Document Imaging as a Bridge to the EHR

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A growing trend in healthcare is the imaging of paper documents as a bridge to the electronic health record (EHR). At a time when healthcare organizations find themselves straddling the paper and electronic worlds, scanning technology allows an organization to interface multiple disparate systems. Document imaging fills gaps in the electronic record and gives the organization more time to find and develop EHR solutions to meet its needs over time.

Numerous Benefits

Organizations that have implemented document imaging technology identify benefits in the following areas:

Improved Access

One of the biggest gains for an organization is the ability to provide greater access to the medical record for authorized users outside the HIM department. All components of the legal health record are computerized and provide online access to multiple users at the same time. Timeliness of access is improved. A health system can provide access to records from multiple sites. Authorized medical staff can access the record remotely and from a variety of locations.

Elimination of Retrieval, Delivery Lag Times

Online access of the record eliminates the time spent retrieving and delivering charts, making the medical record readily available to multiple sites and multiple users and improving care for the individual. Special retrieval requests (such as research, quality reviews, utilization review, and case management) can be done by the requestor from the desktop.

HIM Work Flow

The HIM department becomes automated, gaining efficiencies by eliminating assembly, filing, and retrieval. Productivity is increased. The time it takes to complete a record decreases as physicians and clinicians have easier access to their deficient records. Information is available to multiple users at the same time for coding and analysis. Charts and information are rarely lost.

Improved Coding/Accounts Receivable Processing Time

Facilities that have implemented a document imaging program report faster coding and chart completion, which results in better accounts receivable management.

Improved HIM, IS Relationship, Collaboration

The HIM and information services (IS) department work closely together through implementation and ongoing management of a document imaging system. There is an increased focus on security and the ability to limit access. The imaged record is the legal medical record, resulting in better compatibility across the information system. All new clinical documentation systems must be compatible and interface with the document imaging system.

Increased Revenue, Decreased Expenses

Over time, long-term, off-site storage costs can be reduced. The need for a file room is eventually eliminated and the paper burden is reduced. Outsourcing correspondence may no longer be needed as organizations become better able to handle their own requests and retain the revenue.

While the benefits of a document imaging system have a significant effect on operations, it is important to understand its shortcomings. Document imaging is not a true EHR, but rather the electronic storage of paper records and text.

Implementation of document imaging does not result in reengineering of the documentation process, elimination of illegible handwriting, or collection of data in a standardized, organized manner. Rather, clinical applications for an EHR are needed to provide enhanced medical decision support and to change the way clinicians and physicians work.

Cost Justification

Organizations that have implemented a document imaging system justify the expenses of the document imaging software and hardware through decreased expenses, increased revenue, reduction in clerical staff, and improvement in accounts receivable management. The timeline for a return on investment varies by facility.

The expenses and staffing requirements may increase during implementation (possibly a one- to two-year period) and then decrease as access becomes organization wide and new roles and processes are mastered. To start, map out a return on investment over a five to 10-year period and make adjustments based on your organization's unique characteristics.

Which Record Is the Legal Health Record?

One significant problem exists for organizations that opt to use scanned paper records as their primary health record. Does the scanned health record meet the definition of the legal health record? What criteria must be met for the scanned record to be recognized as the legal health record? Do state laws prevent the original source paper document from being destroyed?

Organizations considering the use of scanned health records as their primary legal health record should begin by reviewing current state laws that address maintaining health records in an electronic format for facility licensing, certification, and evidence in legal proceedings.

The Medicare Conditions of Participation for Hospitals, Condition of Participation: Medical Records (42 CFR 482.1), specify that hospitals must use a system of record maintenance that ensures the integrity of the record's authentication and protects the security of all record entries. The Federal Rules of Evidence 803 (6) allow for the admissibility as evidence of records made and maintained in any form in the regular course of business.

The legal health record is often required for follow-up care, billing, audits, quality assurance, legal requests, or research requests. Very often the source document is required for a specific purpose. The source document is either the original document, copies of the original, or transcriptions certified after verification as being an exact replication of the original document.

Many organizations that have implemented health record document imaging hope to eliminate the need for file rooms by destroying the original documents and designating the scanned record as the legal record. These organizations sometimes find that the end users are unwilling to accept the scanned record as the source document. When state regulations do not recognize the imaged record, organizations are unable to destroy the source documents. To address this issue, work with state regulators to update applicable statutes and revise retention and destruction procedures. Many organizations will destroy the source paper documents after the minimum retention period required by state law while retaining the imaged record (legal health record) for a longer period of time.

Consumer, End-user Acceptance

Within the Electronic Signatures in Global and National Commerce Act (15 USC 7001 and subsequent sections) (E-SIGN) of January 2000 is a proviso that requires the consumer's affirmative consent before the electronic record can supplant a paper record in situations where a statute, regulation, or other rule of law requires that information be provided in writing. In addition, consumers must be provided with a statement regarding their consumer rights under the E-SIGN law.

Ultimately, consumer and end-user acceptance is key to the establishment of the scanned health record as the legal record. Entities wishing to designate the document imaging system EHR as their primary source legal health record must ask themselves, "How do we instill consumer and end-user confidence in the electronic format?"

Steps can be taken to ensure and validate that the scanned record is a true and accurate reproduction of the source document. Consider the qualities of the paper record that make it as acceptable as the source document: reliability, accuracy, and non-repudiation. Can the same qualities be incorporated into the scanned document? The following list provides the defining characteristics of a legal health record:
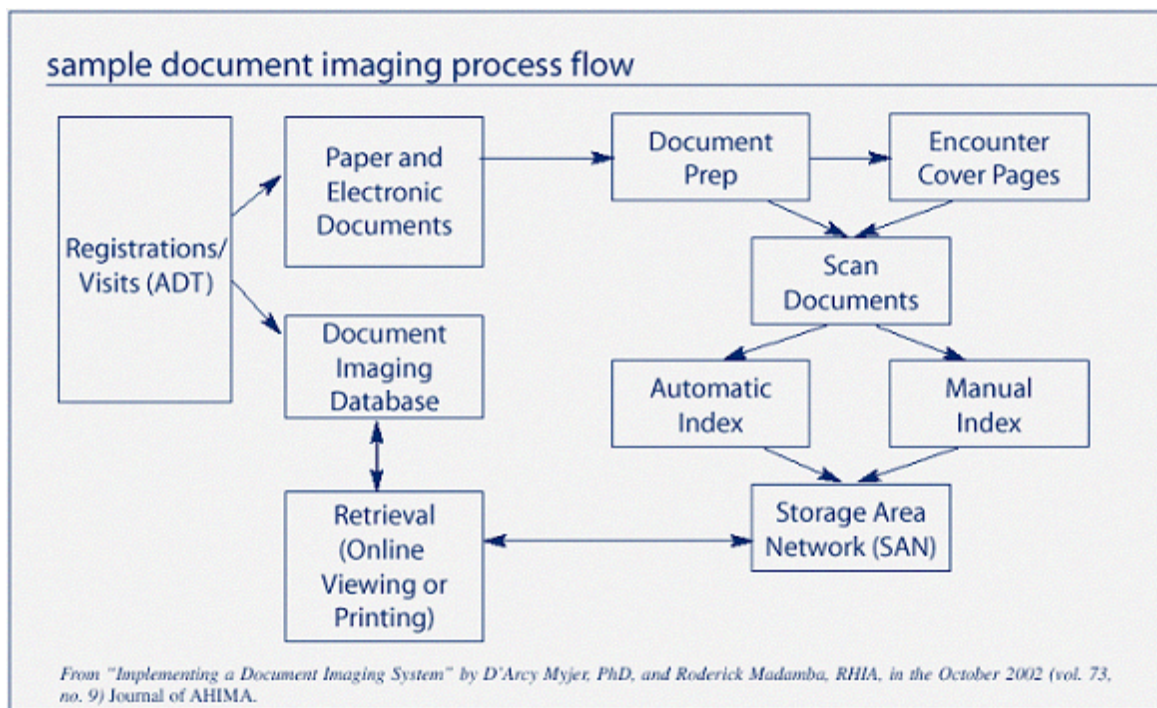
- The record is created in the normal course of business
- The individual responsible for recording the entry authenticates medical record entries
- The record is protected from alteration and tampering
- Amendments and corrections are made according to industry standards
- The organization adopts a policy statement that the scanned record is a legal, archival record (as opposed to the original documentation)
- A scanning quality management program is created and strictly adhered to by the organization
- A functional system back-up and disaster recovery program is implemented. Back-up copies of the data are securely stored off-site. The back-up and disaster recovery process is certified to ensure that all data can in fact be recovered
- Direct electronic interfaces from ancillary systems such as radiology, pathology, laboratory, and transcription to the document imaging system will eliminate the need to scan documents and integrate data from department systems
- A minimum set of data should be required for indexing scanned health information
- Storage media used and format of the scanned documents must protect information from loss and damage
- The storage format must be efficient, manageable, and in compliance with laws and regulations
- System security should be consistent with the HIPAA final security rule and current industry standards
- Health records that are not considered official business records for the healthcare provider should not be scanned and made a part of the scanned health record
- Access to the scanned record should be carefully controlled and limited to a need-to-know basis

Once laws and characteristics have been evaluated, it is critical that organizations develop or update their policies designating the scanned health record as the legal health record regardless of whether the paper record is still stored for a period of time.

Document Imaging Process

The work flow in the HIM department changes significantly with the implementation of a document imaging system. The imaging system can be set up to capture clinical information from EHR documentation applications, transcription, lab, radiology, and other departments throughout a patient's encounter based on communication from the admission, discharge, and transfer system.

Once remaining paper records come to the HIM department, the first step is to scan the documents to provide access online. The functions and flow of a traditional HIM department change as these new processes are implemented. (See "Sample Document Imaging Process Flow")

sample document imaging process flow

From "Implementing a Document Imaging System" by D'Arcy Myjer, PhD, and Roderick Madamba, RHIA, in the October 2002 (vol. 73, no. 9) Journal of AHIMA.

Document Preparation

This step ensures the paper document is ready to scan and has appropriate information for indexing to the appropriate location and patient.

Scanning

Scanners convert information on a paper document into a digital image that can be accessed and viewed by a computer terminal.

Indexing

This step groups like documents and patient information together for access and retrieval. There are enabling technologies that streamline the process by automatically indexing information based on the encounter, form, and patient.

Image Storage

Once the image is captured, it must be stored on electronic media such as magnetic or optical storage. Magnetic storage is more costly but offers faster retrieval than optical, though as technology is enhanced this may change. Organizations often use a two-tiered approach by storing more recent encounter information on magnetic media for a short period of time and then transferring to optical media.

Image Display and Manipulation

Workstations used to display imaged documents should have manipulation features that allow for zooming, reduction, rotation, redaction, annotation, highlighting, and electronic signature capabilities. Consider the size of the monitor for physicians and staff who view imaged documents routinely (coding, analysis, etc.). The larger monitors (19-21 inches) often allow for full-page viewing and multiple applications open on the desktop. Flat screen monitors, although more costly, take up less space in a workstation.

Printing and Facsimile

Decisions must be made about who will be able to print from the document imaging system. Some organizations limit printing of scanned documents to the HIM department to control disclosure. Facsimile management can also be used to automatically route information in and out of the document imaging system.

Enabling Technologies

When assessing software vendor functionality, look for the following technologies to increase efficiency and productivity:

Automatic Indexing

Efficiencies can be gained when the imaging software program has the capability of automatically indexing (grouping) patient information to the proper encounter, patient, document type, and sequence once a page is scanned. Developing forms with bar codes will tell the system the document type and location once scanned. Bar codes can also be used for patient identifiers and encounter information.

Work Flow Management

As information is scanned or transferred from clinical documentation systems to the imaging system, workflow management software can automatically route the record to staff for processing. For example, an organization can set up its system to automatically route the record into a queue for coding and analysis once certain types of information have been scanned or transferred into the imaging system. Workflow software allows organizations to establish the trigger events and sequences that automatically route imaged documents to the appropriate physician or HIM staff member for processing in their organization.

COLD Technology

In today's healthcare environment, it is common to find both clinical documentation applications as well as paper documentation. In order to use the imaged record as the sole legal record, organizations must send documents from different applications to the imaging system. This can be done efficiently using COLD (computer output to laser disk) technology. With COLD, documents are selected from clinical applications or transcription, radiology, or lab systems to be automatically and electronically transferred to the imaging system without human intervention.

New Roles, Responsibilities for HIM Staff

With document imaging, HIM is transformed into a totally automated department. New roles and skills emerge with this transition. HIM directors often find themselves as change agents in their organizations, recreating job descriptions, training staff, working with others in the organization to realign HIM functions, and redesigning the department's workflow to better suit the imaging system.

The positions and skills of the HIM department, from file clerk to director, also change. For many positions, skills must be upgraded and pay scales reevaluated.

Organizations that have implemented a document imaging system find that the conversion takes time. During the transition period, staffing may increase rather than decrease. Once the conversion has taken place, most organizations report a reduction in HIM staffing, but the extent of the change varies. The file clerk or clerk level I positions are no longer needed with an imaged health record. Many file clerks are able to update their skills to prepare or scan documents.

Because the transition takes time, natural attrition can also be used to eliminate a position or replace staff with appropriate skills. See "How Imaging Changes the HIM Department" for a look at a traditional department before and after converting to a document imaging system.

how imaging changes the HIM department

How does document imaging implementation change the structure of a department? Here's an illustration of how some HIM positions might evolve during this transition.

Position	Preconversion	Transition Period	Postconversison
HIM Clerk, Level I	Yes (file clerks) - filed records, loose reports, pulled charts - some assembly	Yes (gradually decreasing)	No
HIM Clerk, Level II	Yes - ROI clerk - outsourced ROI - discharge analysis - physician/physician - incomplete combined with physician	Yes	Yes - ROI clerk handles most requests; outsourcing reduced significantly - discharge analysis (streamlined—process incomplete)
Follow-up Clerk	No	No	Yes - ensures the documents are flowing appropriately along workflow thread
Forms Coordinator	No	No	Yes - ensures all forms go through the proper process for approval and implementation into the imaging system
Imaging Specialist/ Scan Clerk	No	Yes	Yes - prepping, scanning, and indexing documents - quality control - many "Clerk Level Is" able to move into this position
Implementation Specialist	No	Yes - temporary position for implementation tasks	No
Lead Clerk (evenings)	Yes - handle scheduling and work direction for evening clerks	Yes	No (functions taken on by evening supervisor)
Supervisor(s)	Yes	Yes	Yes - professional staff available for training, troubleshooting, and other projects
Director/Manager	Yes	Yes	Yes

Based on "The HIM Department in Transition" in "Document Imaging, Workflow Restructure Department" by Therese McCarthy, RHIA, and Marlene Johnson, RHIA, CPHQ, in the September 2002 (vol. 73, no. 8) *Journal of AHIMA*.

ANSI/AIIM Standards

The American National Standards Institute (ANSI) and the Association for Information and Image Management (AIIM) published standards related to document imaging and implementation. Although technical in nature, they are a valuable resource for organizations considering document imaging. The following list is a subset of standards available for purchase by going to www.techstreet.com and searching by document number:

- ANSI/AIIM MS52-1991, "Recommended Practice for the Requirements and Characteristics of Original Documents Intended for Optical Scanning."ISO Related Document: ISO 10196
- ANSI/AIIM TR15-1997, "Planning Considerations Addressing Preparation of Documents for Image Capture Systems."ISO Related Document: ISO 12652
- ANSI/AIIM TR17-1989 (A1992), "Facsimile and Its Role in Electronic Imaging."
- ANSI/AIIM TR19-1993, "Electronic Imaging Output/Display Devices."
- ANSI/AIIM TR27-1996, "Electronic Imaging RFP Guidelines."

- ANSI/AIIM TR29-1993, "Electronic Imaging Output/Printers."
- ANSI/AIIM TR32-1994, "Paper Forms Design Optimization for EIM." ISO Related Document: ISO 12029
- ANSI/AIIM TR35-1995, "Human and Organization Issues for Successful EIM Systems Implementation." ISO Related Document: ISO 14105
- ANSI/AIIM TR40-1995, "Suggested Index Fields for Documents in EIM Environments." ISO Related Document: ISO 12028
- ANSI/AIIM MS52-1991, "Recommended Practice for the Requirements and Characteristics of Original Documents Intended for Optical Scanning." ISO Related Document: ISO 10196
- ANSI/AIIM MS55-1994, "Identification and Indexing of Page Components (Zones) for Automated Processing in an EIM Environment." ISO Related Document: ISO 12028
- ANSI/AIIM TR31/3-1994 (R1999), "Performance Guidelines for Admissibility of Records Produced by Information Technology Systems as Evidence—Part III: Implementation of Performance Guidelines for the Legal Acceptance of Records Produced by Information Technology Systems."
- ANSI/AIIM TR32-1994, "Paper Forms Design Optimization for EIM."

Organizations that have made the transition praise document imaging as a system that improves efficiency and productivity and solves problems with access, filing, and retrieval. If your organization is considering a document imaging system, AHIMA has published a number of articles that provide insight and guidance. The articles are available in the FORE Library: HIM Body of Knowledge and were used to develop this practice brief. The authors and contributors to these articles are in the forefront of our profession as they gained new skills and explored new territory for HIM.

Making the Transition from Paper to Imaged Health Records

There are many considerations and steps in developing and implementing a document imaging system.
This checklist provides a guide to critical issues.

1. ☐ Determine long-term goals for implementation of the EHR. Determine how document imaging will be used as a bridge to the EHR. Work with the IS department in short- and long-range planning

2. ☐ Develop teams to analyze various steps in the process such as:

    - vendor analysis and selection
    - integration with current applications
    - implementation strategies
    - training and personnel issues
    - transition issues
    - workflow management
    - technical support

3. ☐ Select imaging vendor

    - develop functionality needs and request for proposal (See "Document Imaging and Workflow Technology in Healthcare Today," available in the FORE Library: HIM Body of Knowledge) for guidance on functionality
    - determine storage approach (magnetic or optical)
    - determine implementation approach (incremental, soft launch, or "big bang")
    - make policy revisions or develop new policies

4. ☐ Develop or revise the legal health record policy to identify the scanned image as the legal health record

5. ☐ Determine record retention and destruction policies for paper documents and scanned images

6. ☐ Develop and implement a quality assessment system and controls to ensure the integrity of the image. For example, you may monitor the work of a new scanner by double scanning documents for a period of time to ensure readability and accuracy. You could set up a system of monitoring every 100th document that is scanned. Because coding and analysis review key documents, monitoring for quality and accuracy could be built as an expectation. Some software programs may assist in monitoring and quality control by providing reports on:

   - number of documents and pages scanned per day for each scanning operator ID
   - number of records and documents in the current quality check (QC) backlog
   - number of documents quality checked per day for each QC operator
   - number of documents and pages that had to be rescanned per day and why

7. ☐ Examine ADT feeds to initiate a patient encounter automatically in the system:

   - multiple hospital
   - account number
   - patient type
   - date of service

8. ☐ Develop interfaces between key systems:

   - lab
   - radiology
   - dictation
   - pathology

9. ☐ Determine indexing approach, impacting retrieval, and imaging. What will be indexed automatically versus manually? What information will be used in the indexing process (i.e., encounter, patient identifiers, document types, etc.)?

10. ☐ Evaluate forms review process (naming, formatting, and bar coding) and revise. Improving, formalizing, and enforcing the forms review and approval process is critical with a document-imaged system. Forms must be in a color that will scan properly (preferably black and white), there must be appropriate margins, and location of bar codes and patient identifier information must be consistent. To ensure that similar forms are grouped and in proper sequence for a patient encounter, all forms used in the organization should be identified. Unnecessary forms should be eliminated or consolidated

11. ☐ Implement a new scanning operation for the HIM department addressing:

   - document preparation area
   - scanner placement, power supply, air-conditioning, and air circulation
   - indexing PCs and configuration
   - destruction or storage of scanned images
   - staging area for completed documents
   - staff training

12. ☐ Address retrieval demands (online versus printing) including:

   - online/printing policy
   - print to colored paper
   - examine printer technologies/maintenance contracts
   - release of information and patient account operations

- paper storage
- shredder bins
- staff training

13. ☐Evaluate desktop, type of client, and operating systems:

- type of equipment and monitor size
- field service support
- PC leases and maintenance

14. ☐Evaluate HIPAA and security compliance:

- security structure
- record and document lockdown
- access control
- audits
- timeouts

15. ☐Organize paper-to-scanning operational transition:

- department organizational structure
- staffing analysis (title, retraining/new skills, and salary structure)
- new job descriptions, titles, and roles for department positions
- management structure
- manager on call (coverage during day and evening shifts and role)
- new HIM department policies and procedures
- need to maintain dual systems and for how long

16. ☐Organize marketing, public relations, and support efforts in the organization

Based on "Document Imaging Implementation Checklist" in "Implementing a Document System."

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