

How VCU Health's Digital Transformation in Image Exchange Further Enhanced Patient Centered Care and Provider Focused Support



VCU Health solved its enterprise-wide challenge of managing incoming clinical images while simultaneously improving patient outcomes, streamlining workflows, reducing frustration and making it easier to collaborate within its network of referring providers.

An image exchange system that provides the necessary support at the point of care

The Challenge

A significant challenge facing a regional health system was the growing volumes of medical images, many arriving on CDs, that required increasing amounts of staff resources. In 2017, VCU Health processed 39,000 CDs through Life Image.

The Solution

After examining a number of other options, Virginia Commonwealth University Health System (VCU Health) selected Life Image as an enterprise image exchange solution that could work across departments such as radiology, trauma and cardiology.

The Result

Since its partnership with Life Image, VCU Health has sped up its upload process, improved workflow for all specialist types, removed bottlenecks in medical records, and improved resource planning. Community providers and institutions can now access the highly trained, subspecialty expertise of VCU radiologists for second opinions and over-reads.



Life Image works with facilities around the country, so no matter where our patients are coming from, we have the ability to easily import images into our system.



JOELLE KANG, MSN, RN
GI ONCOLOGY NURSE NAVIGATOR,
VCU MASSEY CANCER CENTER

More than one-third of stroke patients admitted to the VCU Medical Center are transferred from other hospitals.

The Challenge

The burden of managing large volumes of incoming medical images

The VCU Medical Center (formerly known as MCV Hospitals and Clinics) is an urban, comprehensive academic medical center located in Richmond, VA. As the region's only Level 1 trauma center, the 865-bed medical center and affiliated clinic sites are responsible for approximately 94,000 emergency room visits, 715,000 outpatient clinic visits and 24,000 surgeries this fiscal year. Across its ED, Outpatient and Inpatient service areas, the Department of Radiology will perform over 343,000 radiology procedures this year.

It needed a more effective solution to manage the large inflows of referrals and transfer patients who arrived with previously performed imaging, much of it on CDs. Delays, data quality issues, and pressure on physician and staff time, were increasing problems.

- Treating urgent stroke and trauma patients required immediate access to data.
- Even for routine patients, image CDs arrived at point of care with various proprietary formats, or even errors, that required processing by medical records.
- Missing images often resulted in wasted appointments, rescheduling, and reimaging.
- Administrative paperwork to document overreads was a manual process that led to delays in reimbursement.
- A complex workflow that required a centralized system of storing, recovering, and using clinical images was cumbersome for clinicians.



About VCU Health

VCU Medical Center is an 865-bed academic medical center in Central Virginia with the region's only Level 1 trauma center.

- 94,000 emergency room visits
- 715,000 outpatient clinic visits
- 24,000 surgeries
- 343,000 radiology procedures

VCU Health is an elite leader in stroke care, education, and research.

- The first certified Comprehensive Stroke Center in Virginia
- Meets or exceeds all standards for Advanced Comprehensive Stroke Center designation, including advanced neuroimaging, faculty expertise, interventions and surgeries, and volume of stroke treatments and volumes
- More than one third of admitted stroke patients are transfers from other hospitals

Patient-Centered and Provider-Focused Goals Achieved Simultaneously



Using Technology to Advance the Patient Care

Servicing the VCU Medical Center and outpatient facilities, the Department of Radiology is dedicated to providing patients with the highest standard of care and innovative procedures. It uses Life Image to provide the advanced technology for efficient image exchange and data sharing to support the Department of Radiology's mission to provide optimal care in a patient-centered environment. The digital platform improves patient care through rapid and efficient image sharing across the many medical specialties within VCU Health and with referring providers and institutions who seek the Radiology Department's subspecialty expertise. The interoperable technology helps to facilitate timely care in emergency situations, avoids wasted appointments, or the need to reschedule procedures, or to reimage a patient. As a result, cost and treatment efficiencies are achieved in addition to a more convenient and favorable experience for the patient.

Using Technology to Support Provider Collaboration

The adoption of an efficient digital platform, cloud-based image and data sharing technology demonstrates that the VCU Department of Radiology is also provider-centric by making it easier for referring community providers and institutions to access the highly trained, subspecialty expertise of the radiologists for second opinions and over-reads. To the extent that such efficient, image-sharing technology enhances patient care and convenience, it so to strengthens VCU Health's collaborative relationship with referring providers.

About Life Image

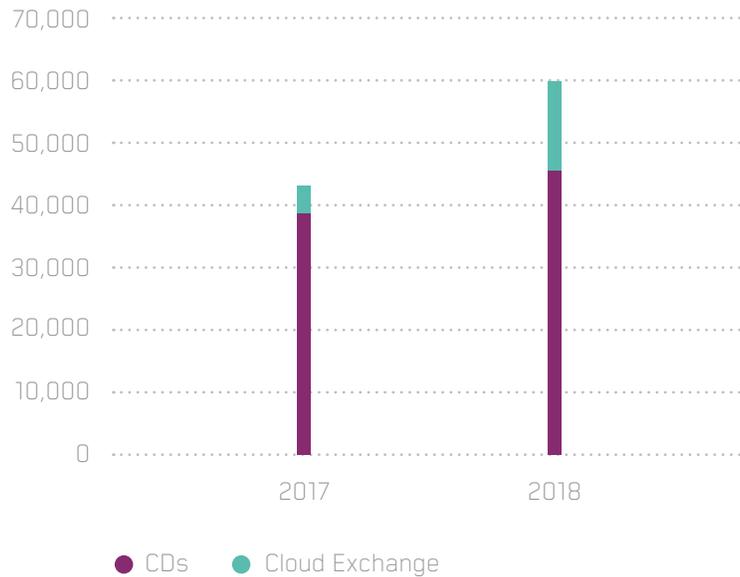
With its beginnings in medical image exchange, Life Image now orchestrates the real time flow of any and all clinical information across a patient's journey. This helps care teams and researchers make informed decisions.

Founded in 2008, Life Image has spent the past decade innovating an interoperable network ecosystem that connects hospitals, physicians, patients, life sciences, medical device companies, telehealth companies, and EHRS.

For more information, or to schedule a demo, please email info@lifeimage.com.

Key Statistics

VCU Health grew the intake of radiology studies 37% with a corresponding increase in cloud exchange by 13%



The Solution

The key is decentralization and easy clinical access

Clinical image transfer will only grow in volume, size, and complexity. Most solutions bottleneck at either the PACS or in cloud access. Life Image fits into clinical workflow and optimizes image transfer with a hybrid network.

- Non-clinical staff at the point of care can upload CD data at the point of care and incorporate all imaging in a single workflow.
- A dedicated on-premises server increases speed and security of imaging data and is fully interoperable with internal PACS, VNAs and EHRs.
- Cloud capability enables exchange throughout VCU's expansive network of external referral and coordination sites.
- Stat requests are prioritized automatically so incoming trauma and stroke patients have their images available immediately.
- Physicians can view images prior to PACS upload.

Implementation

Uptake is rapid if the system is easy to use

Clinical workers resent new systems with a steep learning curve, rigid requirements, and opaque results. By contrast, Life Image fits right into their existing workflow and has rapidly become essential.

- Film library staff training took under an hour to achieve competence.
- Most physicians and clinical employees did not even require a formal training — they were up on the system within minutes.
- Reference material fits “on a single PowerPoint page.”
- Specialists have a clean interface customized to their needs, and can request and see results within a single system.
- Implementation required little IT staff time.

The Result

A faster, more intuitive system without bottlenecks



Faster Upload to PACS

Average time to process PACS uploads dropped by two thirds.



Quicker Response Time

A sortable work list allows fast responses to Stat requests.



Simple Digital Request

Error-prone paper documentation for overreads has been replaced by a simple digital request process.



Complete and Accurate Information

The digital process ensures complete and accurate information, eliminating time-consuming correction requests from Billing.



Saved Time At Medical Records

Medical Records (MR) processes studies 24/7 with top priority focused on the most life-threatening cases. Administrative time at MR dropped by 67 percent with the increased efficiencies.



When I speak to

patients, they are often concerned with their information getting to us in a timely manner. It is so nice to assure them as to how easy the process is and that we will take care of all of it. Since the images come to us so quickly, we are often able to see our oncology patients within one week of their initial call.

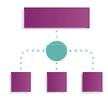


JOELLE KANG, MSN, RN
GI ONCOLOGY NURSE NAVIGATOR,
VCU MASSEY CANCER CENTER



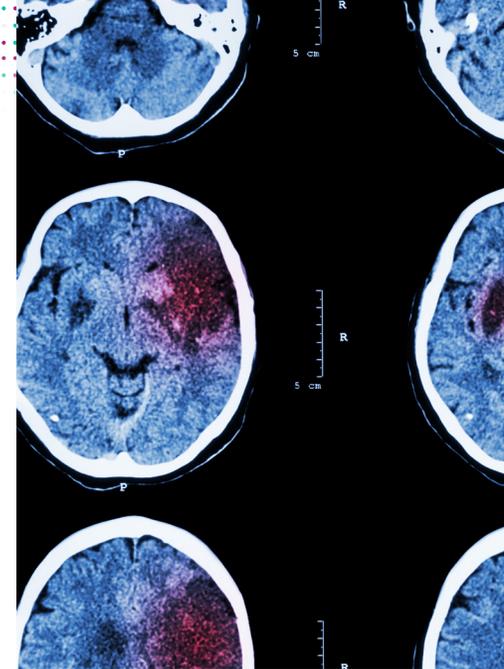
Joining the Life Image Network

VCU Health now invites all referring facilities to be on the Life Image network, since it outperforms their other image-sharing solutions.



Business Planning

Reporting from the system now identifies sources and volumes of outside imagery, providing a solid foundation for business planning.



Use Cases

Trauma to Operating Room

A 42-year-old male involved in a serious automobile accident is transported to a local community hospital. Chest and abdominal CT scans reveal the patient has suffered serious, life-threatening internal injuries – requiring immediate transfer to the VCU’s Level 1 trauma center.

- Community hospital CT tech pushes radiology studies up to Life Image cloud.
- VCU’s Emergency radiologist and trauma surgeon access and review the studies as patient is helicoptered to trauma center, determining the need for immediate surgery.
- Surgeon alerts helicopter to take patient to OR on arrival, where OR and trauma team is prepped and ready.

Outcome

Injury to OR time under 2.5 hours, followed by successful surgery, with discharge in several days.

Coordinated Cancer Care

After several radiology and cardiology studies performed at a community-based imaging center, a patient is diagnosed with lung cancer, and referred to the VCU Massey Cancer Center for treatment.

- Massey patient intake coordinator calls patient to schedule appointment and requests all available radiology imaging from previous treating facilities.

Stroke Alert

With stroke, any delay in treatment can lead to lifelong debility, or even death. But the treatment must be appropriate, not simply fast—and originating facilities often lack the expertise to make that decision. If TPA is appropriate, for example, staff at a community hospital can administer it immediately. Transfers always increase risk, and now only occur when clinically necessary.

A patient presents at a local community hospital with stroke symptoms. The VCU Medical Center stroke team is contacted.

- Community hospital pushes the CT scan via the Life Image cloud for review by Emergency radiologists, neuroradiologists, neurologists and the neurovascular interventionalists at the VCU Medical Center.
- A diagnosis of an ischemic stroke was confirmed and the patient was immediately transferred to the Medical Center.

Outcome

Patient underwent a successful emergency endovascular procedure and has since recovered with little to no deficit.

- Imaging transferred via Life Image, placed in Picture Archiving and Communication System (PACS).
- Multidisciplinary Cancer Care Team, including subspecialty radiologists, oncologists, and surgeons, reviews studies and plans treatment options, all before patient's arrival.

Outcome

Patient receives advanced care and treatment from prepared team on first visit.

Efficient Outpatient Visit

A patient referred to a pulmonologist by his primary care physician in his home town, several hours away, arrives without the CD of previous imaging.

- As part of intake, admitting nurse requests imaging from referring doctor via Life Image cloud.
- By the time patient enters the exam room 15 minutes later, the imaging is available for the pulmonologist and subspecialty cardiothoracic radiologist.

Outcome

Patient does not have to reschedule appointment or repeat any imaging studies, receives immediate diagnosis and treatment.