destruction. This phase is often referred to as 'archival' or 'records retention'. It is in this phase that the vast majority of healthcare organizations lack an efficient solution and face the problems outlined in the table below.

The remainder of this paper will focus on the implementation of basic document management functionality for aggregation, archival, access and destruction.

Basic document management software can be used to address several of the problems previously discussed.

| Problem                                                                                          | Benefits of Document Management                                                                                               |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Patient safety and quality of care                                                               | Faster, more available and more accurate information can save lives!                                                          |
| Insuring the privacy of Protected Health Information that currently exists in paper form (HIPAA) | A digital repository can enforce roles-based access control; data is encrypted.                                               |
| Meet HIPAA information request deadlines                                                         | Can reduce each request from days to minutes; can reduce personnel time spent; can compile diverse data into one report.      |
| Servicing information requests from insurance companies                                          | Faster and more accurate retrieval = reduced expense and improved cash flow.                                                  |
| Enormous amount of paperwork generated                                                           | Convert paper to digital and reduce paper storage requirements.                                                               |
| Disparate databases                                                                              | Data and documents can be aggregated and archived together for easier privacy management and faster, more accurate retrieval. |
| Data retention/archival                                                                          | Ensure fast access to archived records; automate record destruction.                                                          |

## Case Study:

# University of Louisville Hospital

Given all the forms and documents generated in a typical hospital, managing the massive amount of information with an eye towards HIPAA compliance is no easy task. The University of Louisville Hospital selected Alchemy document management software from Information Management Research (IMR) Inc. "In the HIPAA compliance world, we believe Alchemy, with its new role-based access control and audit tracking features, will continue to be very efficient for retrieval of the patient health information under its control," said Walter Zupances, RHIA, CPC-H, and the Director of Health Information Management for the Hospital.

Alchemy creates a secure archive of patient information, including medical images, paper-based documents, forms, enterprise reports, email, and hard-to-access legacy system data. It manages the information in a centralized and secure location, all addressable by common identifiers. And compared to complex enterprise imaging products, Alchemy is a snap to install and end users love its friendly interfaces.

Nearly three years ago, the University of Louisville Hospital installed an Alchemy Premium solution that included the Alchemy Web Server (to allow access to information via a web interface) and the Alchemy Scan extension (to add paper documents from 21 workstations). Since then, the medical center has saved hundreds of thousands of dollars and thousands of employee hours.

***One of the greatest overall benefits is the economy of time and efficiency for hospital personnel.***

The economy of storage space was one of the first benefits realized. Staff members scan approximately 350 documents per day into several databases, the largest of which is 12 gigabytes. The billing department used to have a 30-foot by 20-foot room devoted to file storage. Now, instead of expanding their storage—as most other hospitals are doing—the storage space they need is shrinking, freeing valuable space for other uses.

"We've saved many thousands of dollars in storage costs alone," says Michael Boston, the clinical system analyst. "We have to pay a monthly fee for a lot of the paperwork that isn't stored at the hospital. That fee is being reduced dramatically now that new files no longer need to be stored at a remote facility." In addition, the employee who used to be in charge of maintaining the on-site storage area has been reassigned to other tasks, saving the hospital many person hours.

One of the greatest overall benefits is the economy of time and efficiency for hospital personnel. Physicians and nurses no longer have to wait hours for a patient's chart to be pulled from the Medical Record department for details on the patient's last ER visit. They just look it up in Alchemy, which takes only minutes. And the billing office dramatically reduced unnecessary repeat telephone calls, simply by looking up patient registrations in Alchemy, where copies of the patient's insurance card are stored.

The hospital also maintains a database for the National Bone Marrow Donor Program. The program must save information that goes back as far as 10 years. With paper records, this was difficult to search through. But now, locating crucial documents from the Alchemy repository is almost effortless.



[www.imrgold.com](http://www.imrgold.com)

***More than 150 organizations in the medical and healthcare industry use Alchemy today in a diversity of ways.***

## **Many Healthcare Organizations Utilize The Alchemy Document Management System**

More than 150 organizations in the medical and healthcare industry use Alchemy today in a diversity of ways. The product has been used throughout the organizations to store, index and retrieve many types of documents, images and forms with excellent results. The applications run the gamut from the departmental capture of signed patient registration forms, to the scanning and archiving of full medical records for retrieval and reporting. Alchemy is used by physicians and nurses to quickly retrieve patient care information. It is also used by I/T to reduce paper storage and to provide a secure repository.

Alchemy was designed as a secure document and record management system, and contains many features that provide significant benefits to healthcare organizations and help them comply with HIPAA (or other) security and privacy standards.

- A security system integrated with the Microsoft Active Directory. This provides a single sign-on capability where employee access can instantly be added to or removed from the system.
- Computer users who have access to the storage area cannot view the contents of the database, unless the system administrator grants them permission.
- Security levels within each database allow separate access capabilities at the administrator and user group levels.
- Password protection at the database, folder and file level.
- Read-only clients that prevent the modification of data in the system.
- The database can be stored in a highly encrypted manner.
- The Alchemy Windows server can manage access to hundreds of databases; however, each user is limited to see only his or her authorized databases. Full text searches are limited only to the authorized databases.
- Secured databases (or subsets) can be archived to removable media (e.g. CD, DVD) for remote access, compliance with records retention policies, or for disaster preparedness purposes.
- In disaster recovery situations, it is possible to become completely operational within minutes using removable media, even at a new location.
- The read-only client can also be added to the removable media. If a disaster wipes out the central data store, end users such as nurses and ER workers can load the media in a laptop computer and have immediate access to the data.
- IMR and its worldwide partners network offer end user and administrative training classes to teach customers about all of the security aspects of the product line.

## **New Features Strengthen HIPAA compliance**

In 2003, IMR is further enhancing Alchemy with new features that will help healthcare organizations more fully address the privacy and security portions of HIPAA regulations.

*Document request management enables the generation and completion of the request in singular, straight-line processing or multi-thread concurrent processing by several departments.*

### **Role Based Access Control (RBAC)**

HIPAA requires the system to control security based upon each person's assigned responsibilities within the organization. The RBAC feature is designed primarily for an organization where different departments can do different things up the chain of command, each higher level having more capabilities than the one below it. The primary need for this capability is to be able to prevent unauthorized use of the information and to be able to correct errors in emergency situations.

### **Document Request Management**

A request for information in a HIPAA controlled environment may result in multiple requests for documents and information from several departments or even offsite locations, all to be supplied in a given timeframe. The status of the completion of the request must be monitored by the requestor for timely completion to present the full response to the requestor.

Document request management enables the generation and completion of the request in singular, straight-line processing or multi-thread concurrent processing by several departments. The status will be tracked and completion notification sent to the requestor.

IMR will also offer document routing templates so predefined processes can be invoked based upon the type of information request that has been received by the Medical Records Administrator or the Healthcare Privacy Officer to retrieve designated data records.

### **Audit Trails**

HIPAA requires detailed audit records about the source of documents, who has had access to the documents and how the documents have left the system, either by transmission methods or deletions. The Audit Trail feature records information about each user of the system: when they logged on, what function they performed on the patient information stored in Alchemy, and when they logged off. In addition, any security violations such as attempted retrieval or other unauthorized activities will be recorded.

The audit logs can be retained for an indefinite period of time. The logs cannot be modified and will provide active involvement capability of the Alchemy administrator to insure the audit log files don't get too large and are archived in an efficient manner. Recommendations are to archive the audit logs in a separate Alchemy database. A reporting tool will be provided to show all activity by user, by record, and all failed security attempts to enter any database.

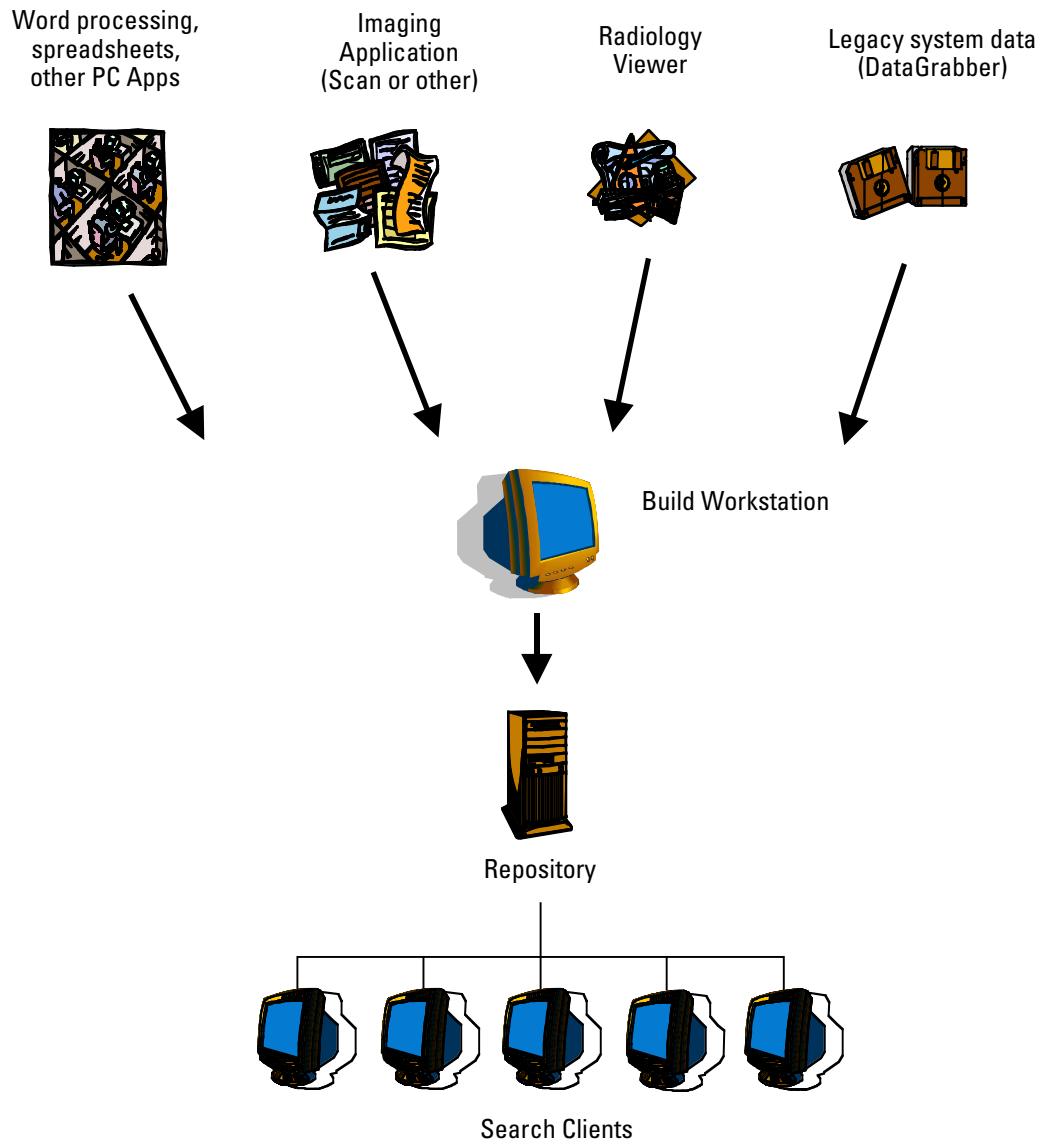
### **Medical Imaging Document Viewing**

DICOM is a medical industry standard for viewing CAT scans, MRIs, X-rays and other digital medical imaging. A DICOM viewer will be added to the product.

## Typical Document Management Configurations

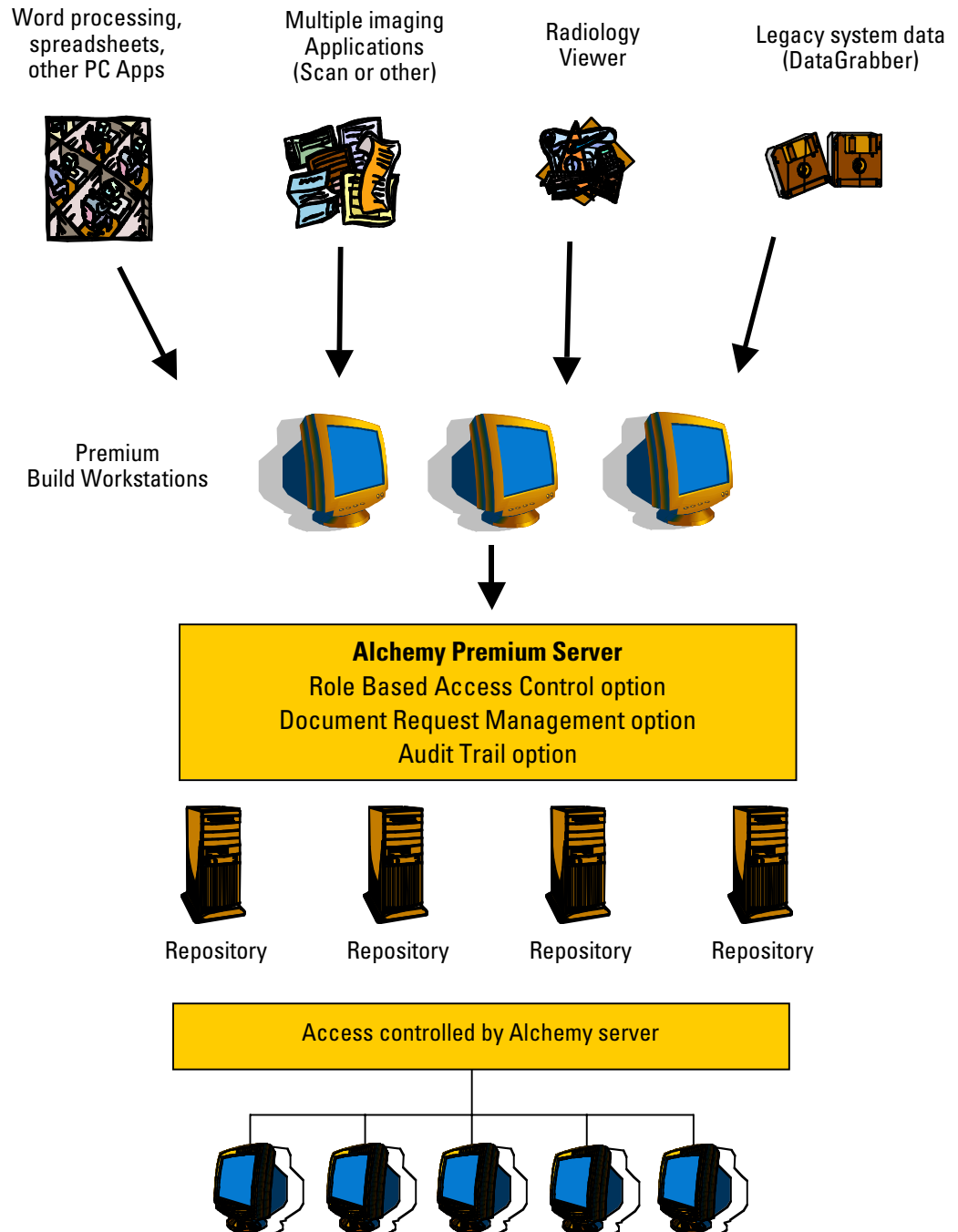
### Small Department or Office Configuration

Where one person can handle the aggregation and capture of information and the management of one repository, and up to 25 clients can retrieve and view the data. This configuration does not require a dedicated server.



### Large Department or Multi-department Configuration

A larger organization can utilize the Windows Server scalable system. Up to 250 users can contribute data to multiple repositories. Up to 250 users can have read-only access. The new HIPAA compliant features discussed above can be installed. A Web server can be added for remote access.



## Professional Services

Creating and implementing a successful healthcare solution will require careful planning and definition: which particular documents to manage, a sensitivity to HIPAA, the roles to be defined, and the people and processes put into place to facilitate the effective use of the products. Each installation will need a professional services group to maximize the application and insure optimal return on investment. Professional services will include training the key users, configuring the servers, and installing the document routing and templates.

## Summary

**The overwhelming amount of paper-based information and the problem of disparate information management systems are huge barriers to:**

- 1. Increasing patient safety while improving the quality of patient care,**
- 2. Increasing profitability and improving cash flow,**
- 3. Fully complying with HIPAA,**
- 4. *And doing all this at the same time.***

**A document management strategy can help them break through the barriers and achieve these objectives in a reasonable timeframe. The Alchemy product family provides the basic document management features needed to achieve these objectives, and does so at a dramatically lower price point than other document management or imaging products.**

For more information about document management solutions in the healthcare industry and to view a list of IMR's healthcare customers, please visit the IMR Web site at [www.imrgold.com](http://www.imrgold.com) or call 1-303-689-0022.

## About the Author

Stephen H. Rannells is the Senior Product Manager for Healthcare at IMR Inc. He has a long history and significant experience in the healthcare industry. He held executive client service positions with healthcare industry vendors IDX, QuadraMed and the Siemens/SMS consulting group. While part of the Humana Hospital group and the Kindred Health Network, Mr. Rannells was instrumental in defining healthcare data flow and information requirements. As a consultant with Price Waterhouse Coopers Consulting Management Group, he consulted on the workflow process changes for Integrated Data Networks at large hospitals. His contacts and experience prepared him to understand the great need for better document management in the healthcare industry.

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<sup>1</sup> Source: HIMSS/AstraZeneca Clinician Wireless Survey, 2002

<sup>2</sup> Sources: Modern Healthcare's Information Systems Survey, 2002  
PricewaterhouseCoopers, Zinn Enterprises



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