



Utilization of Electronic Health Record Embedded Enterprise Imaging Exchange: A Single Institute Experience

Josh Volin, MD, Resident Physician, Department of Radiology and Imaging Sciences, Emory University
Vidya Viswanathan, MD; Peter Harri, MD; Colin Segovis, MD, PhD, MRMD; Nabile Safdar, MPH, MD, FSIIM; Elias Kikano, MD

Introduction

Efficient exchange of medical imaging between healthcare institutions is critical for improving diagnostic accuracy and reducing redundant imaging. Investments in scalable, interoperable platforms aligned with upcoming regulatory requirements, such as the HTI-2 bill, are essential for reducing redundant imaging, improving care quality, and optimizing healthcare resources. This study evaluates the demand, volume, and geographic distribution of image exchanges facilitated by an electronic health record (EHR)-based image exchange platform at a single US academic healthcare system.

Hypothesis

The primary aim of this study is to evaluate the demand, volume and geographic distribution of EHR- based image exchange.

Methods

A retrospective analysis was conducted from 1/1/2023 to 4/2/2024 using the Epic Imaging Exchange Advanced platform (Verona, WI). This platform enables a bi-directional exchange of reference-quality images across institutions. Inbound data, defined as the images requested and received by our institution, included the number of images exchanged categorized by image type (DICOM, non-DICOM, PDF). Outbound data reflected the volume of thumbnails and full images shared with external institutions.

Results

In 2023, over 1.6 million patients from 370 institutions were queried for available outside images. Of these, 542,152 (33%) had images available, totaling 4.8 million inbound images. Non-DICOM images made up the majority (51%), followed by DICOM (34%) and PDF (15%). Full retrieval rates were 2.4% non-DICOM, 4.5% DICOM, and 3.8% PDF.

Outbound data (3/24/2023-4/1/2024) showed 1.96 million thumbnails and 1.53 million full images were shared with 1,478 healthcare organizations. Geographically, 33% of inbound images were from in-state institutions, while 40.8% of thumbnails and 66.3% of full images were exported out-of-state.

Conclusion

Image exchange is in high demand as patients increasingly seek care across the US. Additionally, there is high demand for scalable, interoperable exchange solutions aimed at reducing redundant imaging and improving diagnostic confidence which align with emerging regulatory standards.

Keywords

Applications; Artificial Intelligence/Machine Learning; Clinical Workflow & Productivity; Communication Data Management; Emerging Technologies; Enterprise Imaging; Organizational & Professional Development; Provider Experience; Quality Improvement & Quali