Research identifies roadblocks to realizing the full value of medical imaging

By Jeff Vachon

Healthcare organizations of all sizes across Canada and the United States are increasingly adopting workflow solutions to support business growth strategies, more effectively manage patients, and boost radiologist productivity.

However, many of these solutions have failed to deliver the anticipated cost and quality benefits. An independent research initiative launched by Reaction Data and sponsored by Bialogics Analytics, Inc., sought to uncover why.

To do so, we polled clinical and technical radiology department leaders at leading

healthcare organizations about their current data initiatives, as well as the challenges and barriers to achieving meaningful data use.

Fragmented data silos

Nearly all survey respondents acknowledged that there is significant value in their medical data, however half believed that they were achieving little to moderate value from it.

One of the primary reasons being that most organizations use several disparate IT systems (e.g. the EMR, RIS, PACS, etc.) and applications across the continuum of care. Therefore, it has become crucial to adopt a comprehensive business and clinical intelligence platform that can consolidate all available data into one place and make better sense of the information generated across imaging systems.

Lack of budget and resources

90% of respondents noted that they do not currently use a dedicated business intelligence solution in their radiology practices, citing lack of financial resources and internal expertise as a major barrier.

Most respondents noted that they are limited to ad-hoc manual (25%) reporting of technical operations and clinical analysis by single keyword (44%) searches in individual systems, requiring data to be manually collected and compared.

Not only does this require significant time and effort, but it can be limited in scope and accuracy. Furthermore, it was reported that approximately five to 10 full-time equivalent (FTE) resources are required to manage data analytics initiatives under this model, costing healthcare organizations between $500,000 to $1 million annually.

How to unlock buried insights

Healthcare organizations that invest in data analytics are proven to be more efficient and deliver higher quality care. Such a solution must focus on getting the right granularity of data to the right people at the right time and in the right way so that information is relevant, current, and easy to understand.

A solution that leverages natural language processing (NLP), and augmented by machine learning algorithms, has the ability to automatically extract relevant and actionable insights from within the unstructured, narrative text of radiology orders and reports. Such a solution is significantly less expensive than the aforementioned FTEs, and can yield deeper, more accurate, more complete insights much faster than manual or keyword searches.

Most importantly, a successful deployment of advanced analytics not only provides operational analytics but creates the foundation for business and clinical use-cases to provide ongoing process and quality improvement consistent with the evolving demands for optimized radiology workflow, asset utilization, and outcomes.

Ultimately, this research identified a greater need for a medical imaging data management strategy – one that incorporates a vendor agnostic approach to have a single system to incorporate data form any sources into a single homogeneous system to create cross functional analysis and detailed informational insights.

A data platform that supports business intelligence, and incorporates deep learning knowledge through AI machine learning applications as outlined below, can uncover clinical, operational, and financial insights from across disparate workflows and systems, allowing medical imaging practices to transform the way they do business:

- Vendor agnostic interoperable data platform: Look for a platform that can aggregate

ili:l bialogics

www.bialogics.com
info@bialogics.com

multiple data sources (EMR, RIS/PACS, Scheduling, Finance, Dose Monitoring, etc.) and protocols (DICOM, HL7, FHIR, XML, JSON, etc.) into a common, standardized database.

• Flexibility and ease of use: Combine multiple sources of data into a cross-functional analysis utilizing user-configurable dashboards and self-serving analysis.

• Efficiency optimization: Standardize and optimize patient, procedure, and workflows across organizations to improve efficiency and better manage resource and modality asset utilization

• Performance Productivity: Optimize radiology reporting performance to improve service delivery and patient satisfaction. For example, monitor and compare Radiologist individual and aggregate TATs, RVUs by shift or slot times, etc.

• Follow-up exam management: Close the loop on follow-up exams by creating daily monitoring, with patient management and scheduling of repeat exams.

• Critical findings reporting: Monitor call-back reports for all critical findings to ensure attending physician follow-up and patients are notified of immediate care needs.

• Integration of unstructured data: Access countless data points from medical imaging orders, images, and reports that, when combined, can lead to meaningful information for improving care quality and outcomes and supporting quality assurance and clinical research.

• AI performance: Enable AI strategy to accelerate adoption and performance through concordance/discordance reporting based on physician, procedure and AI algorithm.

• Image de-identification: facilitate Medical Imaging research by creating a dedicated imaging dataset for clinical analysis and AI development with anonymized and de-identified reports and images and AI algorithm development using clinical search criteria to create accurate patient cohorts.

Transformational results

Today, integrating information across the imaging ecosystem into an innovative data platform can enable dynamic, real-time insights and enable performance, service quality, and patient and provider experience improvements – all while driving down the cost of care for imaging organizations.

Intelligent analytics platforms that offer leading-edge interoperability and AI/NLP technologies can help healthcare organizations make transformational leaps forward to improve efficiencies, performance, and patient care.

Jeff Vachon is President & CEO of Bialogics Analytics

"Today, integrating information across the imaging ecosystem into an innovative data platform can enable dynamic, real-time insights and enable performance, service quality, and patient and provider experience improvements."

ⅼⅰⅼⅰ bialogics

www.bialogics.com
info@bialogics.com