

SOUTHWEST DIAGNOSTIC IMAGING

Phoenix, AZ

Summary

Phoenix-based Southwest Diagnostic Imaging (SDI) partnered with NextGate to align imaging records associated with 2.6 million annual exams across 35 full-service imaging centers and 12 regional hospitals for streamlined billing, improved clinical workflow, and a consolidated view of a patient's record using an Enterprise Master Patient Index (EMPI).

Outcomes

- NextGate's EMPI technology enabled integration and clean-up of more than 5.2 million records across SDI's 35 imaging centers, 12 regional hospitals and multiple third party sources.
- In the first 6 months of using NextGate's EMPI capabilities, SDI prevented the creation of 100,000 duplicate records.
- SDI is able to leverage a centralized patient index as a cross-reference for consistent data exchange between PACS, within a VNA network or image exchange, and with external systems.
- NextGate provides SDI access to real-time patient data and imaging files, improving clinician workflow and reducing the risk of documentation errors, giving staff more time for direct patient care and enhancing patient safety and satisfaction.
- The EMPI's intelligent, automated technology enhances physician productivity and instills trust and confidence from providers in data quality and accuracy.



Achieving a Fully Integrated Patient Record and Imaging Enterprise

As one of the nation's largest private practice radiology specialty corporations, Southwest Diagnostic Imaging provides comprehensive diagnostic imaging services to the entire Phoenix metropolitan area. Comprised of three radiology practices – Valley Radiologists, Scottsdale Medical Imaging, and East Valley Diagnostic Imaging – SDI annually performs 900,000 outpatient exams and interprets 2.6 million exams across 35 full-service imaging centers and 12 regional hospitals, including Banner Health, HonorHealth and Steward Health Care.

To enable greater clinical, IT and operational efficiency, and to facilitate patient record reconciliation, SDI partnered with NextGate to implement an Enterprise Master Patient Index (EMPI). The vendor-agnostic EMPI enables data from multiple disparate sources across complex healthcare ecosystems to be correctly linked

to the same individual, eliminating duplicate records and giving providers a consolidated, enterprise view of any given patient.

Goals of the project included:

- Move patient master file out of the billing system and institute a stand-alone network for cross-platform patient identification.
- Provide an automated interface to reconcile and manage patient records effortlessly across all clinical and financial systems.
- Establish SDI as a fully integrated entity for seamless health information exchange and a longitudinal view of a patient's medical imaging history regardless of where the exam was performed.
- Assure data integrity for streamlined billing and record retrievals; enhanced care coordination and clinical-decision making; and improved quality and outcomes.

The Challenge



WE KNEW THERE WERE DUPLICATES IN THE SYSTEM, BUT WE JUST WEREN'T AWARE HOW EXPONENTIAL IN NATURE THE ERRORS WERE.

Travis Haskins
Chief Information Officer,
SDI

For many radiology practices, image sharing offers significant benefits to care coordination and quality. Lack of real-time access to patient imaging records caused by fragmented healthcare data across various systems and settings, lead to suboptimal outcomes and avoidable costs of care.

SDI needed an enterprise data integration and identity management partner to reconcile patient records across its multiple hospitals, imaging centers and radiology practice locations, and to provide on-demand access to scads of radiology imaging exams.

According to Dr. Brian Frohna, Chief Technology Officer of SDI and board-certified radiologist specializing in Diagnostic Radiology and Neuroradiology, SDI was facing significant challenges with image record sharing and reporting, leading to a continuously interrupted workflow.

When radiologists received newly acquired patient imaging studies – previous medical histories, x-rays, laboratory and test results were not readily available, hindering their ability to accurately interpret radiologic examinations.

“In terms of workflow, there was a complete lack of awareness,” he said. “For instance, I would have a patient that had studies conducted at the hospital across the street and I’m in the office, about 150 yards away, and our imaging systems would not be aware that the individual had a relevant prior study.”

That led to incessant addendums, explained Frohna. “I would dictate a study, then later on it would be discovered that the patient had a prior MR we didn’t know about,” he said, which resulted in having to redictate the report with appropriate reference to the prior exam. “And that went on all the time. So there wasn’t a system that was aware of the enterprise.”

For nearly two decades, SDI was relying on a group management product for fundamental patient matching. When leaders of the advanced medical group decided it was time to replace their billing system and deploy a new Picture Archiving and Communication System (PACS), SDI engaged NextGate to perform a patient data analysis.

“We knew there were duplicates in the system, but we just weren’t aware how exponential in nature the errors were,” said Travis Haskins, Chief Information Officer of SDI. “For instance, we uncovered one individual had 50 different records. To put that into perspective – that patient, over time, had 50 different statements with 50 different account numbers.”

Duplicate patient records frequently occur as a result of complex spellings or multiple name variations, data entry errors, and lack of standardized admissions processes. A typo or absence of a single digit in one’s social security number, birth date, or address only compounds the potential for creating duplicates. This can lead to diagnosis errors, redundant medical tests, gaps in treatment, and billing inaccuracies.

“What was shocking to us was if an individual went to the hospital and he or she didn’t match up on their MRN [Medical Record Number], we would just create a new patient record. Once the duplicate was made, and the patient came in again, another duplicate was created because the system didn’t know which of the two records to assign the individual to,” said Haskins.

The Solution

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“I THINK THERE WAS A TIPPING POINT WHEN WE BECAME SO LARGE OF AN INSTITUTION, MOVING FORWARD WITHOUT THIS TOOL WOULD HAVE BEEN A NIGHTMARE.”

Brian Frohna, MD
Chief Technology Officer, SDI
and Radiologist

Like many evolving and expanding healthcare entities, SDI's need for an enterprise data integration and identity management partner developed in part to reconcile records across its growing number of hospitals, imaging centers and radiology practice locations.

“I think there was a tipping point when we became so large of an institution, moving forward without this tool would have been a nightmare,” said Frohna.

Recognizing that accurate patient information and data integrity were crucial to providing a comprehensive view of their patients' care history, SDI leveraged NextGate's EMPI to integrate and de-duplicate records across the enterprise.

Built on the MatchMetrix® master identity platform, the NextGate EMPI performs patient record clean-up, then links the right patient to the right data by assigning each individual a global unique patient identifier that serves as a cross-reference for accurate information exchange. The solution provides a centralized location of the most trusted patient demographics, with capabilities that include:

- A single source of reference for patient identity management across all clinical and financial systems
- Accurate, real-time patient record matching
- De-identification processes for reporting and analytics
- Automation and API services for

integration with existing and future SDI applications

- Seamless integration to connect with affiliate institutions and large medical specialty group electronic medical records (EMRs)

Data from multiple sources is matched to the same patient automatically through the NextGate EMPI, ensuring the provider is accessing all available medical information for the same patient. This gives SDI radiologists a consolidated enterprise view of a patient's imaging files, leading to improved clinical decision-making, care quality, and patient satisfaction.

“We needed a solution to support data integration from our multiple participating hospitals and radiology practices,” said Haskins. “NextGate's EMPI brought accuracy and consistency to our complex patient data environment creating a single source of reference for all patient MRNs.”

Automation and data standardization provided by the EMPI also streamlines workflow and productivity, affording downstream benefits to SDI's operational and financial outcomes. The enterprise implementation allows radiologists, technicians and other staff members to provide improved patient services via portals and online billing tools, delivery of electronic reports, and electronic image linking with added ease and security.

The Results



THE EMPI IS ABSOLUTELY A CORE SYSTEM IN OUR HEALTHCARE ENVIRONMENT.

Charlie Rivers
Director of IT,
SDI



FROM THE PHYSICIAN-SIDE, IT'S MADE OUR LIVES EASIER.

Brian Frohna, MD
Radiologist

NextGate's EMPI technology successfully identified and reconciled data within 18 source systems across SDI's 35 full-service imaging centers, 12 regional hospitals, and a variety of third party sources. Over 5.2 million of SDI's patient records were analyzed and de-duplicated, yielding a single identifier for approximately 3.1 million patients.

Additionally, the EMPI provided:

- Trust and confidence from providers in data quality and accuracy
- Automated real-time duplicate record detection and resolution
- Centralized patient index that becomes the source of truth for improved clinical, operational and financial performance
- Streamlined physician workflow and productivity
- Reduced administrative waste in manual lookup and identification
- Improved physician and patient satisfaction

Since implementing the EMPI in January 2017, SDI has avoided the creation of 100,000 duplicate records. "Each one of those is a potential pitfall for error," said Frohna. "So the impact on care quality and delivery just a few months post implementation is significant."

As part of an effective coordinated care process, the technology ensures orders, results, scheduling and billing are accurately associated with the right patient, and facilitates interoperability for reliable data exchange.

"The EMPI is absolutely a core system in our healthcare environment," said Charlie Rivers, Director of Information Technology at SDI. "On a daily basis, no one knows its there. Staff touches it multiple times a day, but remain entirely unaware of how the EMPI helps make their jobs better."

Added Frohna, "And that's a good thing because

I don't want our radiologists thinking about interacting with one more system during the course of a day."

Prior to implementing NextGate's EMPI, radiologists at SDI had a limited view of their patient's historic data, which led to continuous disruptions throughout each phase of the workflow, and delayed turn-around time of reports. Today, they have a clear picture of every individual.

"From the physician-side, it's made our lives easier," said Frohna. "A lot of times we didn't have the objective data to assess what occurred in the patient's care history. Now, I don't have to wonder if the data is up-to-date, or worry that I'll have to do an addendum, because the EMPI captures all of the patient data automatically."

That automated process means clinicians spend less time performing repeated documentation tasks and more time assessing, treating and engaging with patients.

Frohna stated that since the EMPI implementation, the number of addendums has reduced by 75 percent on average. "I was easily doing 10 to 12 a day and now it's hard for me to do two or three," he said. "Having this data available allows us to make a more informed report, cuts down on duplication of effort, and gives more time back to patient care."

Having a longitudinal view of patient records improves nearly every aspect of care delivery for SDI and its 130 radiologists.

"Trying to manage patient lives without a single system to do it in was just overwhelming," concluded Haskins. "We did this for better patient care and to improve the patient experience and improve our radiologists' productivity."



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NextGate uses its expertise in patient and provider identification to connect the healthcare ecosystem for a complete and accurate record of care across the enterprise. We help organizations overcome the clinical, operational and financial challenges that result from duplicate records and fragmented information in healthcare. NextGate's market-leading EMPI technology manages nearly 250 million lives around the globe and is deployed by the nation's most successful healthcare systems and HIEs.

