CASE STUDY

vRad® × qure.ai

Improving stroke patient pathway, with AI assisted diagnosis

4 years of usage	2100 hospitals	4 Million scans processed	7% critical scans flagged	AUC 0.96	6.8 Mins TAT with Qure.ai	<3 mins to triage alert*

Introduction

In the US, more than 795,000 individuals suffer from stroke annually. A stroke claims someone's life every 3.5 minutes. The expression "time is brain" has long been used in stroke awareness to convey the importance of urgency when treating stroke patients. Radiology groups often require assistance maintaining top-notch, 24/7 coverage to enable physicians to make quick clinical decisions for their patients and ensure positive patient outcomes. This is becoming a challenge due to capacity shortages, difficulty triaging critical cases, and increasing demand for imaging overall.

Opportunity

Enabling a care team to act decisively can significantly improve outcomes for stroke victims and other cerebrovascular incidents.

Solutions

vRad is a leading US teleradiology provider with a network connecting 2100 hospitals and radiology groups nationwide. The practice is also a global leader in embracing and adopting technological advancements in radiology. vRad is on a mission to bring exceptional radiology care to all patients anytime and anywhere. It achieves this using AI solutions seamlessly integrated into workflows, contributing to operational excellence. vRad's long history of continuous innovation enables its radiologists to read at the top of their license and deliver faster, higher-quality results for patients in urgent need of care.

**Diagnosis reported to the ordering physician 2.9 minutes after the CT images had been uploaded.*

Qure.ai's AI tool, qER, interprets head CTs and alerts Neurocritical Care Teams and radiologists on non-contrast head CTs, enabling faster decision-making and improving patient outcomes. qER is a CE Class IIb, and FDA 510(k) cleared solution that boosts radiologists' analysis and confidence. In 2020 vRad collaborated with Qure to use AI in bleed detection workflows for overnight cases. The successfully evaluated qER model is continuously monitored and optimized on the clinical platform.

Further, one of our developmental partners in the NLP space, vRad, has also implemented Qure's NLP-based Quality Assurance solution to enhance their performance.

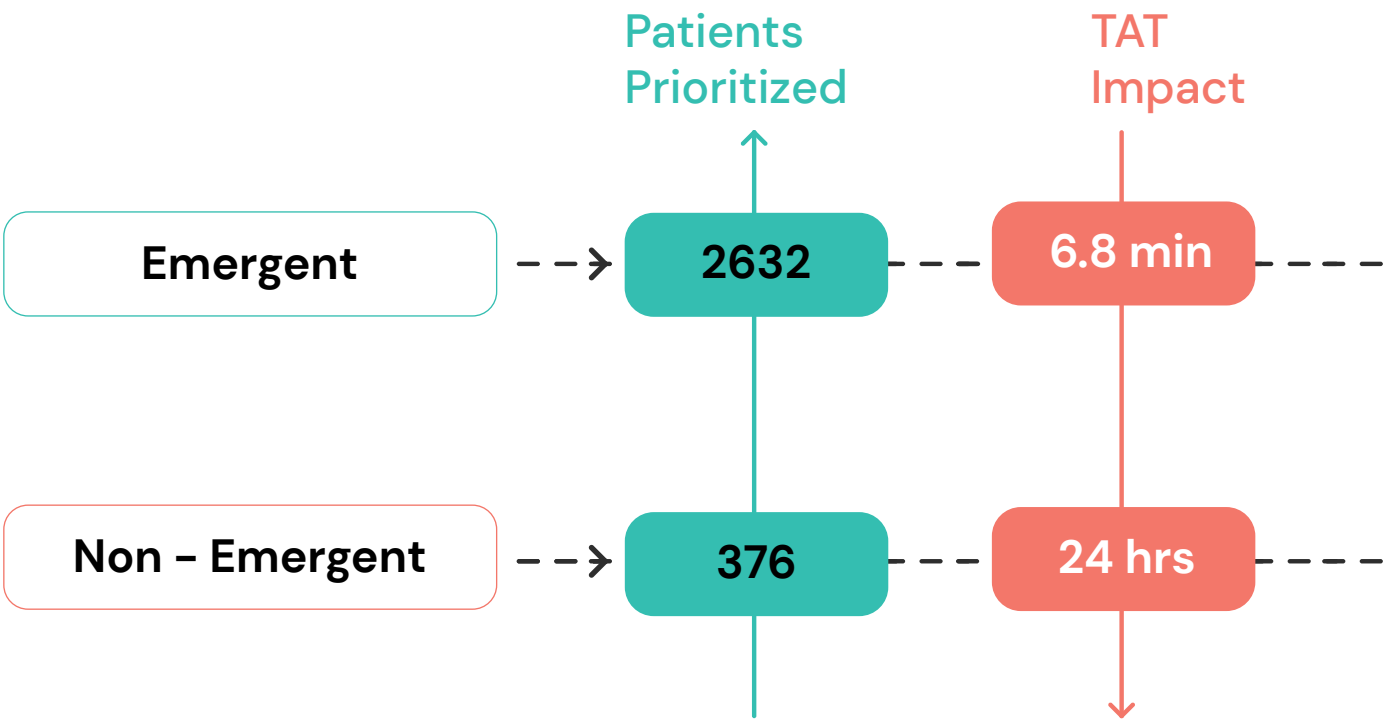
Impact so far

A physician alerted of a high-risk case after review by a subspecialist radiologist within **3 minutes** from image acquisition, enabled by Qure's AI image prioritization.

4000 Head CTs prioritized using AI each month.

Reduction of turnaround time to **~6.8 minutes** on emergent cases and 24 hours on non-emergent cases.

Evaluating benefits of using AI for study prioritization



Real-world Evidence

The following is a case study on how using AI, a high-risk patient was able to receive a specialist review and triage alert within 3 minutes:

Facility
Greater Regional Medical Center in rural Iowa.

Imaging protocol
Axial CT head without contrast.

Patient history
68-year-old female presenting with confusion and memory loss.

Diagnosis
Subdural hematoma with midline shift, subfalcine and uncal herniation, and an associated left frontal lobe stroke due to vascular compression.

Turnaround
Findings verbally communicated via telephone **3 minutes** after receipt of images.

Treatment
Emergent surgery for the patient's subdural hematoma resolved shift and herniations and relieved vascular compression. However, a left frontal stroke could not be wholly prevented but was kept from progressing.

Outcome
Using AI to prioritize the case based on its criticality, a diagnosis was delivered approximately 10 minutes earlier than the typical turnaround time if it had been processed through a normal queue. The patient showed significant improvement after 35 days.

Summary: Accelerated Diagnosis > Faster delivery of treatment
Qure's qER AI algorithm recognized the presence of ICH, prioritizing the case on the worklist. Less than 3 mins TAT from image upload to diagnosis versus ~12 mins typically for stroke cases resulted in a significant reduction of stroke severity for the patient.

For this patient, I have no doubt AI was a critical element for her survival. AI is helping us deliver on the full scope of our health care mission.

Joshua Morais
MD, vRad

Conclusion

Integrating Qure's qER algorithm with vRad's workflow has been shown to help physicians rapidly triage and detect acute critical cases. qER also provides radiologists with an untiring second pair of eyes to help catch anomalies that may be missed in busy emergency rooms or practices. As a result, faster and more targeted stroke care delivers economic and social benefits to society and improves the quality of life for stroke survivors.

Whether you are a radiologist or a healthcare administrator, qER can assist you in:

- Maintaining the quality of detection
- Lowering missed abnormalities
- Improving TAT
- Reducing physician burnout
- Reducing medico-legal risks
- Ensure 24/7, consistent, exemplary service delivery for patients

To implement our AI solution, talk to the Qure.ai team today.

Visit www.qure.ai for a free demo.