Options for Application Retirement in an Age Where Critical Patient Data Resides in Legacy Systems

White Paper

GROUP

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Abstract: Modern healthcare systems have been consolidating or growing via acquisitions, mergers, and professional services agreements, in an effort to adapt to new value-based reimbursement models while centralizing their healthcare technology to analyze data and to drive down costs. With high adoption rates, new emerging technologies, and trending reimbursement models, it's not difficult to see that legacy technologies will be casualties of patient-centered models of healthcare. So what is an ideal resolution? Application Retirement Solutions can serve as data repositories for active or retired applications extending the value of the data while the applications may have lost their rate of exchange.

Key Words: Electronic Medical Records (EMR), Electronic Healthcare Records (EHR), Application Retirement, Healthcare Information Technology (HIT)

INTRODUCTION

The American Recovery and Reinvestment Act (ARRA) of 2009, also known as the "Stimulus Program," injected approximately $800 billion into the American economy. About $20 billion of that investment was earmarked specifically for incentivizing healthcare providers and organizations who were late adopters to Electronic Medical Record (EMR) technology.[1] Amongst healthcare providers, there was serious doubt about the benefits of this technology. However, healthcare technology vendors saw this "Carrot and a Stick" incentive program as an opportunity to develop solutions, with an understanding that there were financial penalties for organizations who did not purchase EMR technologies. This mindset sent technology vendors into a frenzy to develop, bolt together, acquire, and rename solution products that ultimately did not fit physicians' needs or office workflows. Now, 6-1/2-half years later, and, according to The Office of the National Coordinator for Health Information Technology, over 75% of ambulatory providers and 95% of hospitals have adopted certified EMR technologies since the program's inception.[2] This data shows signs of significant progress within the healthcare community as the vision of interoperability is being achieved.

Now, compare the growth in technology adoption with other industry trends over the same period. Since the 1996 introduction of the Health Insurance Portability and Accountability Act (HIPAA), the healthcare industry has become highly regulated. The scope and complexity of healthcare regulation has made it incredibly difficult for organizations to adopt new technologies. Compared to other industries, they have been relatively slow to adopt

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[1] The Washington Post Company. Taking Apart the $819 billion Stimulus Package. Available at http://www.washingtonpost.com/wp-dyn/content/graphic/2009/02/01/GR2009020100154.html. Accessed September 19, 2016.

[2] U.S. Department of Health and Human Services. Office of the National Coordinator for Health Information Technology. Certified Health IT Vendors and Editions Reported by Ambulatory Health Care Professionals Participating in the Medicare EHR Incentive Program. http://dashboard.healthit.gov/quickstats/quickstats.php. Accessed September 19, 2016.

technological innovations as a result. But the tide has turned due to the AARA. Modern healthcare systems have been consolidating or growing, via acquisitions, mergers, and professional services agreements aiming to adapt to new value-based reimbursement models while centralizing their healthcare technology to analyze data and to drive down costs. With such high adoption rates, new emerging technologies, and trending reimbursement models, it's not difficult to see that legacy technologies will be casualties of patient-centered models of healthcare. This white paper aims to assist healthcare leaders to understand the options for the Application Retirement in an age where critical patient data resides in legacy systems. We will look at factors influencing application retirement, steps to analyze legacy applications, and best practices in data quality and retention.

EMR DATA MIGRATION VS. APPLICATION RETIREMENT

While the focus of this paper is clinical and medical applications, the technology surrounding Application Retirement solutions is deployable across other various platforms found in healthcare organizations, such as Human Resource, Financial, or Billing applications. However, the emerging field of EMR technologies and the vast strides of innovation that EMR vendors are making, have many healthcare organizations finding themselves uneasy when making the decision to upgrade their current versions of their EMR or switch their systems entirely. Often, organizations will choose the lesser of the two evils and stick with an underperforming, labor intensive system basically because it costs less than to "rip and replace" it with a new system. I have seen many battles between physicians and administration play out in boardrooms. On one side of the battlefield are physicians who are complaining about their frustrations with a system or their inability to see as many patients with the legacy software and demanding to migrate to a new EMR system. On the other side of the trench is an IT or Finance Executive that shoots down the notion of migrating the systems because of the disruption to the organization, staffing needs, or the hit on financial productivity or cash flow. Like a knight in shining armor walks in an EMR vendor boasting that their system will solve everyone's problem. He or she offers a low-cost EMR solution, throws in a free data migration package, and pledges to save the day!

APPLICATION RETIREMENT

Very often "Application Retirement" discusses the process of upgrading an application to a newer version or replacing by another similar product, emphasizing the benefits of upgrading and only minor focus on the decommissioning.

The following different definitions are used in published literature:

- Replacing an old version with a newer version of the same application
- Removing an application which is obsolete and no longer used
- Removing an application because it is replaced with another application
- Removing an application because it is replaced with a module of a bigger application.

Source: http://www.it-checklists.com/Application_Retirement_Checklist.html. Accessed September 19, 2016.

The problem is that once the contract is signed and the implementation project is underway, only then will the organization find out that there is only certain data that can be migrated, or there are limitations to how the new EMR vendor can house the historical data. These hidden system limitations bring on additional burdens for medical staff members since it may mean that while their discrete data migrated into some part of the new EMR, they may also be required to search for non-discrete data in yet another system, which adds to productivity losses for the organization. In instances such as this, it is so important to vet any vendor solution by asking the proper questions before deciding on a vendor of choice.

Contrasting the Data Migration option with an Application Retirement Solution virtually removes the limitations that a "pre-built" EMR system is intended to handle. Since all EMR systems are designed to be proprietary systems configured to achieve their very own features and functionality, it becomes difficult to import foreign data and still expect to achieve the beneficial legacy workflows within the new system. Application Retirement takes a different approach than data migration by consuming all of the legacy system's data and presenting it back in concise discrete formats. Figure 1 is a built-in report showing a patient's historical data.

Figure 1:
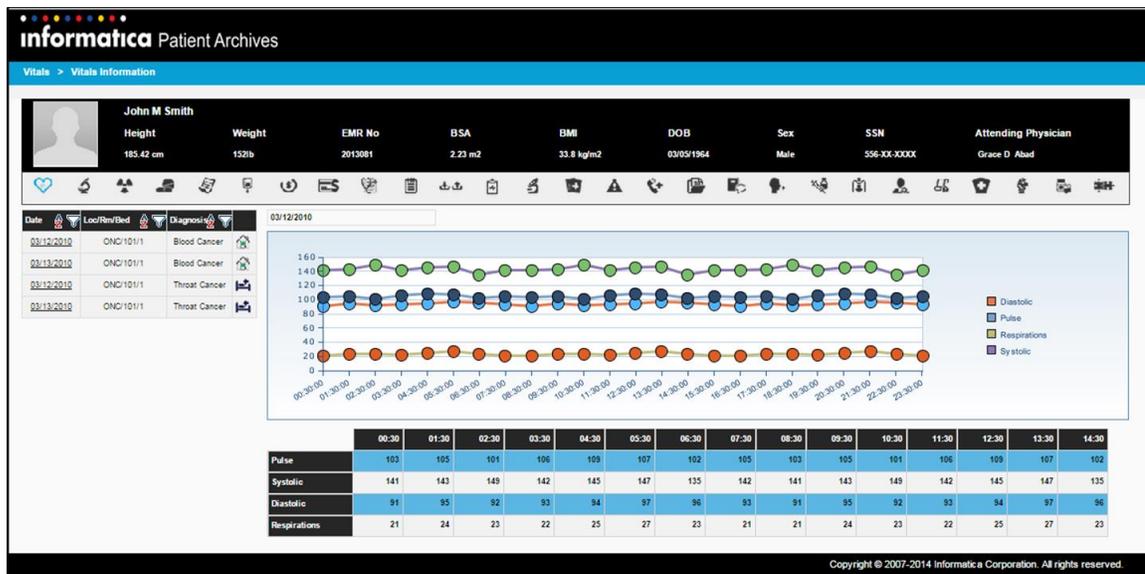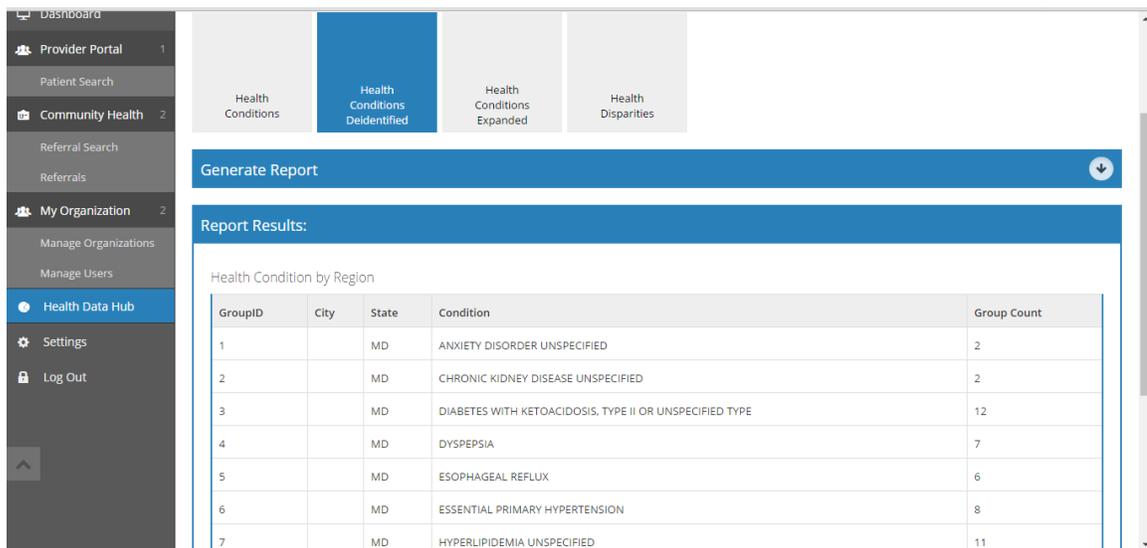**Informatica patient-centric reporting showing patient vitals from historical encounters**

Figure 2:

Electronic Health Network's health condition reporting feature from historical encounters

Dashboard

Provider Portal 1

Patient Search

Community Health 2

Referral Search

Referrals

My Organization 2

Manage Organizations

Manage Users

Health Data Hub

Settings

Log Out

| Health Conditions | Health Conditions Deidentified | Health Conditions Expanded | Health Disparities |

Generate Report

Report Results:

Health Condition by Region

GroupID	City	State	Condition	Group Count
1		MD	ANXIETY DISORDER UNSPECIFIED	2
2		MD	CHRONIC KIDNEY DISEASE UNSPECIFIED	2
3		MD	DIABETES WITH KETOACIDOSIS, TYPE II OR UNSPECIFIED TYPE	12
4		MD	DYSPEPSIA	7
5		MD	ESOPHAGEAL REFLUX	6
6		MD	ESSENTIAL PRIMARY HYPERTENSION	8
7		MD	HYPERLIPIDEMIA UNSPECIFIED	11

ADVANTAGES OF AN APPLICATION RETIREMENT STRATEGY

Taking this a step further, let's discuss the benefits of a large health system that is actively acquiring seven different specialty practices from within their community. In a migration strategy, this would require a 7:1 conversion ratio into the health system's existing EMR. That is seven different data mapping and crosswalk iterations to validate that data is accepted in the EMR's format that is acceptable to the vendor). Some common mappings include medications, allergies problem lists, immunizations, and lab results. Instead of migrating disparate ambulatory EMR systems' data, the health system can choose to deploy an application retirement solution. This strategy will allow multiple systems to become available to the health system seamlessly without constricting the data import functionality of their current EMR system (see Figure 2). Rather than baking data into the existing EMR, there is the opportunity to maximize the value of historical data via an application retirement solutions. This solution would allow for a centralized data repository of several EMR systems and also a standard of interoperability with other software platforms across the health system. Reporting for performance-based reimbursement becomes so much simpler, as retired application solutions will continue to return valuable data back to the organization without risking the loss of workflow performance for the medical staff.

Any application retirement strategy first will require an assessment of the applications considered for retirement.

- Has the application met its return on investment as a tool for the organization?
- How many redundant applications are performing in the same or similar functionality within the organization?
- Are the application and its workflows impacting physician productivity?
- Is the legacy system HIPAA compliant?
- What is the cost of the application skills (consultant/vendor) needed to provide support to the system?

It is under this framework that *Informatica, LLC,* determines an application's retirement eligibility when deploying their Informatica Solution for Application Retirement. Each application retirement process can be broken down into three phases of work:[3]

1. Discover
    - Inventory of Legacy Applications
    - Connect to Legacy Data Sources
    - Discover Metadata
    - Define Archive Rules
2. Archive
    - Create Open, Queryable Archives
    - Validate Archived Data
    - Access Securely
    - Compression
3. Retain
    - Assign Retention Policies
    - Capture Audit Logs
    - Generate Compliance Reports

Another unique opportunity for deploying an application retirement solution in a healthcare organization is the ability to meet state and federal regulations for retaining patient

NATIONWIDE HEALTH INFORMATION

The Office of the National Coordinator for Health Information Technology (ONC) has provided funding for a number of health IT programs, including the development of the **Nationwide Health Information Network (NwHIN)—a set of standards, services, and policies that enable the secure exchange of health information over the Internet**.
Source: https://www.healthit.gov/policy-researchers-implementers/nationwide-health-information-network-nwhin. Accessed Sept 20, 2016.

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[3] Informatica. White Paper: A Practical Guide to Legacy Application Retirement: Archiving Data with the Informatica® Solution for Application Retirement (September 2013, page 7).

data securely. Once housed in a platform that is vendor agnostic for data retrieval, it opens up the door for data analytics across several integrated software platforms. Once again, although an application is retired, the data housed in the retirement application still can be used and integrated across other interconnected applications.

While managing a software integration project for a health system in Prince George's County, Maryland, I was able to discuss such opportunities with Aadli Abdul-Kareem, Managing Partner at Electronic Health Network, Inc. (EHN). Aadli states, "*When retiring legacy applications, we must consider the valuable data housed in the legacy system. The organization should consider various strategies for continuing to have access to the data so that meaningful information is not lost or left inaccessible.*" The Public Health Information Network (PHIN) initiative between the state of Maryland and metro D.C. area hospitals utilizes EHN's Master Data Management (MDM) Platform to access, clean, and deliver data from active as well as retired applications to meet the needs of servicing the community population. Aadli added, "*…the concept of MDM is mastering the data to include data access, quality, modeling, and delivery so that you are able to continue to use that information to have a better understanding of your patient and population. The cleansed data archived in the MDM hub is accessible via multiple methods to include web services.*"

SUMMARY

Application Retirement Solutions can serve as data repositories for active or retired applications extending the value of the data while the applications may have lost their rate of exchange. On the roadmap towards the Nationwide Health Information Network, it is critical that healthcare leaders place emphasis on the data retention, thus empowering healthcare staff to share data across multiple platforms.

Whether your organization is looking to migrate to another technology solution, or a health system looking to integrate, consolidate, or retire applications, Coker Group's expertise in vendor vetting, data analytics, and software implementations gives us a unique perspective to assist organizations of all sizes to solve their technology needs. Please contact Gabriel Harry, Senior Manager, at gharry@cokergroup.com or 678-612-1931, to discuss your needs.

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