System Replacement Impact
on Legacy Data Retention

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Welcome

We are pleased to present *System Replacement Impact on Legacy Data Retention* to share information and serve as a roadmap for healthcare providers engaged in determining and implementing best practices for managing legacy data.

In this paper, we'll examine:
- Data retention exposures when a clinical or financial system is replaced
- Strategies for managing legacy data when a clinical, financial or administrative system is replaced
- The benefits of data archiving to satisfy retention requirements
- Our findings -- how healthcare organizations handle legacy data management after system replacement
- A look ahead at the proliferation of health data volume with a focus on maintaining legacy data

This information is meant to provide a broad overview of general issues and considerations that we encounter in our daily work. It spans hundreds of healthcare providers over the last several years. Your feedback is important to us and we look forward to an opportunity to provide you with a specific consultation for your organization.

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Situation Analysis

Healthcare IT teams today are faced with a growing list of priorities -- all of which compete for their limited time and attention. In addition to the routine support and maintenance of systems, these teams are now called upon to support emerging delivery care models, to ensure systems will meet the next set of requirements in the Affordable Care Act (ACA), and to streamline the overall operational technology mix. So, when the need arises to replace a clinical, financial or other system, it is often difficult to find the time and attention required to successfully pull off such a complex transition -- especially when compounded by a need to make historical data from the legacy system readily accessible.

The focus of this paper is how to successfully incorporate an archive into the healthcare organization to help solve the traditional challenges around system replacement and legacy data management.

There are several events during the course of the healthcare business lifecycle that may call for system replacement, including:

- Merger & acquisition
- Vendor consolidation
- Vendor or product dissatisfaction
- Product sunsets
- Facility closure/relocation
- Provider retirement/death

When a hospital or practice replaces an old system with new, it must consider how the data from the legacy system will be retained. According to state mandates, protected health information (PHI) must be retained for anywhere from 7 to 25 years depending on data and facility type. For large healthcare organizations, it is not uncommon to find 30-40 legacy systems that contain PHI and other data which must be retained to comply with regulatory or internal policy requirements.

Healthcare IT teams are often faced with the ongoing challenges of maintaining these legacy systems. Not only is supporting multiple legacy systems across a variety of platforms a time-consuming and difficult task, but, it also can be quite costly to keep software and hardware support and maintenance agreements current.

This leaves a challenge - what should be done with those old systems being kept around due to data retention policies?

The good news is there are alternatives to keeping the old systems alive and parked in a costly spot in the data center. The planning and prioritization for decommissioning and data migration can be proactively executed. Cost reduction and ROI analysis can drive the priority with which systems should be decommissioned and the data archived.

Data retention exposures and cost implications when a clinical or financial system is replaced

The first step in planning a data management strategy is to review the legal and regulatory mandates for legacy data from a national, state, facility type and accreditation perspective. This may include both patient and employee data. Compliance with HIPAA and numerous other regulations are must-have considerations that every healthcare organization is obligated to consider as they build their plans.

The next step is to determine what data is required, cost effective, or even possible to migrate to the go-forward solution. In clinical data terms, often the last six months of lab data is back loaded into the new system. Our clients face issues like "should or shouldn't we bring forward patient progress notes, problem lists and medications? Will the new vendor allow it? How will it impact our go-live date?" First, prioritize what is needed. Then, determine what data elements can and should be migrated. Legacy vendors -- knowing they are going to lose a client -- are often less than cooperative and have been known to charge the equivalent of "ransom" fees to provide extracts of *your* data. There are alternative resources available to extract and migrate that data.

Once migration is complete, our goal is to offer an easy to use solution which provides quick access to all of the data from the legacy system when needed. This eliminates both the need to keep that old system up and the need to keep staff trained on how to use it. If legacy systems are not decommissioned, the maintenance costs continue to build and historical data would potentially remain segmented in disparate legacy systems.

"We've helped hundreds of healthcare providers - both acute and ambulatory - save their data in an easy to use archive and reduce costs in terms of maintenance, infrastructure and alleviating the additional personnel required to keep multiple legacy systems alive," says James E. Hammer, PMP, Vice President, Product & Program Management at Harmony Healthcare IT.

As the chart below indicates, there are four major considerations to review in terms of managing legacy patient data.

Strategies For Managing Legacy Data

	PROS	CONS
CONVERT DATA	• Data in one system	• High Cost • High Complexity (1 to 1 match) • Quality of legacy data • Lengthier project timeline
MAINTAIN LEGACY SYSTEM	• No initial cost or effort	• 7-25 years (cost and labor) • Risk of system failure • Loss of knowledge over time • Difficult to access and maintain
PRINT OR SCAN	• Lower Cost	• Time consuming • Storage requirements • Difficulty accessing charts • Cumbersome to search
ARCHIVE ELECTRONICALLY	• Lower support costs • Consolidate multiple systems • Easy access to data (search)	• Some costs (but long term ROI)

Convert Data

Sometimes, usually early in the planning process, healthcare organizations discuss the possibility of migrating all historical patient or facility operations data into the go-forward system. The higher cost of this approach, along with the time and potential risk to the integrity of the migrated data, usually rules it out as an option.

Maintain Legacy System

Maintaining the current system in a legacy mode offers some benefits as the current system can be left "as is" however, moving forward, the risks include maintaining an outdated system for as much as 25 years. This could leave the application vulnerable over time for system failure. It can also be difficult to work in multiple systems and there likely will be staff turnover which will leave a gap in the knowledge base of how to operate multiple systems. Vendor costs for maintaining the legacy system over time must also be considered.

Print or Scan

Occasionally, we see our clients' discussions center around converting all legacy data into PDFs for long-term storage. However, this approach is generally not any less expensive than a discrete archive and it may leave information buried in pages and pages making it very difficult to locate required information. User access and audit history is often not available in this approach. Further, if data analysis is later desired, it will be inaccessible within the PDF documents.

Archive Electronically

An electronic archive can be a positive solution on many fronts. Numerous systems can be migrated into one data archive that provides an easy method to search across archived systems. The data is simple to access, and staff training is often less than 10 minutes for new and existing staff members. The ROI includes cost savings over time specifically in terms of maintenance, infrastructure and alleviating the additional personnel required to keep multiple systems alive.

Benefits of Data Archiving

There are many benefits to building a long-term data archiving solution into a healthcare IT portfolio, including:

- Cost Reduction
  Streamlining the long-term storage of historical PHI now will save money in the long-run. Not only will it reduce costs paid for the support and technical maintenance of an antiquated system, but, it will save on training new staff on how to access information over the next 7-25 years.

- Eliminating Risk
  Preserving historical patient data is the responsibility of every provider. As servers and operating systems age they become more prone to data corruption or loss. The archival of patient data to a simplified and more stable storage solution ensures long-term access to the right information when it's needed for an audit or legal inquiry. Incorporating a data archive avoids the costly and cumbersome task of a full data conversion.

- Compliance
  Providers are required to have data for nearly a decade or more past the date of service. Check with your legal counsel, HIM Director, medical society or AHIMA on medical record retention requirements that affect the facility type or practice specialty in your state.

- Simplified Access To Data
  We all want data at the touch of a button. Gone are the days of storing historical patient printouts in a binder or inactive medical charts in a basement or storage unit. By scanning and archiving medical documents, data and images, the information becomes immediately accessible to those who need it.

- Merging Data Silos
  Decades worth of data from disparate legacy software applications is archived for immediate access via any browser-based workstation or device. Also, medical document scanning and archiving provides access to patient paper charts.

REDUCE COST

Legacy System Maintenance

ELIMINATE ISSUES

Data Conversion

MERGE DATA SILOS

Acute & Ambulatory

MINIMIZE RISK

Litigation & Audit

SIMPLIFY ACCESS

Care Collaboration

A key consideration to think about is the value of the data being retained. As planning and implementation takes place – surprisingly – the historical clinical, financial or administrative data is often an after-thought.   Think about the patient who comes in for his or her annual physical and only the last six months of lab data is available. What about the test that was done one year ago to rule out a cardiac issue, but is now buried in a legacy system? Will a new test get ordered just because the old one cannot be readily located and viewed?

Any solution for data archival should be easily accessible from across the go-forward systems. This is not simply for immediate access to individual patient visit history, but for the wealth of value it provides for analytics across an historical patient population as well. Reporting on historical data is a topic often raised after an "aha" moment when it's realized it can't be done because legacy data was archived in PDF format only.

Our Findings

The Harmony Healthcare IT team works with hundreds of healthcare organizations from small practices to major Integrated Delivery Networks (IDNs). We find that many of the challenges, solutions and benefits are similar across the healthcare IT landscape.

Challenges

These are the typical challenges our team encounters in its work across the country.
Do you recognize similar challenges in your organization?

- High cost and complexity to conduct a full/partial data conversion from legacy systems
- Complexity and accuracy of data extraction and mapping
- Trying to migrate and merge data into an existing system where some records already exist
- Complying with ever-changing data retention requirements (7 year minimum up to 25+ years)
- The cost of maintaining legacy systems
- Risks associated with relying on aging hardware to keep legacy systems up and running
- Lack of legacy system expertise as time passes
- Strained relationship with legacy vendor(s)
- Excessive fees and individual vendor contracts containing lengthy timelines and various file formats when dealing with source system vendors to extract data

Solution

Utilizing a single, consolidated archive environment makes sense, because it is:

- HIPAA compliant
- A virtualized solution that is easily deployed into an existing infrastructure, or can be remotely hosted
- Open source architecture to keep recurring costs down
- Easy to access to view or print entire historical records
- A single source for accessing all historical source system data
- A repository for both discrete data elements and scanned documents
- A single vendor responsible for the extraction, and archival of required data

Benefits

The Harmony Healthcare IT team provides end-to-end project management and manages the data extraction from legacy systems. This alleviates the healthcare organization's team or legacy vendor from having to perform this part of the project. Our team keeps the entire process simple.
The benefits healthcare organizations can expect from a data archive include:

- Required data is retained for long-term easy access
- Legacy system(s) decommissioned (saving costs)
- One application to access data from disparate legacy systems
- Lower software support costs
- Lower hardware costs
- Complete ROI averages about 18-24 months

Conclusion and Looking Ahead

The amount of health data is increasing exponentially, which also means the amount of historical data is skyrocketing as well.

A recent report (Dec. 2014) from EMC and the research firm IDC offers a few imaginative ways at visualizing the health information proliferation, anticipating an overall increase in health data of 48 percent annually.[1]

The report pegs the volume of healthcare data at 153 Exabytes in 2013. At these projected growth rates, that figure will swell to 2,314 Exabytes by 2020. To paint a picture, the authors of the report suggest storing all of that data on a stack of tablet computers. By the 2013 tally, that stack would reach nearly 5,500 miles high. Seven years later, that tower would grow to more than 82,000 miles high, bringing you more than a third of the way to the moon.

Healthcare organizations are faced with managing this tremendous amount of data along with an increased demand for real-time access to complete patient records. This is in conjunction with streamlining their application portfolios to decommission legacy applications and keeping protected health data accessible for compliance, research and reporting. It's a tall order for healthcare IT teams and a historical data archive can be an intelligent decision as part of one's overall data management strategy.
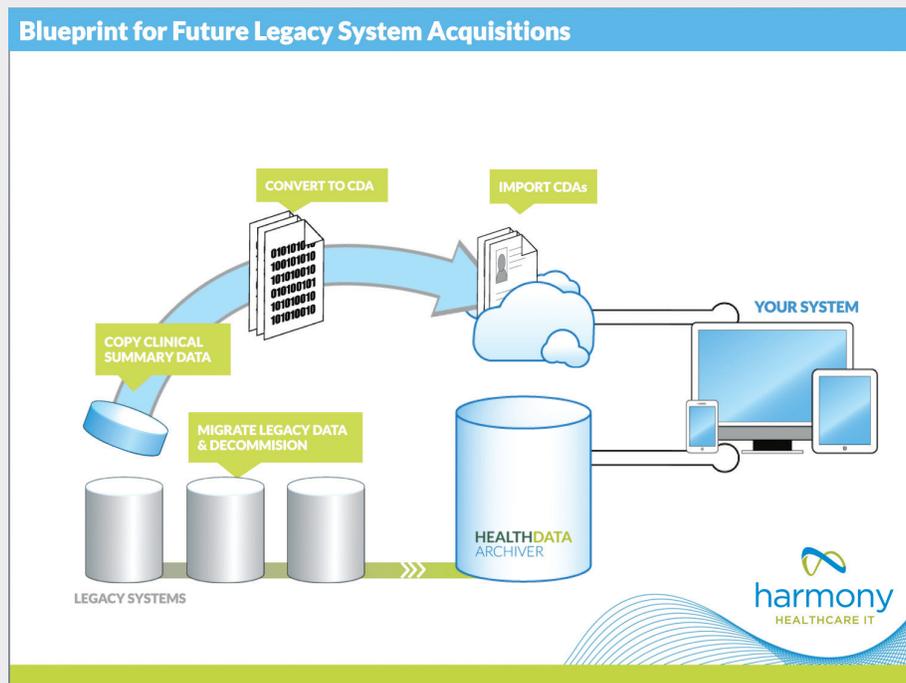
Many healthcare organizations have implemented, or are in the process of working with private or public Health Information Exchange (HIE) solutions that enable numerous healthcare organizations to securely share medical data for their patients. Archived data can be made available to the HIE and further benefit patient care.

1 http://www.cio.com/article/2860072/healthcare/how-cios-can-prepare-for-healthcare-data-tsunami.html

The federal government has incentivized participation in HIEs, offering states grants to form them, and medical providers extra money if they sign on. According to a recent study by University of Michigan researchers[1], patients were 59 percent less likely to have a redundant CT scan, 44 percent less likely to get a duplicate ultrasound, and 67 percent less likely to have a repeated chest X-ray when both their emergency visits were at hospitals that shared information across an HIE.

As healthcare IT expectations continue to evolve with emerging programs like HIE's and other applications for patient and other data, it is even more important to have a strong legacy data solution in place.

Having a solid legacy data archive is a smart step forward in managing historical patient and operational data well into the future. This solution offers compliance with the numerous local, state and national regulations and a single, easy to use solution for historical information. As healthcare systems streamline their go-forward systems to integrated solutions, having a single archive provides an easy, one-stop-shop access to historical records.

Blueprint for Future Legacy System Acquisitions

[1] http://www.uofmhealth.org/news/archive/201401/when-hospitals-share-patient-records-emergency-patients

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About Harmony Healthcare IT

Since 2006, health IT analysts at Harmony Healthcare IT have extracted demographic, financial, clinical and administrative data for hundreds of healthcare providers - both ambulatory and acute. Headquartered in South Bend, Indiana, the company employs experts in data extraction, migration, archival, integration and analytics to provide its clients with trusted and seamless data solutions. Working with hundreds of systems, billions of records and terabytes of data, Harmony Healthcare IT provides clients with access to historical records. Simply.

For more information about Harmony Healthcare IT, visit: http://harmonyhit.com

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