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Enterprise Imaging Strategy: It's Not About the Archive, It's About the Integration

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In value-focused healthcare, integrated image data is critical

Complete patient clinical data is critical to the value of healthcare delivery — timeliness, context and a complete view of the patient are essential.

Medical imaging has lagged behind other clinical data in its integration beyond the specific department, even though it is in digial form. The valuable data contained within imaging identifies specific pathology, but also offers value beyond initial diagnosis.

New, advanced-capability platforms for storage and archiving help you gain enormous value from medical images and unstructured data of all kinds. With a focus on interoperability and an eye on future needs, the new platforms manage data in a normalized, vendor-neutral form. These new platforms enable integration and analytics that can help with clinical collaboration and population health risk identification and can be used by researchers to better understand patients' responses to treatments.

Archiving images in proprietary formats robs them of their value

Focusing on storage, not value, results in unstructured data, like imaging, that is hard to use for clinical and strategic purposes. Silos of data turn a valuable resource into a dead end, wasting organization time, effort and budget.

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An image archive in the old sense, separate from other clinical data and only kept as a seldom-used reference, is a dead end in a healthcare enterprise.

Instead of focusing on image archiving, you should be focusing on image value.

Today's true vendor-neutral platforms are capable of accessing clinical, operational and financial value from all types of unstructured data and information about the data that is being stored.

"The integration of these platforms into tools for clinical engagement with physicians leads to clinical insights that can lead to preventative care and better clinical assessment of existing conditions," says Charlotte Hovet, M.D., Medical Director at NTT DATA Services, formerly Dell Services.

As population health and value-driven care have become more central to the healthcare continuum, the need has grown for more integrated and effective use of data, including the data contained in images. An archive in the old sense, separated from other clinical data and only kept as a seldom-used reference, is a dead end in a healthcare enterprise. But that's an expensive waste of resources, because the images hold valuable data that can be used in a variety of ways to provide insights that can improve outcomes and lower healthcare costs.

A vendor-neutral platform is critical to integrating images into the broader healthcare data set and using the data the images contain. Once the images are in a vendor-neutral format, they can be easily indexed and integrated with tools for clinical care, including electronic health records and population health analytics.

With an enterprise-wide imaging strategy focused on value rather than storage, your organization can integrate imaging studies with other clinical data for primary diagnostics and broaden their use to gain additional value.

"This expansive view of the value of imaging studies makes your enterprise strategy patient centric and holistic," says Dr. Hovet.

Basic value: less friction in the flow of data

At a basic level of an enterprise imaging strategy, a vendor-neutral platform simplifies integration with EHRs, allowing critical data to flow to the point of care through a universal viewer. As value-driven contracting increases, there is less tolerance for duplication in testing, and a free flow of information to all caregivers is critical. An imaging study that is siloed is essentially an imaging study that is wasted. So a vendor-neutral platform is critical to reducing duplication and providing important data for clinical decision-making.

But that is just the start. Often, a physician needs access to multiple imaging studies from different modalities and visible light images (such as wound care) to make an informed decision about care, particularly if the patient has multiple morbidities. Integrating all the studies with all other clinical data means the clinician has all the necessary information readily at hand. If a study cannot be integrated, it often is ignored. So integration is critical to good clinical decisions and better outcomes.

Advancing value: Using analytics to gain insights, information and knowledge

The advent of image analytics software is opening up a new frontier of value for imaging studies. For example, diagnostic images hold far more data than just the original diagnostic target – they also contain data about secondary health indications that can be identified with a quantified and consistent asessement. The application of machine vision analytics to imaging studies is
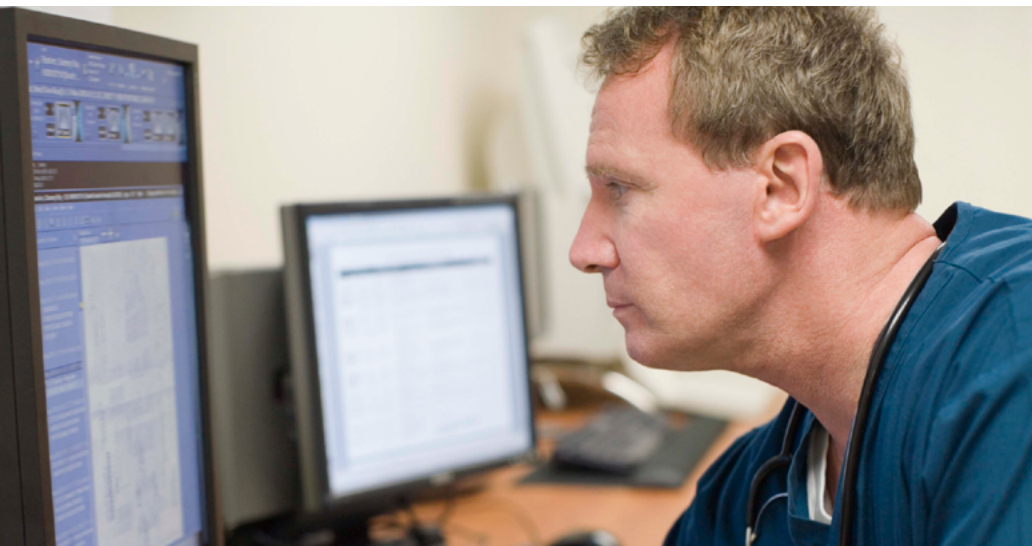
> A vendor-neutral platform enables greater integration and analytics, giving you new insights and value from image data.

empowering imaging services, starting with radiology, to become valuable resources in risk identification and stratification for population health.

Radiology is adopting machine vision analytics that can identify in the pixel data of images indications of the presence of disease even in asymptomatic patients. currently automated algorithms can identify indications of osteoporosis, pulmonary hypertension, emphysema and fatty liver, and provide coronary calcium scores for patient cardiac risk stratification. Beyond providing more information about current studies, the new analytics can use artificial intelligence tools to mine your vendor-neutral platform to recall and review past studies, creating new value from archived medical imaging.

This elevates your stored images from an ongoing expense to a new resource for value-based contracting, and elevates your imaging service from a cost center to a value-add center.

Beyond population health analytics, images are valuable to researchers. For example, scanned images are a treasure trove for scientists trying to differentiate physiological and biological characteristics of patients who either respond or don't respond to a particular treatment. Analysis of stored images can help detect structural differences that may confirm or even predict the efficacy of treatment.

Integration increases value

An enterprise strategy that recognizes the inclusion of all data across the spectrum of uses is critical to success in a value-based healthcare environment. Having image studies and other unstructured data available to integrate with other clinical information allows for recognition of factors that can lead to new insights and more precise diagnosis and treatment. Imaging studies combined with genomic data can provide insights not available with either.

Digital pathology images hold clues to cellular differences that can help predict patient disease outcomes. Automated pattern recognition can cost-effectively identify differences in patient cells that are associated with response (or lack of response) to a treatment. More importantly the ability to integrate cellular images with diagnostic images will help physicians more accurately target treatment to patients.

The bottom line is that value-based care requires an enterprise imaging strategy that addresses the broad view of patient care, not just a single episode of care. From detection of disease with new analytics tools to the capabilities to solve patient-specific and population health problems using stored imaging studies of all types, your strategy should focus on a platform that gives you the flexibility to gain value now and in the future. The pathway forward is continuing to change and thus having an advanced vendor-neutral platform builds the capacity for future problem-solving.

"The days of having single points of data at the engagement of patient care decisions is behind us. No one can predict the many ways that digital data may be important in the future. I strongly believe that a successful strategy for any enterprise must ensure that the broad definition of clinical data, including image data, is aggregated in a vendor-neutral way, is accessible, is highly available and is secure for any new opportunities that arise," concludes Negro.

"When most hospital or health system executives consider image storage, they think about terabytes and how to cost effectively store and manage images as data. But that perspective misses an important advancement in their use. With advanced vendor-neutral platforms, you can move your enterprise image strategy beyond storage and archiving to allow clinicians to gain enormous value from the data those images contain," says Frank Negro, who has been a health system CIO and is now professional services leader, NTT DATA Healthcare Services.

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