

The Use Of Accipio Ax Could Have Led to Faster ICH Identification. A Case Study.

Previously missed ICH, could become a possible “never event.” During the evaluation of MaxQ AI’s ACCIPIO ICH and Stroke Platform at an acute hospital facility, this was the goal. For stroke patients, early adoption of this AI solution could have an impact to critical decisions in the treatment path and save precious time. This case study outlines the impact of utilizing AI solutions to empower the physician treatment decision.

Introduction

During the evaluation of the MaxQ AI ACCIPIO ICH and Stroke Platform for use with stroke patients, the lead stroke neurologist at a major US acute facility considered a recent patient case where Accipio Ax could play a key role in intracranial hemorrhage (ICH) identification. “In most rural settings, you do not necessarily have a neurologist, let alone a vascular neurologist, at a small hospital. Therefore, it’s important to implement different technologies to help the physicians on both ends to augment patient care.”* In his search for a solution that helps both big and small facilities improve patient care for ICH identification, he elected to evaluate the MaxQ AI ACCIPIO ICH and Stroke Platform. MaxQ AI’s Accipio Ax—providing automatic, rapid, highly-accurate slice-level annotation and prioritization of ICH—can support the skilled physician in real-time. Accipio Ax is part of the comprehensive, seamless, and secure ACCIPIO[®] Platform, comprised of Accipio Ix, Accipio Ax, and Accipio Dxg.

A Stroke Case Where Accipio Could Help

Consider this Patient Case: A woman is admitted to a small, rural, urgent care with acute right-faced arm and leg numbness. The urgent care physician correctly identifies that she is having stroke-like symptoms and orders a stat non-contrast CT scan. When read, this scan is interpreted as negative for ICH. The physician calls the stroke care team, and the patient is transported to a regional comprehensive stroke center; able to provide aggressive therapies such as tPA. Upon arrival, the patient scan is re-reviewed, and they find that the woman did have a small missed ICH. Fortunately, tPA has not been started but the patient begins to rapidly deteriorate as the prior small hemorrhage increases substantially to a large hematoma. The time in transport cannot be recovered.



If only the acute ICH was identified before transport...

“The ability for a small ER...where there is no access to any radiology overnight or near radiology, and they need to make a decision regarding tPA...this [Accipio Ax] would be massively helpful.” *

About MaxQ AI[®]

MaxQ AI is at the forefront of medical diagnostic artificial intelligence (AI). Our mission is to reinvent patient diagnosis through artificial intelligence (AI), improved triaging and diagnostics processes, and reduction of avoidable medical errors and costs. MaxQ AI’s solutions are seamlessly integrated and globally deployed through trusted global healthcare OEM partners, cyber-secure with leading 3rd party validated certification. At MaxQ AI, we have developed a comprehensive workflow software platform, ACCIPIO (meaning “to learn” in Latin), that uses artificial intelligence to interpret medical images, such as non-contrast head computed tomography (CT) scans and surrounding patient data. Our platform will provide real-time triage, rule out, annotation, quantification, and notification in the acute care setting, where every minute counts. Our AI solutions are well-suited to help acute care physicians, who are under extreme pressure to make quick and accurate decisions while treating a large number of patients, reach faster, more accurate decisions when diagnosing stroke, head trauma, and other life-threatening conditions.

The ACCIPIO Platform

Accipio Ix[™]

Provides automatic, rapid, highly accurate identification and prioritization.

Accipio Ax[™]

Provides automatic, rapid, highly accurate slice-level annotation and prioritization.

Accipio Dxg[™]

Automatic, Rapid, Highly accurate triage for suspected ICH presence or High NPV absence.

To learn more, visit www.maxq.ai or follow us on LinkedIn.

Schedule a demo at [maxq.ai/schedule demo/](http://maxq.ai/schedule-demo/)

Why ACCIPIO?

MaxQ AI will support the complete ACCIPIO Clinical Platform with INSIGHT™. It will support the Radiology Department, Emergency Room, Neuroradiology, and the Stroke teams with a fully automated solution. The ACCIPIO platform will provide tools for suspected positive ICH triage and prioritization (Ix), slice-level annotation (Ax), lesion-level annotation (Ax Plus) and quantification (Ax Pro), triage of suspected positive and negative ICH triage (Dxg), and diagnostic rule-out (Dx).

Accipio Ax

Provides automatic, rapid, highly accurate slice-level annotation and prioritization.



The Solution

This stroke case initially misdiagnosed as negative for ICH led to avoidable transport and lengthy treatment delays. MaxQ AI's Accipio Ax, empowering the physician interpretation, could be used in real-time to provide identification of ICH in seconds.

"MaxQ AI's ACCIPIO platform would have been an important addition to determining the treatment path of this patient had it been available at that time," stated the physician.

"Seamless integration is key as physicians need to be able to view the images in many places, such as on the CT scanner, on the PACS at a radiologist's location, or by a tele-neuroradiologist who is at home looking at the images on their device. MaxQ AI's seamless integration and secure workflow allows a multi-faceted approach to the patient's stroke care and is a welcomed workflow assistant." MaxQ AI is ushering in empowered care — the dawn of partnership between AI and the skilled care provider — to extend expertise to every patient and care-provider.

Fast Answers with AI on Intel:

To handle the demands of the acute care environment, MaxQ AI chose Intel AI technologies for cost-effective performance in a flexible and easily managed platform. The company's machine-learning experts optimized the solution's performance by working with the Intel® AI Builders program, which brings together a range of companies and organizations committed to fulfilling the potential of AI. The collaboration paid off. MaxQ AI's optimizations produced a 3x improvement in the image processing time for Accipio Ix without compromising accuracy, according to Steve Kohlmyer, vice president of research and clinical collaborations at MaxQ AI.7 "The original product release of Accipio Ix took an average of 4.1 minutes to process a radiology exam," he said. "The average processing time for the first 4,000 exams at Capital Health has been 1.4 minutes. That improvement reflects the optimization we did through the Intel AI Builders partnership." MaxQ AI has taken advantage of a broad range of Intel® tools and technologies. It uses the Intel® Math Kernel Library for Distributed Neural Networks (Intel® MKL-DNN) to fine-tune model performance on Intel processors. MaxQ AI also deploys the Intel Distribution of OpenVINO toolkit to speed up image recognition applications on Intel® architecture-based platforms.

Conclusion

The facility and MaxQ AI used this case study to demonstrate an all-to-common event, a missed ICH, and how the MaxQ AI ACCIPIO solution could have helped accurately identify the ICH in seconds, leading to a possible better treatment path. It is MaxQ AI's mission is to reinvent patient diagnosis through artificial intelligence (AI), improved triaging and diagnostics processes, and reduction of avoidable medical errors and costs—all leading to better patient outcomes.

COMPREHENSIVE • SEAMLESS • SECURE

MaxQ AI's Regulatory & Quality Compliance

MaxQ AI is a healthcare technology company developing innovative medical diagnostic artificial intelligence software to augment emergency room physicians in their daily practice. We prioritize absolute rigor in all certifications, systems, security, and compliance to ensure the company behind the platform leads by example.

- ISO 27001 Information Management Security System Certification
- Multiple FDA, CE, Australia regulatory approvals
- ISO 13485 certified (medical manufacturing)
- Supports HIPAA compliance (patient privacy)
- FDA Breakthrough Status (awarded to a single company for a single indication)
- FDA Pre-Certification Member (standards –shaping of the future)

To learn more, visit www.maxq.ai or follow us on LinkedIn.

Schedule a demo at
[maxq.ai/schedule demo/](http://maxq.ai/schedule-demo/)

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What if Accipio Ax was assisting the physician in real time?

Without ACCIPIO 1:30 pm **With ACCIPIO**

A 77-year old woman was presented in a small, rural, urgent care with acute right-faced arm and leg numbness.

1:45 pm

Patient given non-contrast head CT.

1:45 pm **BLEED DISCOVERED**



Accipio analyzed the images and identified them as suspicious for ICH. Case moved to top of stack for Radiologist overread

Times & outcome are placeholders until actuals received from Dr. Sangha

2:00 pm

Scan read by radiologist, who determined **negative** for ICH.

2:30 pm

Patient transferred to larger Emergency Department, via 911, in order to institute emergent therapy such as tPA

3:00 pm

Patient arrived at second facility for emergent therapy (tPA).



BLEED DISCOVERED 3:15 pm

Patient's scan re-read by Dr. Navdeep Sangha, and a radiology colleague, who determined the patient did have an ICH. Therefore, tPA was not administered

3:30 pm

Patient began to rapidly deteriorate.

3:40 pm

Repeat stat CT given that revealed the small bleed had increased into a very large hematoma expansion.

Need actual patient outcome.

