Fueled by new technologies, expanding regulations and greater patient expectations, there’s a clinical content gold rush in the healthcare market. Sources and types of clinical content grow at an exponential rate as imaging systems cater to ever more specific modalities and uses. Digital watches, smart phones, internet-enabled scales and other remote-monitoring devices record patient data 24/7 and populate databases in the cloud. Meanwhile, increasingly refined input methods, including voice and improved OCR, enable clinicians to capture more unstructured information about their patients than ever before.

In fact, experts say that electronic healthcare data is growing by about 40 percent on a compounded annual growth rate basis,¹ and each patient who walks in the door will generate about 80 megabytes of new content — comprising discrete, structured and unstructured data — every year.² But for healthcare organizations, turning this data into relevant, actionable information remains a challenge.

This information explosion in healthcare, particularly with images, has trained a spotlight on two often unacknowledged facts:

FIRST, that the electronic health record (EHR) does not contain the whole story when it comes to clinical content;

SECOND, that healthcare continues to create new data silos, making it more difficult for clinicians to get a full, patient-centric view of all relevant information.

This explains a surging interest in vendor neutral archives (VNAs) and enterprise content management (ECM) systems, two technologies that aim to consolidate data from disparate sources, regardless of proprietary vendor formats and file types, and make that data actionable and available for use across the entire healthcare enterprise.

Hyland, creator of OnBase, is determined to help solve these problems. To help evolve its healthcare solutions, it teamed up with HIMSS Analytics to conduct a quantitative study to learn how organizations access clinical content via VNAs and ECMS.

Respondents of the study, fielded in August and September 2015, included CIOs and other key members
of the healthcare C-suite, as well as technologists, clinicians and imaging professionals. Despite the different specialties and professions, strong consensus emerged on one key issue — nine out of ten said that discovering a way to store and access all clinically relevant information was an important priority for their organization (FIGURE 1).

“A lot of people are confused about these terms,” said Robert McClure, senior business consultant with Hyland. “There’s a pure-play approach to VNA — people who want a VNA in order to consolidate their images from different modalities in a single store. But the main reason that others adopt a VNA strategy is access. Clinicians are asking to please make it easier to find all clinical content on a patient.”

Results of the study

Who is using VNAs and ECMs now?

To create a baseline, the study examined the current adoption rates of VNAs and ECMs. Previous estimates have ranged from approximately 33 percent³ to 57 percent⁴ for VNAs, while ECM deployment in hospitals has been estimated at between 20 percent and 30 percent. One reason for the disparity in these estimates is that adoption, especially for VNAs, is increasing annually as hospitals seek strategies to reduce migration costs, centralize storage and improve security for personal health data. But also contributing to the difference is the fact that VNAs and ECMs have not always been defined in a consistent and coherent manner.

The current survey confirmed the confusion with the terminology. Approximately 45 percent of all respondents were unsure if their organization used a VNA. Of the remainder, only 29.5 percent reported that they were using a VNA. Not surprisingly, respondents from larger hospitals were more likely to know whether or not their organization had deployed a VNA, and about 41 percent of hospitals with more than 250 beds reported using a VNA.

“We knew that smaller hospitals have less interest in, and less knowledge of, VNAs, than larger hospitals,” McClure noted. “The line is pretty clear at 250 beds.” Smaller hospitals that reported having a VNA, he added, were most likely part of a larger system that had deployed the solution.
The survey also showed that while imaging and IT respondents were most knowledgeable about VNA status, nearly three out of four clinical respondents were uncertain whether their organization deployed a VNA. The same number — about 75 percent — were uncertain about plans to invest in a VNA. Of the remainder, about 30 percent indicated that their organizations would utilize a VNA in the next two years.

The HIMSS Analytics survey defined ECM solutions as “the strategies, methods and tools used to capture, manage, store, preserve and deliver content and documents related to organizational processes.” Using this definition, 44 percent of respondents were uncertain about ECM status at their organization, while nearly 40 percent of respondents knowledgeable about ECM status confirmed their organizations used an ECM. Meanwhile, half the respondents without an ECM were uncertain about their future plans. Among the other half, 32 percent plan on deploying an ECM in the next two years.

**Seeing the whole picture**

While the survey revealed ongoing confusion about the status of VNAs and ECMs, it also demonstrated that respondents were clear about the value proposition of these solutions. Some 89 percent of all respondents said that discovering a way to store and access all clinically relevant information was an important objective for their organizations. A similar number – 88 percent — strongly agreed that access to clinical data would benefit patient care.

Implicit in these findings, according to McClure, is a widespread belief that even with the high adoption of EHRs, clinicians still aren’t getting the full stories on the patients in front of them. “They still believe they are flying blind,” he said of clinicians. “They’re beginning to know what they don’t know — that 40 percent to 60 percent of all clinical content is unstructured content, not managed by an EHR.”

According to the survey, less than half of respondents (46 percent) pointed to discrete data — the content usually found in an EHR — as the most clinically relevant available. About 36 percent felt that either structured content (such as DICOM files from all diagnostic modalities) or unstructured content (such as pictures, reports and other types of information not normally captured and easily stored or accessed in an EHR) was most relevant (FIGURE 2).

“Healthcare professionals would normally see discrete data as the most important data here in the US,” McClure observed. “But interestingly enough, in Europe and the Far East, OnBase (Hyland’s ECM solution) has become the de facto EHR because structured and unstructured content is considered more relevant.”

Probing further, the survey asked respondents to name the most clinically relevant pieces of information about patients. Many answers to this open-ended question stressed the need to bring together all patient-related documentation:

- “Complete history in patients’ charts. This includes medications and procedures. It is important that every aspect of the patients’ care in our facility be documented.”
- “Easy-but-secure access to all medical information by patients and all relevant medical care providers.”
- “Having all patient information easily available to caregivers, including doctors. Including data from previous encounters.”
- “Healthcare history, history of present illness, diagnostic results, clinical notes, clinical assessments, vital signs, current orders, medication administrations,
allergies, home medication list, healthcare directives.”

- “Past and current history including physicals, lab work, medication, hospitalizations, sickness and family medical history.”
- “Patient care from start to finish, needs the whole picture, not just pieces of care.”
- “Ready access to patient records from across the care continuum. As well as inpatient objective patient data, as well as easy access to documentation of other members of the care team (Nursing, PT, Dietary, Social Services, Case Management, Wound Care, etc.). Ready access to patient-care (best-practice) protocols.”

**Real-world benefits**

The survey also asked current VNA and ECM users to describe the primary reason for their investments.

For VNA users, the top three reasons, in order, were (1) the VNA was implemented as part of a broader IT or clinical content strategy; (2) to integrate an enterprise viewer and EHR to view all clinically relevant data; and (3) to add additional storage independent of PACS vendor for flexible access and future migration (FIGURE 3).

For ECM users, the top three reasons were (1) improved clinical efficiency in patient care; (2) physician satisfaction; and (3) improved clinical workflow.

These users were also asked to provide an example in which having access to the most relevant clinical content helped improve patient care. Summarized, most of the use cases demonstrated that access to all relevant content reduced the need for duplicate tests, enabled clinicians to treat patients more quickly, and avoided unnecessary treatment and interventions.

For instance, one respondent said, “A patient arrived via ambulance with heart-attack conditions. Our team was able to get the patient in surgery from door to table in less than 20 minutes by having all data available to them. The national goal for a [ST segment elevation myocardial infarction] patient is 90 minutes.”

Another noted: “[We had a] recent patient with an abnormal mammography. Clinicians were able to utilize additional clinical content to arrange for the radiologist to come on a day they normally wouldn’t because all indications were that the patient needed the prompt...”
The radiologist was then able to appropriately direct the patient to further same-day care to initiate treatment for a probable cancer diagnosis. Without the relevant information, the patient would have been required to wait a week or more for follow-up imaging and care."

Obstacles on the path

So, when nearly everyone agrees on the major advantages of VNAs and ECMs — their ability to store and improve access to all clinically relevant information — why was there so much confusion about these solutions and how their organizations were using them among the survey respondents?

As McClure pointed out, VNA and ECM solutions often work in the background and not the department-specific tools that many clinical users recognize. “Hyland does six regional user conferences a year for Epic clients and most of them are not familiar with a reference to DICOM,” he said. “And even if organizations have an ECM, it doesn’t mean that it has been deployed for clinical purposes — maybe it’s just been used for back-office functions like Human Resources or HIM.”

In many cases, ECM hasn’t yet risen to the top of a long to-do list in the IT department, with those from smaller organizations citing cost as another barrier while others attributed its “back-burner status” to lack of a champion. Both of these concerns indicate that healthcare organizations need assistance in understanding the long-term ROI of ECMs — given the value these systems provide across multiple domains and departments — in order to provide a rationale for decision makers to make the investment.

Developing a strategy for deployment

“Please make all clinically relevant content available together, in one place, so that we can provide the best care for our patients.”

This seems like a simple request from clinicians. Must the response be so complex?
McClure doesn’t think so. “People often think they need a VNA for EHR integration, but they don’t,” he said. “They may just need an enterprise viewer that can federate sources, serve it up and act as a viewer for DICOM.”

Clearly identifying the goals of the project is a crucial step in the decision-making process. Are the goals more IT-based – for example, to consolidate multiple image archives into one repository? Or is it a more clinically oriented goal, like bringing disparate pieces of content together—images, notes, reports, etc.—and accessing it all in a single, patient-centric view?

Another important decision is whether a project needs to be done in one fell swoop, or if it can be broken into stages. For instance, begin with archiving before moving on to access. Then, once clinically relevant content can be accessed, build workflows to make the content actionable.

“You’re going to have VNAs around for a long, long time. You’ve got vendors making them and some people think that’s all they will ever need,” said McClure, who has been involved with imaging solutions for 40 years. “I don’t think the distinction between VNAs and ECMs will disappear. But people will be asking VNAs to do a lot more in the future than they are doing right now.”

He added that bringing images together in one archive, even if it is “vendor neutral,” is just one step on the path towards uniting all content, regardless of file types, in a single view. The next step is to create actionable workflows to not only produce better outcomes, but improve clinical efficiencies and generate higher physician satisfaction.

For organizations starting on such a path, McClure recommends consulting with a trusted partner, such as Hyland, that can help define the needs to be addressed and design an implementation strategy—one that provides both quick wins and a long-term vision for leveraging the full value of an enterprise content management system.

4 “VNAs find audience, SearchHealthIT survey shows” (January 21, 2015, TechTarget)

About OnBase by Hyland
OnBase is a flexible enterprise content management (ECM) solution that helps organizations manage documents and data to streamline business operations. Integrating with everyday business applications, OnBase provides instant access to critical information when you need it, wherever you are. It is tailored for departments and comprehensive for the enterprise. OnBase gives you what you need today and evolves with you over time whether deployed via mobile, cloud or on-premises.

Every day, more than 1,800 healthcare organizations use OnBase to complete patient records, eliminate reimbursement delays and enhance business processes. Dedicated to meeting the evolving needs of our customers, OnBase was ranked as the 2014 ‘Best in KLAS’ Document Management and Imaging solution and consistently earns high scores for functionality, support and customer satisfaction. For more information about OnBase, visit OnBase.com/Healthcare.