



# Healthcare Content Management: Achieving a New Vision of Interoperability and Patient-Centric Care

Clinical, business and IT leaders come together around a unified approach to capturing, managing, viewing and sharing enterprise information

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### Industry in Transition

The healthcare industry is in the midst of a major transformation, driven by changes in traditional reimbursement models with the goals of reining in healthcare costs, providing incentives for improving healthcare quality and shifting the focus to health and wellness.

Dr. Ned Wagner, chief medical information officer and private practice physician at NorthShore University HealthSystem believes, "These new reimbursement models benefit from the ability to undertake prospective population management of chronic disease and health maintenance preventive measures. Successfully redirecting resources from acute reactive care to prospective panel management requires clinical and business insights based on analytics."

As the healthcare industry makes this transition, patient expectations are also changing. The demand for centralized management and access to healthcare information is increasingly coming from healthcare consumers who want access to their clinical, health and related financial information. As such, there is unprecedented and growing demand upon healthcare organizations to provide the patients they serve with easy access to their information.

Healthcare delivery organizations (HDOs) have taken initial steps toward meeting the challenges of the evolving healthcare environment by adopting patient-focused information systems. Adoption of the electronic health record (EHR) and other clinical systems has accelerated significantly over the past few years in response to incentives and mandates. In some cases, the EHR implementation rush has resulted in a diversity of systems that unintentionally complicates access to the information they manage. While these efforts have digitized significant amounts of clinical information, many forms of clinical and non-clinical content remain inaccessible to these systems, reducing their potential to support the new healthcare operating model.

Despite implementation of the EHR, continuous increases in the volume of healthcare information, persistent information silos and poor interoperability remain common challenges. Limited healthcare IT budgets continue to put pressure on CIOs to determine the most cost-effective strategy for bringing scattered patient information online and making it readily-accessible from within the EHR. Globally, integrating and connecting clinical, health and financial information to include content sitting outside enterprise walls is a critical step towards enabling healthcare providers to achieve objectives in cost control and quality of care. But the promise of healthcare IT can only be realized when the technology implemented provides true data liquidity and interoperability of clinical and business content across enterprise boundaries.

To truly solve these information challenges, HDOs need an approach that is fully comprehensive and goes beyond the EHR to provide access to all relevant content—regardless of location, format or file type. This all-encompassing approach is **healthcare content management (HCM)**. HCM is a new healthcare information management approach to providing a healthcare enterprise with all the technology needed to connect, manage, view and share patient content when and where it is



needed. An HCM approach should complement the EHR, empowering organizations to grow and evolve within the ever-changing healthcare ecosystem while protecting HDO investments in core technology platforms.

### Healthcare Data is a Growing Problem

Healthcare clinical and financial data is growing exponentially in volume, variability and velocity. The ability to integrate this information with clinical IT systems enables true and total visibility to healthcare providers. The opportunity for data mining and predictive analytics to overcome the disparity of multiple systems could be sizable and instrumental in enabling recognition of their full potential.

To date, a fully-integrated healthcare information management solution that captures unstructured and structured clinical, wellness and non-clinical patient content from across the healthcare continuum is lacking. A great deal of information remains locked within functional and departmental silos. The growing need for integrated access to this information opens up a tremendous opportunity to understand and proactively engage a healthcare provider's patient population, among many other benefits. To meet this emerging opportunity, organizations must embrace a comprehensive strategy tailored to the needs of the country, the community, physicians, the organization and its patients.

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Todd Hatton

Associate CIO, Saint Luke's Hospital

The key elements of a successful strategy include capabilities for capturing, managing, viewing and sharing healthcare content inside and outside the core systems of the HDO. By doing this, content is unified in a standards based approach to provide easier access to the right information, to the right user at the right place and time. Attempting to centralize clinical data is not a new concept; it began with the formation of EHRs for structured clinical data, and enterprise content management (ECM) systems for documents and other unstructured content. The maturation of the vendor neutral archive (VNA) is yet another component of a converging content management framework. Despite these developments, unifying the workflow among these systems with that of more isolated legacy systems has remained an elusive opportunity.

A strategy that is built upon technology standards and that brings order and governance to structured and unstructured clinical and financial patient information is a necessity. While EHR systems can help bring order to a patient's clinical record, they are insufficient to satisfy the full range of patient data management requirements. Today's healthcare executives need an integrated healthcare content management approach to meet both the business and clinical demands of an increasingly competitive healthcare landscape.



## Components of a Healthcare Content Management Strategy

A robust healthcare content management strategy addresses the two primary types of information created and used by a healthcare organization: structured clinical data and unstructured clinical, health and financial data. HCM incorporates **document management**, **enterprise medical imaging** and **output management solutions** that unite these types of content to provide healthcare professionals with complete information anytime, anywhere.

To a large extent, clinical information such as lab results, problem lists, admission/discharge documentation, imaging reports, electronic prescribing records and physician consult notes, are given a structured home when in the EHR. On the other hand, unstructured information—medical images, videos, photos, emails, faxes, EOBS, invoices and scanned documents, whether paper-based or digitized—typically resides in department-specific systems, presenting challenges. Much of this information comes from outside the organization, making management complicated and time-consuming. Furthermore, unstructured information lacks standardization in file type and format, making it difficult to pair the content with a patient's records.

An optimal solution should address these issues, facilitating storage, management and access of all information types while connecting the information with the correct patient and employing effective search mechanisms to easily locate it. Likewise, unstructured digital information may have conflicting patient identification information and be in a non-standard format. Robin Kimple, Director, Enterprise Applications, WellSpan Health points out, "Document scanning helped create data standardization that drove more efficient departmental workflow and provided improvements that helped us reduce the cost of doing business," adding that digitizing scanned information "enables the mining and analysis of the discrete data elements included in these documents, enhancing the impact of an ECM on departmental workflow." Managing this disparate information poses a number of unique challenges, particularly in large multi-site and multi-departmental organizations where the flow of information may be limited. Patient financial and business records, typically stored in self-contained financial management systems that may or may not be digitized, often remains inaccessible to enterprise-wide integrated document management systems, such as the ECM or EHR.

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Director, Enterprise Applications, Wellspan Health

An effective healthcare content management strategy can address these challenges in a way that complements existing systems and avoids perpetuating the costly replacement strategies that were common in the past. With HCM, healthcare organizations can unify separate systems under a single umbrella with integrated workflow and access that allows them to locate the information that is critical to their clinical and business practices within the core applications they're already using every day. This is the reality of HCM - a comprehensive enterprise approach that merges ECM content with clinical images and content managed by the VNA.



A healthcare content management strategy, therefore, is required to achieve a fully-integrated healthcare information system inclusive of an enterprise viewer, workflow engine, search mechanism and empowered analytics. This approach enables healthcare business and clinical professionals to dive deeper into understanding their business, their patients and their opportunities for future growth and optimization.

### Benefits of a Healthcare Content Management Strategy

Healthcare providers are increasingly acknowledging that EHRs can contribute to more efficient delivery of quality healthcare. A well-executed healthcare content management strategy works with the EHR to further these efforts by unlocking access to knowledge, eliminating redundancy in duplicate data sources and improving information interoperability across an organization. Ultimately, these efforts enable comprehensive data mining and predictive analytics for extraction of real insights into population health management and organization effectiveness. Organizing and coordinating access to all clinical and back-office information can contribute to enhanced patient outcomes, profitable business growth and greater return on technology investments.

First and foremost, an HCM strategy should be tailored to the needs of physicians and their patients to achieve more informed decisions and treatment plans. Next, HCM can lead to improved ability to analyze costs and readmission rates and to adjust clinical practices to better serve the organization's patient population. This capability of understanding individual patients and how they relate to the entire patient population empowers organizations to transition from purely episodic care to more preventive care.

NorthShore University HealthSystem is a nationally-ranked HDO in Chicago that has begun the journey to implementing a full HCM strategy. NorthShore CMIO Dr. Ned Wagner notes, "The ability to undertake prospective population management of chronic disease states and health maintenance preventive measures requires an understanding of all the information about all of the patients, all of the time."

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CMIO, NorthShore University HealthSystem

As HDOs respond to changing healthcare delivery demands, a healthcare content management strategy can help them operate more efficiently. In some markets, these demands are driving business consolidation through mergers and acquisitions. In these instances, implementing an HCM strategy enables the organization to eliminate redundancy and unnecessary complexity that comes with the merging of multiple, yet similar, information systems and the associated merging data. This helps to reduce the cost of running the merged business entity. The organization would then be better positioned to meet the challenges of a demanding economic landscape and better leverage strategic growth initiatives.



Automating the workflows that surround unstructured content and integrate it into the core systems is another important benefit of an HCM strategy. Workflow integration unlocks information trapped in departmental silos and makes it available across the enterprise. Standards-based departmental IT systems can find new life as secure and available repositories for vital information that completes the historical picture.

New information created by these departments may be better captured in the ECM system but integrating both can ensure vital information is readily available to the caregiver within the patient context without requiring knowledge of the source. Todd Hatton, Associate Chief Information Officer at Saint Luke's Hospital in Kansas City, MO emphasizes, "Our goal has been to centralize clinical information for the care team, eliminating extra steps to access information generated by applications not in the EHR or received as paper. We have also taken this approach for clinical information generated in our legacy EHRs. We believe this offers the clinician the optimal workflow that is both intuitive and efficient, allowing for high quality treatment decisions."

### The Path Toward Healthcare Content Management

Unquestionably, the business of healthcare will become more competitive and more complex. HDOs will continue to feel pressure from changing reimbursement, increased competition and demands from patients for access to their clinical information. Adding to the industry's complexities is the healthcare IT environment that typically exists within an HDO. Confronted with these market and internal forces, it is abundantly clear that the traditional fragmented approach to managing healthcare information will be insufficient in the future.

To implement a successful HCM strategy, organizations must begin with an assessment of what clinical, health and financial systems are currently in place, including billing, scheduling, financial recordkeeping, medical imaging, clinical documentation and document imaging infrastructures. In addition, hospital leadership must gain consensus on which problems to solve and in what order. Only then can the organization understand the scope of the consolidation opportunity and develop a comprehensive roadmap that supports business priorities, opportunity and strategy. Determining whether to initially implement an ECM, VNA or EHR will depend on many organizational factors. Ultimately, organizations should seek comprehensive and integrated workflow, analytics and enterprise viewing solutions that meet their specific needs.

Fortunately, the modular, standards-based systems necessary to facilitate these goals and address content management needs are available today. Lexmark Healthcare provides all the necessary components for a comprehensive healthcare content management strategy, tailoring solutions to fill organizational gaps and facilitate the streamlined sharing of information. A modular approach to securely capture, manage, view and share documents, medical images and patient-related information with core healthcare applications may be just what the HDO needs to integrate its information architecture. The benefits of doing so are manifold - enhanced patient outcomes, improved business fundamentals and greater return on technology investments. HCM should be viewed as a guiding principle for bringing order to information and getting knowledge into the hands of those who need it.

