Agfa HealthCare’s IMPAX® Data Center™

Meaningful Use of Agfa HealthCare’s Medical Imaging Repository and Enterprise Visualization Solution Using an EMC Infrastructure

A White Paper Solutions Brief

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INTRODUCTION

Beacon Partners was commissioned by Agfa HealthCare (Agfa) and underwritten by a grant from the EMC Corporation to evaluate the Agfa IMPAX® Data Center™ solution integrated with an EMC Information Infrastructure and its direct correlation to the American Recovery and Reinvestment Act of 2009 (ARRA) incentives. In this white paper, we will present our findings of the solution's ability to assist healthcare organizations in achieving meaningful use, thus taking advantage of economic incentives available.
Overview

ARRA was passed as a tool to stimulate the economy through investments in infrastructure, unemployment benefits, transportation, education, and healthcare.

Of the $787 billion stimulus package, $150 billion is dedicated to healthcare investment, with $19 billion targeted at health IT (HIT) adoption by hospitals and physicians.

A portion of these funds ($17 billion) are to be disbursed as Medicare and Medicaid reimbursements beginning in FY 2011.

To be eligible for these temporary Medicare and Medicaid payment incentives, hospitals and physicians have to have in place certified electronic health record (EHR) systems and be meaningful users of such systems.

IMPAX Data Center provides Enterprise Visualization of clinical imaging data, positioning the EHR with a centralized vendor-neutral clinical imaging repository. This solution directly contributes to the Patient-Centric Longitudinal Record that the stimulus package is targeting and the healthcare community is moving rapidly to address.

Together, the ARRA and the Health Information Technology for Economic and Clinical Health Act (HITECH) address four major objectives that advance the use of HIT, including the EHR.

(1) Authorize the government to develop standards that allow for national electronic exchange and use of health information.

(2) Build HIT infrastructure and use Medicare and Medicaid incentives to encourage physicians and hospitals to use HIT to exchange patient information electronically.

(3) Improve efficiency of care and care coordination, help reduce medical errors and duplicate care.

(4) Strengthen federal privacy laws regarding Protected Health Information (PHI).

This background information is important as we review the Agfa HealthCare solution with an EMC infrastructure and its ability to help healthcare organizations achieve meaningful use. With hospitals projected to account for 84% of the forecasted $150 billion in healthcare-related stimulus monies, now is the time for healthcare providers to invest in EHR modules with a supporting IT infrastructure to demonstrate meaningful use.

Agfa’s IMPAX Data Center consolidates standards-based clinical and diagnostic images and their related data into a centralized patient-centric view, streamlining the access to medical images and results for all clinicians through a Unified Patient Record regardless of originating system.

This solution further provides interoperability and leverages Integrating the Healthcare Enterprise (see www.IHE.net) technical framework and supporting a vendor-neutral view to previously fragmented health information across the enterprise.

Imagine the ability to integrate all of the diagnostic and clinical imaging that exist today throughout your enterprise with one solution, allowing a single point of integration for the EHR as well as a single point of care access for all of your specialists, referring physicians and community care providers, unlocking their potential to view patient-centric data in one integrated workflow.
The Agfa HealthCare solution, deployed with an EMC infrastructure, provides healthcare organizations with the ability to eliminate wasted time, effort and expense associated with supporting outdated technologies. IMPAX consolidates multimedia information that supports the EHR, employing a single infrastructure. By having a single manageable enterprise storage and archive solution, healthcare providers realize savings on the cost and resources of maintaining disparate, or siloed, clinical systems. These consolidation capabilities allow healthcare organizations to optimize their data centers, maximize storage assets, improve efficiencies, and increase service levels in concert with a reduction in overall costs.

As your organization deploys a comprehensive EHR, the supporting information infrastructure must provide high levels of availability, security, and automation required for 24x7 care delivery. Agfa’s medical imaging repository as well as its Radiology Information System (RIS), radiology and cardiology Picture Archive Communication System (PACS) applications, combined with an EMC information infrastructure, deliver the performance required as EHR functionality is expanded.

Agfa’s long-standing relationship with EMC results in joint engineering development to integrate, test, and certify applications with EMC hardware, software, and services. Customer support plans with formal problem-escalation policies are established, and Agfa delivery resources receive technical training and certification on EMC products.

With the addition of Agfa’s new IMPAX Data Center Viewer, powered by XERO™*, organizations can streamline medical imaging access and viewing capabilities without a negative impact on end-user workstations or network bandwidth, and without diminishing the capabilities of image rendering and sophisticated image analysis. Agfa’s XERO technology platform has no footprint on the desktop, as it is hosted completely on servers and functions with virtually any browser or operating system. This added solution offering will certainly make desktop support easier and facilitate image distribution, sharing, and exchanging in a way not possible before.

* Note: Work in progress.

**IMPAX - A Case for Meaningful Use**

As noted earlier, for a healthcare provider to qualify for ARRA incentives, the entity is required to have in place a certified EHR and achieve meaningful use. Those healthcare providers that are not compliant by 2015 risk penalties via reduced Medicare and Medicaid percentages. In this section we will delineate the requirements of ARRA and illustrate how the Agfa solution and EMC infrastructure can assist healthcare providers in achieving meaningful use and qualifying for the corresponding incentives available to them.

**ARRA Requirement:** Generate list of patients by specific conditions to use for quality improvement, reduction of disparities and outreach.

A prime example of how the consolidation of clinical imaging data could support this measure is the capture of the percentage of patients over 50 years of age to receive annual colorectal cancer screenings resulting in a similar outcome.

Imaging is now visible across the healthcare community, from documentation of wound care in nursing and non-accidental trauma patients in the ED to GI imaging. IMPAX can consolidate image information across multiple systems and environments, offering a valid source of comprehensive health information.

Patient images and associated data are generated in cardiology, ophthalmology, surgery, dermatology, gastroenterology,
pathology, surgery, dentistry, nursing and other clinical departments in various formats, including TIFF, BMP, GIF, JPEG, AVI, WMV, and MPEG. These types of valuable clinical information have often been trapped in departmental home-grown imaging silos or custom image catalogs located throughout a single facility, healthcare campus, or multi-location healthcare network. Now IMPAX will transform and consolidate information from these varied formats across multiple systems and environments into a single medical imaging standard base that allows the ability to identify, describe, store, query, retrieve, exchange, and use imaging data in ways not possible before.

ARRA Requirements: Implement one clinical decision rule related to a high priority hospital condition … Implement clinical decision support for national high priority conditions.

Because IMPAX can integrate images from many different disciplines and multiple care settings, consideration should be given to the effort necessary to implement clinical decision support with this solution.

This clinical decision support rule related to high-priority hospital conditions dependent on high-cost imaging would certainly benefit from a centralized unified record of imaging history that is both static and dynamic, integrating images from many different disciplines and multiple care settings for seamless access to critical patient-centric health information.

The availability of these images at the point of care will allow clinicians to make crucial clinical decisions about complex conditions and avoid repeat or unnecessary tests for their patients as well as to provide disease-specific outcomes measurement for proactive care.

ARRA Requirements: Capability to electronically exchange key clinical information, e.g., problem list, medication list, allergies, test results, among providers of care and patient authorized entities … Produce and share an electronic summary care record for every transition in care (place of service, consults, discharge).

Physician adoption of EHRs is largely dependent on the availability of pre-populated clinical history and real-time health information. While not specifically mentioned in the capability to exchange electronically key clinical information among providers of care and patient-authorized entities, image data is clearly an important part of the data set to be shared with other providers and will be key in both physician adoption of EHRs as well as encouraging providers to exchange data with others.

This may be done via independent image systems and embedding in EHRs; clearly, however, the IMPAX Data Center and XERO technology approach to providing remote clinician access to images is superior because it is a centralized environment that can both aggregate crucial clinical health information as well as support CIO, CMO, and CFO needs to provide a stable, reliable, and scalable solution upon which to support patient care delivery. A centralized, vendor-neutral solution that enhances IT standards and efficiencies at a lower cost can provide a patient-centric view for faster time to diagnosis.

Image data is incorporated into the summary record that providers receive at care transition points. IMPAX can effectively identify and aggregate all patient image data prior to its being shared with another care setting.

ARRA Requirements: Provide patients with a timely electronic copy of their health information (including lab results, problem list, medication lists, allergies) upon request. Individuals should be provided with a simple and timely means to access and obtain their
individually identifiable health information in a readable form and format.

...Provide patients, on request, with an accounting of treatment, payment, and healthcare operations disclosures.

...Access for all patients to PHR populated in real time with health data.

Healthcare providers are working toward a centralized solution that can aggregate all of the health information necessary not only to support real-time decision making, but also for the exchange of the clinical care documents (patient summary) among providers and integrated with the patient record. This care summary should be made available at the point of care for the patient and the collaborative team with proper patient consents. Patient consents may also be made available through this patient-centric solution.

Without a tool like IMPAX, providers would be forced to build individual image feeds, using separate image viewers, creating a very complicated solution.

Image data is an increasingly important component of a patient's health record. To provide patients access to their image data, IMPAX will be a key technology.

ARRA Requirements: Compliance with Security and Privacy Provisions ... These principles should be implemented, and adherence assured, through appropriate monitoring and other means and methods.

IMPAX features robust security controls, allowing clients to create user authorization profiles (HIPAA 164.312(a)(1)) and meet the need to know standard (HIPAA 164.308(a)(4) (ii)B). IMPAX is auditable; clients using IMPAX will be able to audit image accesses for appropriateness (HIPAA 164.308(a)(1)(ii)D) and create an accurate accounting of disclosures for image data. IMPAX's ability to create and report on access audit trails allows users to monitor and report on access to and usage of image data.

Often, siloed image systems offer limited security options, e.g., in or out authorization, and poor auditability. IMPAX can limit access to only those who need access where authorization can be tightly controlled and usage audited. With all images kept on IMPAX Data Center and XERO servers, security and integrity of image data is improved. IMPAX includes features to improve data integrity (that is, prevent inappropriate changes - HIPAA 164.312(c)(1)), and IMPAX's high availability features help clients comply with HIPAA's disaster recovery requirements.

ARRA Requirement: Persons and entities should take reasonable steps to ensure that individually identifiable health information is complete, accurate, and up-to-date to the extent necessary for the person's or entity's intended purposes and has not been altered or destroyed in an unauthorized manner.

IMPAX data integrity features (prevention of inappropriate changes and creating audit trails of all changes) addresses this requirement. Because image data is a key component of a patient's record, it is imperative that a provider collect, and report on, all accesses of all patient images. Without IMPAX this could be very difficult. Not all image sourcing systems include adequate audit trails, and, even if all independent image stores included this feature, querying all independent image stores and consolidating this information would be complicated.

ARRA Requirement: Provide clinical decision support at the point of care, e.g., reminders and alerts.

IMPAX integrates images from many different disciplines and multiple care settings, providing clinicians with access
information necessary for informed clinical decisions.

ARRA Requirement: Upload data from home monitoring devices.

For home monitoring devices that produce image data, e.g., wave forms or even still photos, IMPAX delivers a means of incorporating these home-generated images into the EHR, providing clinicians access to this information, and aggregating home monitoring data into the patient record.

ARRA Requirement: Achieve minimal levels of performance on quality, safety, and efficiency measures.

While the specific measures to be met have not yet been developed, IMPAX positively impacts providers’ quality, safety, and efficiency. By making a broad array of image data widely available to those who need it, IMPAX strives to assist in the enhancement of the clinical decision-making process in an attempt to ultimately reduce medical errors and prevent duplication of tests. IT efficiencies are gained via the consolidation of platforms and thus decrease data storage systems, systems administration, and systems integration efforts.

ARRA Requirement: Medical device interoperability.

IMPAX’s compliance with the IHE interoperability framework further emphasizes its consolidating force in an IT environment and effectively allows any image-generating device to interoperate within the entire system. IMPAX provides a smooth integration process that will accelerate medical device integration efforts at practice offices and medical facilities across healthcare environments.

IHE is an initiative by healthcare professionals and industry to improve the way computer systems in healthcare share information. IHE promotes the coordinated use of established standards such as DICOM and HL7 to address specific clinical need in support of optimal patient care. Systems developed in accordance with IHE communicate with one another better, are easier to implement, and enable care providers to use information more effectively. - http://www.ihe.net

ARRA Requirements: Multimedia support, e.g., x-rays; access to comprehensive patient data from all available sources.

For a certified EHR to include multimedia support, providers must either interface multiple sources of images and multimedia data or implement a central medical imaging repository, such as IMPAX Data Center, that consolidates all of the disparate multimedia information prior to EHR integration. Note that the requirement is multimedia, not just image data. This requirement ties directly to integrating the EHR, document management, and image (or multimedia) management. Given that hospitals have many independent sources of image data, providing access to comprehensive (meaning discrete, quantitative, document and image), patient data requires inclusion of image data; the requirement of from all sources necessitates capturing and consolidating in a central solution all sources of images, from diagnostic imaging through wound care.

ARRA Requirement: Dynamic and ad hoc quality reports.

Without such a technology as IMPAX, ad hoc reports accessing image data (or image meta-data) would require the nearly impossible task of simultaneously querying and then combining data from multiple disparate systems.

Quality reporting and effective clinical decision support are the cornerstones of the ARRA legislation to effect better patient
outcomes. Physicians will resist EHR technology if it does not provide and support the meaningful collection and distribution of critical patient-centric health information. This technology supports consolidation of disparate health information in one solution.

**ARRA Requirement:** Protect sensitive health information to minimize reluctance of patient to seek care because of privacy concerns.

IMPAX’s sophisticated security capabilities allow provider organizations to implement security rules to protect consistently sensitive image data. Without IMPAX it is unlikely that providers would reasonably be able to include image data in any effort to protect systematically sensitive information.

**Additional Benefits**

Agfa’s IMPAX enterprise visualization solution made up of IMPAX Data Center medical imaging repository and the XERO technology viewer combined with an EMC information infrastructure provides the high levels of performance, availability, security, and automation required for patient care, diagnosis, and delivery.

Healthcare organizations can overcome deployment challenges with server-side computing that allows loading and processing of large images and image sets in a controlled data center environment and enables image viewers to run on existing workstations across modest DSL and cable network connections. This contrasts sharply with traditional client-side computing or even streaming, which requires that organizations send large images and image sets across networks for processing at workstations.

Server-side computing allows organizations to launch securely client-viewing software to specific patient/imaging studies from within EHRs. For example, organizations can quickly benefit from a powerful software application that requires no download, no administrative rights for installation on locked-down desktops and no supporting software frameworks, such as Sun Java, Microsoft .NET, or Adobe Flash. This innovative, unique XERO technology can overcome technical challenges encountered when organizations broadly deploy image visualization services.

An enterprise medical imaging repository is essential for hospitals, multi-facility healthcare campuses and multi-location healthcare networks that want to improve the delivery of patient care by providing clinicians comprehensive longitudinal views of patient imaging records. Such a view requires a robust, secure infrastructure that automates the movement of information for backup, recovery and archiving.

With the latest EMC technologies, including data de-duplication, disk drive spin down and low-power disk drives, healthcare organizations can dramatically lower the cost of disk-based backup versus tape. EMC’s broad set of of hardware, software and services offer faster backups and restores to meet aggressive timeframes and restore key clinical applications to enable 24 x 7 care delivery requirements.

It is our opinion that the Agfa solution with an EMC infrastructure makes a strong case for providers to align tightly their Health Information strategy with meaningful use.

Agfa will enable an improved level of patient care by providing real-time information across the spectrum. An improvement in the delivery of patient care will carry forward to increased patient satisfaction, which in turn will result in improved bottom lines. The ability of providers to access images from a single source, IMPAX Data Center repository and viewer, will result in streamlined clinical and administrative workflows for rapid clinician access to a single patient view for faster time to treatment. Each additional benefit is a win/win/win for the patient, provider, and healthcare facility.
CONCLUSION

The combination of the IMPAX solution with an EMC information infrastructure provides a solid foundation for the alignment with the measures outlined in the ARRA provisions. The Agfa offerings provide a complete medical imaging solution that will be a key contributor in qualifying healthcare entities for ARRA incentives. It is our opinion that the solution provides an efficient IT infrastructure with lower costs for information-driven EHRs, HIEs and Comparative Effectiveness Research. IMPAX Data Center medical imaging repository and Image Viewer combined with EMC hardware, software and services provide healthcare providers with the performance, availability, security and integration needed to streamline their EHR and medical imaging needs. The Agfa HealthCare and EMC solution will help accelerate EHR adoption for timely application of ARRA HITECH Medicare and Medicaid incentives.
ABOUT BEACON PARTNERS

As the largest independent healthcare management consulting firm in the country, Beacon Partners is chosen by organizations in the Healthcare Community to provide expertise in the adoption of information technology to improve overall operational and financial performance. With their strategic approach and depth of experience, Beacon Partners is uniquely qualified to help organizations navigate the challenges in healthcare and optimize their potential to deliver the highest possible level of patient care. This proven approach allows healthcare organizations to maximize their Enterprise Yield™, the alignment of people, processes and technologies, with the important understanding that success depends on the ability to adapt quickly to issues pertaining to clinical transformation, revenue cycle management, interoperability, workflow optimization, EHR implementation and more. As the HITECH portion of the American Recovery and Reinvestment Act (ARRA) of 2009 becomes a priority to healthcare organizations, Beacon Partners’ ARRA expertise helps organizations develop a roadmap that will lead to meaningful user status and maximize available incentives.

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