

Defining an EMR and HIE Strategy for Medical Imaging

Four Pillars of the Enterprise Medical Imaging Repository

Defining the EMR

Across the globe, today's healthcare organizations are seeking to deliver a robust EMR that's accessible from multiple points of care. It's what their patient and medical communities are loudly demanding (and no doubt, yours as well)—with the goal of gaining increased access to patient medical records, and enhanced capabilities with the records themselves.

However, for all the resources you may have brought to the creation of a comprehensive EMR, there is one vital component that is often overlooked: feature-rich, easy access to integrated, patient-centric, archived medical imaging records.

Agfa HealthCare offers the solution. We help ensure that your medical professionals have access to the comprehensive tools they need in order to arrive at a confident, timely diagnosis. To understand Agfa's solution, let's first take a look at the components of an EMR.

A CIS is not an EMR. If your organization is like many others, you may be equating EMR capabilities with a Clinical Information System (CIS) vendor, such as EPIC, Cerner, or a similar provider. These systems offer you a wide array of integrated, patient-centric applications that deliver departmental functionality for ordering, scheduling, patient documentation, and reporting. Most certainly, your CIS also contains a Clinical Information Repository, an even more important element in terms of defining the EMR.

Understandably, since the CIS is often your users' primary entry point into the clinical information record, they may define the CIS as the EMR—with no point of differentiation between the two. But a CIS alone does not create an EMR, since it doesn't house all the required data to create a longitudinal medical record.

The DMS delivers data. To meet the needs of document control, your organization may have also invested in a Document Management System (DMS) such as Documentum, FileNet, or Onbase. In terms of its architecture, a DMS is fundamentally different than a CIS, since its primary function is document control, not departmental workflow.

Quite simply, a DMS is designed to create and manage data that is paper driven and may change over time. In doing so, it provides you with unique capabilities such as revision control rules by document type, author applied access controls, check-in/check-out permissions, document templating, template to database OCR, and so on.

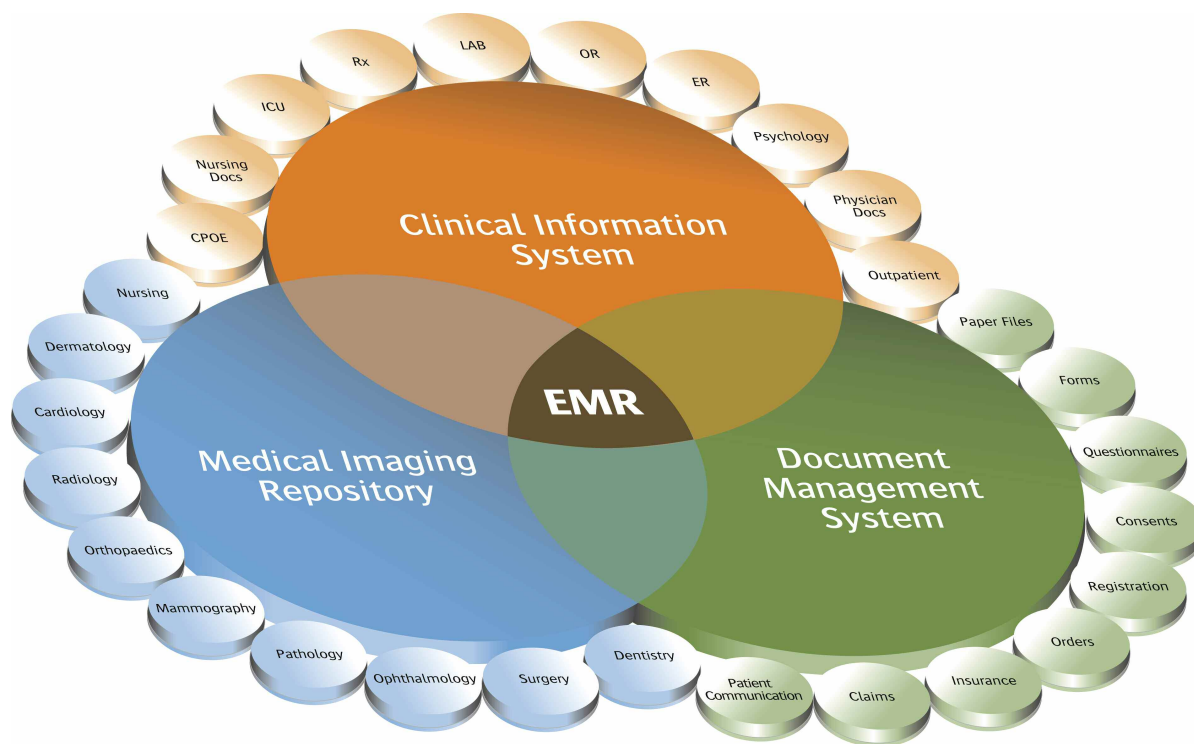
Medical imaging: The departmental divide.

In addition to clinical intelligence and paper-based records, your organization creates Medical Imaging Information, such as images, videos, reports, waveforms, and audio. Typically, this data is spread throughout the enterprise and not centrally managed. In other words, you're probably assigning imaging management and long-term ownership of data to each of your individual departments.

But there are exceptions. For example, perhaps your hospital is integrating your primary radiology PACS and even your cardiology PACS with a robust EMR. However, if this is the case, you may be leaving out the information collected in departments that have less dynamic image management or no specific departmental imaging system at all. (Often, the perceived rationale for less robust capabilities centers on a misunderstanding that universal

sharing of imaging information is intrinsically too difficult to accomplish—as shown in the “perception/reality” chart on page 4).

The need, then, is for a Modern EMR that provides a Medical Imaging Repository and Visualization as core enterprise services—bringing your long-term patient records out of departmental systems and into the IT enterprise alongside your CIS.



Putting it all together. It is these three core medical information management applications that will create your EMR. By selecting the proper vendors, you’ll need only three systems-level integrations to form the comprehensive longitudinal image enabled EMR.

Perceived barriers to including and sharing images across the EMR—and the new solutions that disprove them.

Many “roadblocks” are not real, and others are solved with of IMPAX Data Center

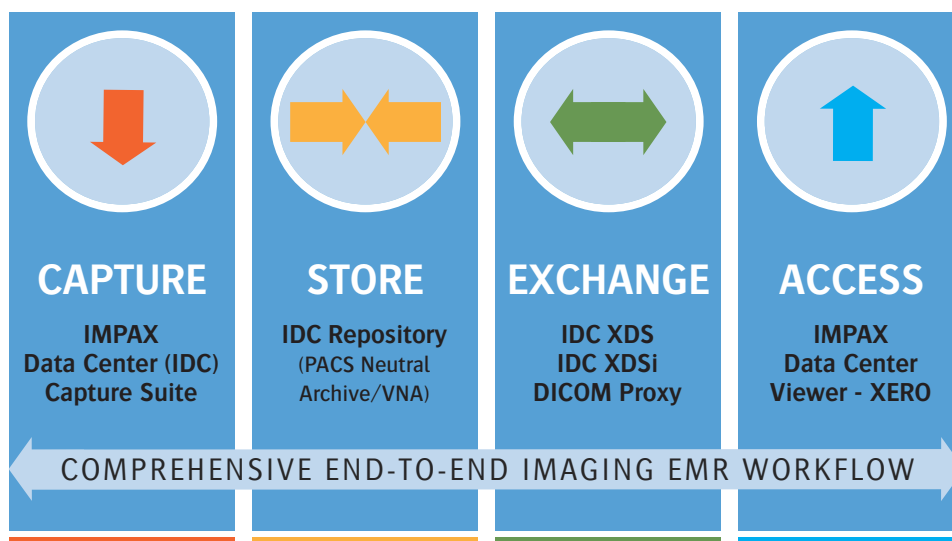
PERCEPTION	REALITY WITH AGFA HEALTHCARE
<ul style="list-style-type: none"> As composite binary objects, images are unwieldy to manage. 	<ul style="list-style-type: none"> DICOM defines both the content and protocol, making interoperability more feasible today, than many other clinical domains with only text-based content.
<ul style="list-style-type: none"> Viewing images means downloading a viewer to desktop PCs, and the rollout is time-consuming and problematic. 	<ul style="list-style-type: none"> Using an AJAX/HTML5-based viewer and standards such as DICOM WADO, images may be viewed securely without requiring a viewer to be installed on the client.
<ul style="list-style-type: none"> Users only need the text report. 	<ul style="list-style-type: none"> Images add important context in support of the report—and the report is not always complete and available, making the images useful in the meantime.
<ul style="list-style-type: none"> Images are large files and take too much time to move around. 	<ul style="list-style-type: none"> A well-designed DICOM interface can support the storage of hundreds of objects a second, and by using DICOM WADO and plain JPEG image renditions, images can be viewed with a fraction of the file size being transferred.

FINDING A COMPLETE MEDICAL IMAGING REPOSITORY SOLUTION

When you’re creating a comprehensive Medical Imaging Repository, it needs to provide a broad array of services that go far beyond simply “storing an image”. That’s precisely why IMPAX Data Center from Agfa HealthCare is such a superior solution than “big box” storage. It’s the Enterprise Medical Imaging Repository that delivers the diverse array of multi-faceted services your organization needs—all built upon four essential pillars that can put a complete longitudinal imaging record at your fingertips.

THESE ARE THE ABILITY TO: •Capture •Store •Exchange •Access

Four Pillars of the Enterprise Medical Imaging Repository



CAPTURE:

Bridging the gap. In departments outside Radiology, you may not have all the necessary mechanisms in place to accurately and efficiently identify patients or describe the medical study being performed—not to mention trying to integrate these procedures with your key departmental or enterprise Health IT systems. Fact is, when you lack these core capabilities, you’re facing the single most significant challenge to a holistic approach to imaging. It’s what prevents your Enterprise Medical Imaging Strategy from being realized, and the EMR from fulfilling its given role.

Due to these gaps, the ideal Enterprise Medical Imaging Repository needs to provide you with a broad array of departmental level services. It must create a comprehensive Capture solution to meet each of your departments’ requirements, while providing any number of departmental services based on how the departmental imaging studies are to be integrated to the patient record (such as whether or not the images will subsequently be matched to associative reports).

These services include:

- Web-based Ordering
- Web-based Scheduling
- Exam/Study Identification
- Modality Worklists
- Patient Pick Lists
- Accession Number Generation
- Patient Demographic Validation
- Patient Demographic Updates
- Image Conversion
- CIS Notification
- Revenue Capture
- Other Services

Integration and automation. Furthermore, in order to create a medically-relevant Capture solution, your Medical Imaging Repository must provide deep integration with other Clinical Systems through common mechanisms such as HL7, ADT, ORM, and URU. It must also tread lightly on your current departmental processes, automate the capture process, and avoid the possibility of error by eliminating manual demographic entry.

To meet these requirements, Agfa offers you its IMPAX Data Center Clinical Capture Suite and IMPAX Data Center Hub Services. As you'll discover, they go hand in hand with Agfa's multiple decades of experience in departmental workflow, interfacing, and multi-vendor integration—all essential components for assuring that your multi-departmental imaging Capture projects will prove to be a success.

STORE:

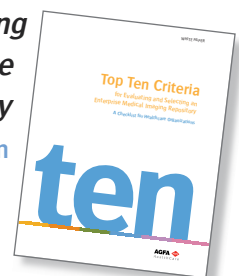
Key capabilities at the core. As you establish your core EMR components, you need a Medical Imaging Repository that is highly available and massively scalable. It must also provide you with advanced Business Continuity options in the event of disaster or interruption, such as multi-datacenter configurations with auto-failover capabilities.

Additionally, you'll need an Enterprise Medical Imaging Repository that functions as a Vendor Neutral Archive (VNA) and has key capabilities such as:

- PACS Vendor Neutrality including Tag Morphing and Patient ID Localization: the imaging archive is agnostic to specific PACS solutions and can serve in environments where PACS and imaging systems may change over time
- Standards Based: is not limited to storing proprietary data formats
- Standards Compliant: closely follows IHE, HL7, and DICOM standards and frameworks
- Multiple Imaging Department Support: service is not only to radiology and cardiology, but to multiple points of image acquisition and utilization throughout the enterprise
- Storage Vendor Neutrality: reduces both cost and risk over time
- Multiple Patient ID Domain Support: requires proper integration of the medical image archive, EMPI and imaging viewers
- Information Lifecycle Management: a medical image archive vendor should work with a customer to clearly understand organizational RM policies and organizational objectives, and to jointly craft a solution where the benefits of ILM outweigh the costs

IMPAX Data Center provides all these capabilities and more. As a pioneer in medical imaging technology, we offer you archiving solutions that set the industry standard and establish a benchmark by which all enterprise imaging vendors are measured.

For more details: To learn more, take a moment to download the informative Agfa whitepaper: ***Top Ten Criteria for Evaluating and Selecting an Enterprise Medical Imaging Repository*** at www.enterprisevisualization.com



EXCHANGE:

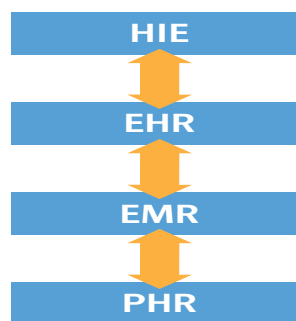
Four key classes. The ideal Enterprise Medical Imaging Repository will not only Capture and Store your imaging information, but also to facilitate sharing of imaging information to all authorized caregivers and even the patients themselves.

Sharing patient information can occur at many different levels within and outside the organization at which the data was created. Because of this, a complete Medical Imaging Repository needs to support the four key patient medical record classes:

- HIE, for sharing across regional, state, or national networks such as the NHIN
- EHR, for sharing across multiple facilities within a single affiliated health network
- EMR, for sharing across IT systems at a single health facility, and
- PHR, for sharing with the patient directly

The IHE imperative. To facilitate the effective sharing of diagnostic images, you'll want an Enterprise Medical Imaging Repository that supports Integrating Healthcare Enterprise (IHE) profiles. This ensures that your solution will make good on the industry-wide IHE initiative by healthcare professionals to:

- Dramatically improve the way computer systems in healthcare share information
- Promote the coordinated use of established standards such as DICOM and HL7 to address specific clinical needs in support of optimal patientcare
- Make it easier to implement effective systems solutions and use all available data



The best of built-in support. The IMPAX Data Center is designed with IHE support built in. Specifically, it supports important profiles such as Cross Enterprise Document Sharing (XDS) and Cross Enterprise Document Sharing for Imaging (XDS-I.b), both of which have been rigorously vetted at various IHE Connectathons.

These Connectathons provide a detailed implementation and testing process to promote the adoption of standards-based interoperability by vendors and users of healthcare information systems. The net result: When you use IMPAX Data Center, you're assured of multi-vendor support.

IMPAX Data Center also performs:

- XDS to DICOM
- DICOM to XDS
- IHE PIX for multi-patient domain patient ID cross-referencing, and
- IHE ATNA as a standardized audit record repository

In every case, Agfa's IHE compliance is a reliable way of assuring adherence to established standards—and of guaranteeing you maximum interoperability.

ACCESS:

Unique and universal. The final and arguably most important pillar of a complete Enterprise Medical Imaging Repository is the ability to provide your users with universal access to the longitudinal patient imaging record. It's worth noting that access isn't simply defined as displaying an image—rather, it's also about how and where medical imaging data is accessed.

This broader definition is based on a simple supposition—namely, that the complete patient imaging record should be available at all points of care on your patient care continuum, and not limited to a particular location, application, or workstation.

The IMPAX Data Center Viewer (IDCV) makes this type of access a reality. It's the medical image viewer that uses Agfa HealthCare's Web 2.0 technology platform to provide you with ubiquitous access to imaging information on a variety of web enabled devices—-independent of location.

Web 2.0 = XERO™. Specifically, the viewer is based on our innovative XERO™ technology, so zero client software installation and zero plug-ins are required. There's no need for you to rely on Flash, ActiveX, Silverlight, Java, a DLL, an EXE, or any other browser based plug-in to enable the user interface to operate correctly.

Quite simply, the only things that your enterprise users need are an Internet browser and a basic network connection.

The Agfa access advantage. When your organization uses Agfa technology to provide access to the imaging record, your project is joined with Agfa HealthCare's award-winning connectivity expertise. We focus on addressing your requirements for ease of access, deployment, and management. You also benefit from key features that give you the ability to:

- Scale massively to thousands of concurrent users
- Make the record embeddable directly within the EMR or other host applications
- Maintain platform and browser independence
- Provide real-time dynamic image manipulation
- Display the entire multi-departmental longitudinal record
- And much more...

The conclusion is clear: An effective Medical Imaging Repository should provide you with a viewing technology capable of expanding access far beyond the typical radiology PACS review stations. Instead, it uses a true longitudinal patient record viewer across all of your EMR/EHR enabled workstations throughout your enterprise.

This type of viewing technology can easily and dramatically expand the number of points of care where the patient imaging record can be accessed—bringing the dream of ubiquitous access to images and reports to fruition at your facility and referring physician community.

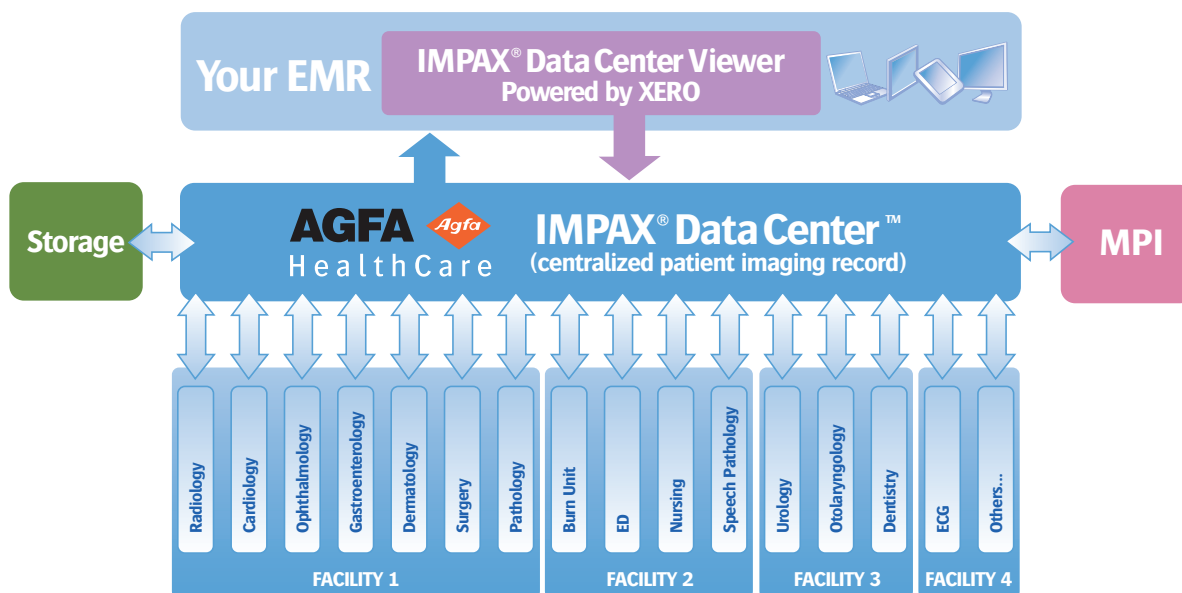
Taking the next step:

IMPAX Data Center—the award-winning family of solutions from Agfa HealthCare—is backed by Agfa’s sixteen years of national health system level imaging repository experience. For you, the enterprise user, we have pre-engineered this technology and knowledge into a comprehensive solution to Capture, Store, Exchange, and provide Access to the longitudinal imaging record.

Unifying the Patient Imaging Record. Requires careful planning and strategic thinking. Agfa HealthCare will help you design a cost-effective plan to reduce the complexity, time, cost, and risk in planning and deploying a comprehensive clinical imaging strategy.

Contact us today for more information and discussion of your network’s needs.

Enterprise Medical Imaging Repository



REGIONAL DATA SHARING GAINING MOMENTUM:

In healthcare organizations everywhere, the effective sharing of patient information is rightly viewed as a critical component to the improvement of patient care delivery. In fact, it is both promoted and required at multiple levels within the recent ARRA and HITECH legislation passed by Congress in 2009. One outcome of this legislation is the creation of the National Health Information Network (NHIN), a U.S. government-sponsored set of services, standards and policies that ensure the secure, efficient exchange of healthcare information over the web. A key standard behind the NHIN is the IHE XDS Profile, which is fully supported by IMPAX Data Center, and:

- Ensures that health information follows the consumer
- Makes data available for clinical decision-making
- Supports appropriate use of healthcare information beyond direct patient care in order to improve population health

Read more about the NHIN and IHE:

NHIN Home Page:

http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov_nationwide_health_information_network/1142

IHE Home Page: <http://www.ihe.net/>

IHE Connectathon Home Page: <http://www.ihe.net/Connectathon/>

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Published by
Agfa HealthCare Corp.
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5R254 US 00201104