AKUMIN ALLIANCE HEALTHCARE RADIOLOGY ScanLab ImagingU

White Paper

How Akumin & Alliance Recovered Nearly $900k in Revenue by Reducing MRI Tech Cross-Training Duration with ScanLabMR

A study on the MRI certification and registry eligibility performance of Akumin & Alliance MRI technologists using ScanLabMR MRI simulation software with ImagingU didactic education compared to Akumin & Alliance legacy programs and the effects on revenue.

www.alliance-healthcare.com
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Executive Summary

"The preliminary comparative data indicates a reduction of nearly 50% in training duration, reducing registry eligibility and technologist independence from a mean duration of 43 weeks to 22 weeks."

Derek Rishel, Applications and Education Specialist, Akumin & Alliance Healthcare Services

We're facing a public health crisis. According to a report by Definitive Healthcare, "up to 47% of healthcare workers plan to leave their positions by 2025," as COVID-19 pandemic burnout and the retirement of a significant portion of the workforce are causing a mass exodus from the healthcare industry. Departments are stretched thin, with an overwhelming workload and backlog of patients affecting the 68% of individuals who experience delays receiving essential care.

Akumin & Alliance Healthcare Services is the most comprehensive provider of outpatient radiology and oncology services to health systems, hospitals, physicians, and communities in the United States. Like many magnetic resonance imaging (MRI) organizations, they are exploring staffing shortage mitigation strategies by cross-training technologists from other modalities. The goal is to implement an ROI-positive solution that produces clinically competent technologists on a condensed timeline.

In this case study, we uncover how Akumin & Alliance Healthcare Services optimized their remote MRI clinical cross-training and clinical competency assessment initiatives, increased revenue, and ultimately reshaped the trajectory of operational efficiency and patient care delivery nationwide using remote MRI training.

55
Weekly Backlog Reduction

$41,250
Weekly Net Revenue Per Machine

$866,250
Recovered Revenue

Background

A Shrinking Workforce: Healthcare at a Breaking Point

Traumatic stress, hazardous working conditions, pandemic burnout, and an aging population pose unprecedented challenges to the US healthcare system. Skilled healthcare personnel have been leaving the workforce en masse, with the American Society of Radiologic Technologists (ASRT) reporting that 2023 has seen the highest vacancy rates in the past 20 years, across all medical imaging disciplines. MRI vacancy rates are at an all-time high of 16.2%, jumping 7.5% over the past two years.

This human resource challenge negatively impacts the accessibility of patient care leading to clinical backlogs that consequently exacerbate staff burnout and revenue loss. Healthcare organizations must develop comprehensive strategies that not only attract and retain skilled healthcare professionals, but streamline training and assessment to produce clinically competent staff as quickly as possible. A lean approach to healthcare education will ultimately lead to a more resilient healthcare system capable of delivering quality care.

The Financial Implications of Training MRI Techs

Training clinical staff, particularly MRI Technologists, is a lengthy process plagued by incrementalism as new hires transition from classroom theory to proficient practice. The orientation period requires registered MRI Technologist preceptors and the use of MRI equipment, while technologists in training are unable to immediately contribute to clinical operations, resulting in reduced patient throughput and increased personnel costs.

With an average trainee salary of $66,550 annually, and the 43-week training period as a shadow, the cost of a new hire is significant.[1] Assuming a reimbursement rate of $750 per scan and a daily rate of 10 scans, each technologist without a caseload represents a weekly revenue loss totaling almost $39,000 per week.

Moreover, the absence of clinical competence poses a critical liability concerning patient safety and scan quality, compounding the dilemma for hospitals and imaging facilities. Struggling to balance the imperative of comprehensive training with the operational demands of patient care and revenue generation, these institutions face a pressing challenge. Innovative solutions are urgently required to expedite training and ensure seamless clinical readiness, addressing the intricate interplay of time, money, and resource allocation.

1 Salary data was collected between the end of October 2021 and 2022, and the median salary has since risen to $80,000, making trainees even more costly today.

MRI Simulator Training and Education Programs

MRI simulators offer a valuable alternative for training and assessing MRI technologists. These programs replicate real scanner interfaces, enabling practitioners to configure scan parameters as they would encounter in clinical practice.

Unlike traditional training methods, this technology allows hands-on learning without affecting clinical operations. Technologists are able to practice their skills in a low-stress environment for more efficient and effective learning.

ScanLabMR: Comprehensive Virtual MRI Training

ScanLabMR offers a virtual simulated training environment that aims to improve learning outcomes and contribute to financial sustainability for healthcare institutions.

At its core, ScanLabMR is an online MRI simulator that replicates real clinical scenarios in a risk-free digital environment. Users are able to manipulate positioning, resolution, scan time, signal-to-noise ratio (SNR), noise, contrast, and artifacts. Since ScanLabMR is accessible on any computer with an internet connection, users can learn remotely and practice as much as they need.

But what sets ScanLabMR apart is the inclusion of safety screenings, quantitative scoring, and opportunities for critical thinking:

- Safety screenings encourage healthy habits and address safety concerns prior to clinical MRI examination.
- Quantitative scoring allows users and managers to objectively test user knowledge and scanning skills to pinpoint the areas where additional support is needed.
- Critical thinking questions serve to enhance understanding and retention of individual concepts.

These features are effective in training new hires quickly, cross-training clinical staff from other modalities, and assessing quality assurance and clinical competence of staff.

By merging objective-based assessments, virtual scanning scenarios, and critical thinking exercises, ScanLabMR bridges the gap between classroom teaching and real-world application, quickly nurturing highly skilled, registry-eligible technologists capable of delivering exceptional patient care.



The Study

Akumin & Alliance Healthcare Services and ScanLabMR with ImagingU

Akumin & Alliance Healthcare Services introduced ScanLabMR (MRI simulator) and ImagingU (online didactic education modules) into their cross-training program to test various approaches to cross-training and their effect on training duration. Compared to the legacy program, the ScanLabMR and ImagingU pilot accelerated technologists' entry into the workforce by 21 weeks compared to traditional methods. The 49% reduction in training duration translated into substantial cost savings and increased facility revenue. This study outlines the pilot program's tangible ROI.

Challenge

Mounting clinical backlogs and revenue loss due to staffing shortages are crippling radiology departments, and Akumin & Alliance was no exception. Based on their average productivity and reimbursement rates, they were estimating a revenue loss of $41,250 per scanner per week from backlogged MRI scans.

The Akumin & Alliance nationwide MRI cross-training program, which repurposes technologists from modalities like X-ray, Ultrasound, and CT into MRI roles, was established to combat workforce shortages and case backlogs while promoting revenue recovery and staff retention. This initiative presented opportunities for enhanced professional development by ensuring focused oversight on scan quality, clinical improvement, participation, and conceptual understanding, thereby enriching the professional growth of its trainees.

Often, the variability in practices of supervising technologists resulted in inconsistent workforce practices and skill levels.

"A review of historical data from the legacy cross-training program indicated an opportunity to both standardize clinical training across a national and diverse imaging organization, while at the same time reducing the duration and thereby cost associated with that training."

Derek Rishel, Applications and Education Specialist

Solution

Akumin & Alliance initiated a cross-training pilot program with the goal of accelerating the time it has historically taken to cross-train a member of another modality (i.e. X-ray, Ultrasound, CT) to where they are deemed by a supervising technologist to be clinically competent in routine clinical MRI and eligible to sit for the MRI registry exam. Some states and most employers require certification and registration through the American Registry of Radiologic Technologists (ARRT) or American Registry of Magnetic Resonance Imaging Technologists (ARMRIT). As Akumin & Alliance requires ARRT certification, registry eligibility is defined by ARRT's Magnetic Resonance Imaging Didactic and Clinical Competency Requirements.

The participants were 36 team members practicing in other imaging modalities. Trainees were divided into three cohorts to test legacy and modified legacy MRI cross-training methodologies versus the ScanLab pilot for clinical training duration. The cohorts varied in the structure of didactic and clinical training. The Legacy and Modified Legacy cohorts utilized a traditional didactic curriculum which involved mailing 20-26 modules between trainees and the registry review program, while the Pilot Cohort used an online didactic program.

Cohorts

- Legacy Cohort (10 trainees)
- Modified Legacy Cohort (1 trainee)
- ScanLabMR Cohort (25 trainees)

The Legacy Cohort followed a flexible training regimen, where participants engaged with self-paced modules in conjunction with onsite cross-training. This approach allowed each trainee to progress at their own pace while gaining practical experience under the supervision of seasoned MRI technologists.

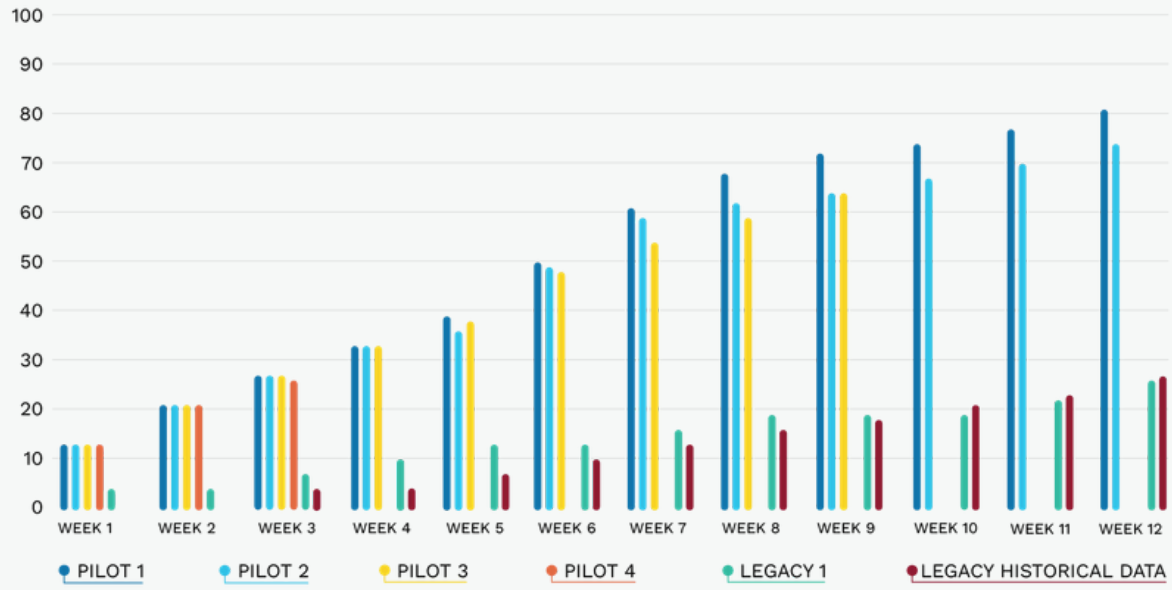
In contrast, the Modified Legacy Cohort employed a more structured hybrid model, requiring completion of two legacy modules per week within a 6-month soft deadline, paired with consistent onsite training. This structured approach aimed to ensure a uniform level of knowledge and skill acquisition within a specified timeframe.

The ScanLabMR Cohort engaged in an immersive 4-week virtual learning period utilizing ImagingU for didactic education alongside ScanLabMR's remote MRI simulation technology. This phase is designed to establish foundational knowledge and simulate real-life scenarios

without the constraints of a physical classroom. Following the virtual component, trainees shifted to a hybrid model for 2 weeks combining both onsite and virtual training to transition smoothly into practical application. The final phase consists of 6 weeks of intensive onsite training, providing hands-on experience with continual guidance from registered MRI technologists. This blend of virtual and onsite training was structured to optimize learning outcomes, ensuring trainees are fully prepared for clinical demands.

Legacy Cohort	• Self-paced didactic training • 40 hours/week onsite MRI clinical training with a registered MRI technologist until competency was reached
Modified Legacy Cohort	• Structured didactic training schedule • 40 hours/week onsite training with a registered MRI technologist until competency was reached
ScanLabMR Cohort	• Virtual simulator and online didactic curriculum (4 weeks) • Hybrid virtual simulator and onsite training with a registered MRI technologist (2 weeks) • Onsite training with a registered MRI technologist (6 weeks)

Cross-Training Pilot with ScanLab vs Legacy Programs: Comparison of ARRT Certification and Registry Eligibility Performance



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In the graph above, registry eligibility performance is defined by Akumin & Alliance as the percentage of structured education and clinical experience requirements completed at the end of the 12-week cross-training period. Pilot 1-4 represent individual team members in the

ScanLabMR Cohort. Legacy 1 represents the Modified Legacy Cohort, and Legacy Historical Data represents the Legacy Cohort. All team members going through the ScanLab pilot had the same methodology. The difference in the speed at which they reached eligibility was dependent upon their individual aptitude.

Results

Ultimately, technology-mediated experiential learning not only enhanced training capabilities, but also significantly accelerated the path to clinical readiness, ensuring that MRI technologists were well-prepared to sit for the registry exam and deliver high-quality patient care. The introduction of ScanLabMR and ImagingU into Akumin & Alliance's training regimen has reduced the average duration of registry eligibility to 22 weeks for full-time trainees. The training effectiveness is also reflected in the average scores, with full-time trainees scoring 0.921 in ImagingU assessments and 0.891 in ScanLabMR simulations.

This resulted in significant training cost savings and recovered revenue.

"ScanLabMR was incredibly helpful in assisting me to really practice slice prescriptions before being onsite, this allowed me to focus on learning other things once on site...Overall I felt prepared to go to the facility to continue my learning."

Trainee

By the Numbers

Training Cost

Mean Salary (Year 0-1) for "MRI Tech in Training" = $66,550/year or $1,278/week

Total Salary Cost Per Legacy Trainee (mean 43-week duration) = $54,954

Total Salary Cost Per ScanLabMR Trainee (mean 22-week duration) = $20,448

Total Training Savings Per Trainee =

$34,506

Revenue

Weekly backlog reduction/ scanned examinations - 55

Weekly recovered (Net) revenue per machine = $41,250

21-week revenue difference total =

$866,250

"After 33 years in MRI, I can confidently say that ScanLabMR's program produces trainees with unprecedented knowledge and readiness. Their simulated patient approach instills a level of confidence sorely needed in the medical field, reducing on-the-job training and proving to be a cost-effective solution for facilities."

Trainer

Beyond Training: Extending Cost Benefits

ROI of Efficiency

Enhanced MRI clinical training efficiency triggers a chain reaction across clinical operations. Proficient technologists positively impact caseload, resource utilization, and patient outcomes–directly contributing to revenue growth.

Elevated Care

Training aims to prepare technologists to deliver quality patient care. Their advanced skills minimize diagnostic errors and enhance imaging accuracy, ultimately saving costs and boosting patient satisfaction.

Reduced Margin of Error

Precise training translates to fewer repeat procedures and reduced clinical errors. Accurate diagnoses minimize financial strain and operational disruptions.



The Future of MRI and CT Training

Implementing Remote MRI and CT Clinical Training Solutions in Your Organization

The growing shortage of healthcare professionals, particularly in specialized fields like radiology, necessitates innovative training solutions to quickly and effectively train and cross-train new technologists. Technology-mediated experiential learning, especially through remote MRI and CT simulators, presents a valuable strategy. These simulators enable realistic, hands-on training experiences without the need for physical presence in a clinical environment, which can significantly reduce training times and resource expenditure.



By mimicking real-world scenarios, remote MRI and CT simulators provide trainees with the opportunity to develop and refine their skills in a controlled, repeatable, and safe setting. This approach not only accelerates the training process but also enhances the quality of education, making it a crucial tool in rapidly preparing technologists to meet the demands of the healthcare industry and mitigate workforce shortages.

ScanLabMR is designed to be adaptable and scalable, meeting a variety of MRI and CT clinical training needs. Its training methods and assessment capabilities focus on developing highly skilled professionals, supported by data that illustrate their effectiveness for healthcare leaders, educators, and technologists exploring new MRI and CT strategies.


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