



CuraRad[®]-ICH

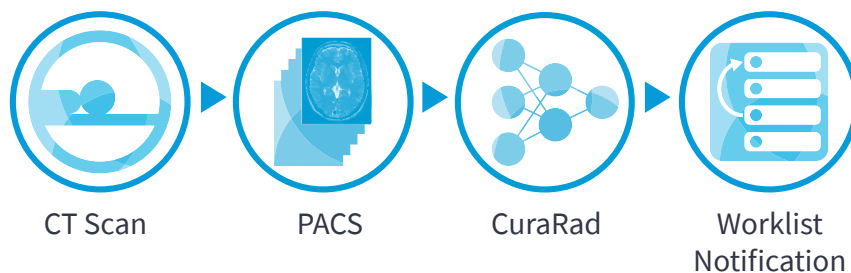
CuraRad-ICH is a software workflow prioritization tool designed to reduce radiologist turnaround time for suspected ICH cases in non-contrast head CT scans.



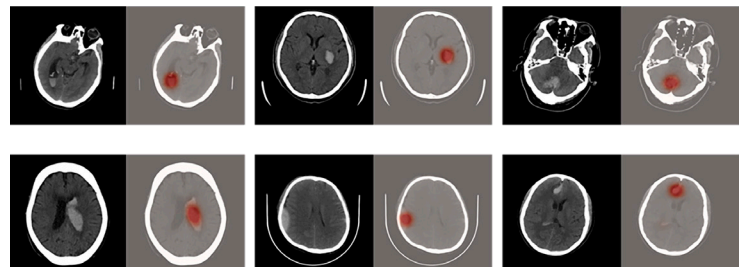
CuraRad-ICH received 510(k) clearance from the U.S. Food & Drug Administration on April 13, 2020.

Intracranial hemorrhage, or ICH, is an urgent condition in which there is bleeding within the brain's cellular tissue and the spaces within the membranes surrounding the brain. As with other forms of stroke, speed and accuracy of diagnosis are essential to appropriate care. ICH 30-day mortality ranges from 35%- 52% with half of this mortality occurring within the first 24 hours. Faster turnaround times from diagnostic radiologists can speed emergency care decisions.

An integrated clinical workflow in which head CT images are routed to CuraRad-ICH, where a deep learning neural network can detect ICH in seconds. Suspected ICH cases can be prioritized on the worklist and flagged for urgent attention. CuraRad-ICH can be seamlessly integrated with worklist applications and PACS/VNA (Vendor Neutral Archives).



The deep learning model used within CuraRad-ICH was trained and validated using diverse data sources representing many subtypes of ICH. Heatmaps such as the one shown are used by our AI scientists to demonstrate accurate detection of bleeding in different anatomical areas of the brain.



What it does:

CuraRad-ICH analyzes cases using deep learning algorithms to identify suspected ICH findings. It makes case-level output available to a PACS workstation for worklist prioritization or triage.

Patient Name	MRN	Modality	Procedure	Arrival Time
Glazer, Aaron	87634538	X-Ray	CXR ABD	3 hr ago
Miller, Sophia	28394751	X-Ray	CXR Chest	30 min ago
Vloet, Sanne	98726534	CT	CT Head W/O Contrast	20 min ago
Rice, Jessica	12361524	CT	CT Head W/O Contrast	15 min ago
Li, Angel	26378940	CT	CT Head W/O Contrast	9 min ago

Standard worklist

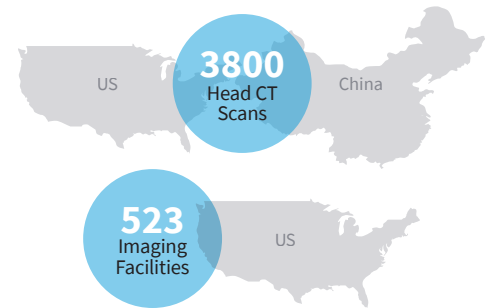


Patient Name	MRN	Modality	Procedure	Arrival Time	CuraRad
Vloet, Sanne	98726534	CT	CT Head W/O Contrast	20 min ago	Suspected ICH
Li, Angel	26378940	CT	CT Head W/O Contrast	9 min ago	Suspected ICH
Glazer, Aaron	87634538	X-Ray	CXR ABD	3 hr ago	
Miller, Sophia	28394751	X-Ray	CXR Chest	30 min ago	
Rice, Jessica	12361524	CT	CT Head W/O Contrast	15 min ago	

Worklist incorporating CuraRad-ICH results

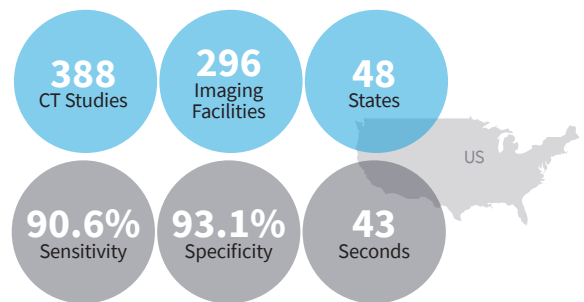
How it works:

The deep learning algorithm uses a three-dimensional joint convolutional neural network (CNN) and convolutional recurrent neural network (ConvRNN) architecture for automatic ICH binary classification. The resulting AI model was trained from about **3800 head CT scans** collected from multiple clinical sites in both US and China, covering major imaging scanner varieties in the world. The training data from the US were collected from **523 different imaging facilities** from almost all states in the US.



How it was validated:

A retrospective, blinded, multisite clinical validation study was conducted to evaluate the clinical performance of CuraRad-ICH. Analysis of 388 CT studies collected from over 296 imaging facilities across 48 states in the US demonstrates system sensitivity and specificity of **90.6%** and **93.1%**, respectively. The average per-case processing time was **43 seconds**.



Key Advantages:

1

Robust AI model

Model trained and validated on data from hundreds of imaging facilities across the US.

2

Seamless Workflow Integration

Designed for integration using industry standard APIs. Clinical workflow change not required.

3

Flexible Deployment

Can be deployed behind the firewall onsite or via cloud.