VALIDATE: Validation of Artificial Intelligence to Limit Delays in Acute Stroke Treatment and Endovascular Therapy

Thomas Devlin, MD, PhD[1,3], Morgan Figurelle, MD[1], Amanda Avila, MD[1], Gregory Heath, DHSc, MPH[2], Caitlyn Boyd, MHA, MSN, RN[1], Lan Gao, PhD[2], Hira Ayub[1], Theresa Sevilis, DO[1]

[1]TeleSpecialists, LLC, [2]University of Tennessee at Chattanooga, [3]University of Tennessee Health Science Center / CHI Memorial Hospital

Background

Critique of Past Studies on Viz.ai

While the studies to date have been small, the fact that many found statistically significant improvement in stroke workflow after Viz.ai installation suggests the technology may be highly impactful.

LIMITATIONS of Previous Viz.ai Studies

- Small sample size questions the generalizability & reproducibility of results.
- All were serial cohort studies with significant time between cohorts.
- Many metrics were assessed that are not directly controlled by Viz.ai.

Methods

- Acute telestroke consultations seen by TeleSpecialists, LLC physicians at 166 facilities (17 states) utilizing Viz.ai software (VIZ) vs. did not use AI software ("non-AI") from December 1, 2021 through March 31, 2022 were extracted from the Telecare by TeleSpecialists™ database.
- Facilities in which neurology does not initiate NIR contact were excluded. Analysis of each step in the timeline from arrival through teleneurologist contacting NIR was performed.

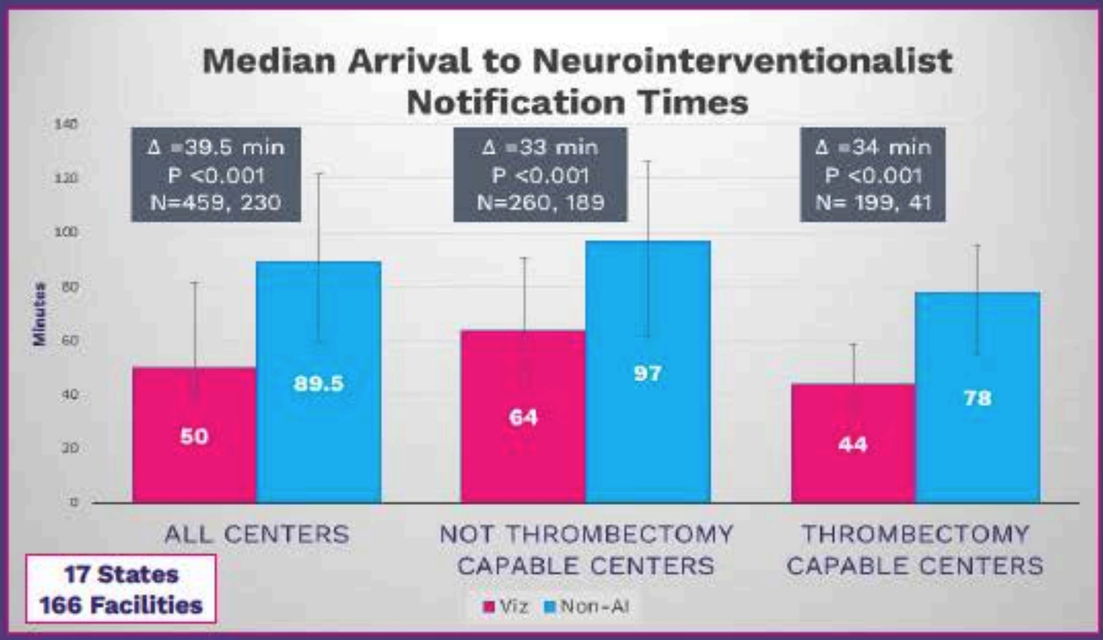
Results

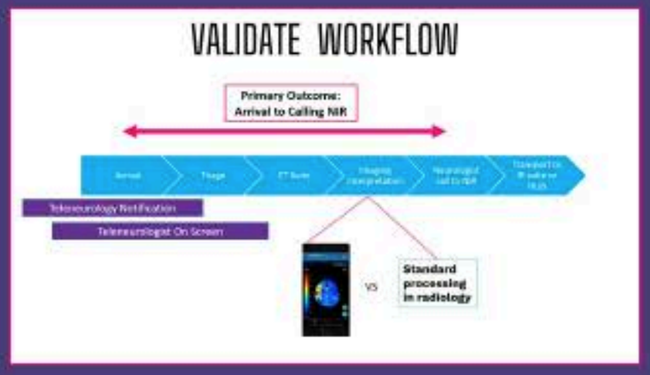
166 facilities - 17 states
14,116 patients
VIZ cohort – 8,557 patients, 76 hospitals
Non-AI cohort – 5,559, 90 hospitals

	Non-AI (5,559)	VIZ (8,557)	P value
Sex, Female n(%)	2,961 (53.3%)	4,624 (54.0%)	0.3776
Age mean, sd	65.5 ± 15.9	66.8 ± 16.3	< 0.001
Median NIHSS (IQR)	2 (1.0, 6.0)	2 (0.0, 6.0)	<0.001
Median Pre-mRS (IQR)	0 (0.0, 1.0)	0 (0.0, 1.0)	0.2602
Prenotification (%)	997 (17.9%)	2,134 (24.9%)	< 0.001

NON-AI vs VIZ STEP BY STEP TIME INTERVAL COMPARISON

	Non-AI (n=5,559)	Viz (n = 8,557)	P value
Patient Arrival to NIR Notification Time, Median(IQR)	89.5 (59.2,122.0)	50 (40.0, 82.0)	p < 0.001, delta = -39.5
Arrival to Teleneurologist Notification, Median(IQR)	12.6 (6.2, 26.3)	10.3 (4.8, 20.9)	p < 0.001, delta = -2.3
Teleneurologist Notification to TeleNeurologist Login	3 (2, 5)	2 (1,4)	p < 0.001, delta = -1
TIME ADJUSTED VIZ-SPECIFIC EFFECT (CALL TO NIR) = -36.2 min			





Conclusions

- The results of this large multicenter investigation show that Viz.ai is a powerful tool expediting patient workflow and first contact with the NIR within a telemedicine system.
- Benefits exist regardless of whether the patient first presents to a spoke or hub hospital.
- This 17 state, 166 site study corroborates the results of previous smaller studies that concluded a benefit of Viz.ai at driving faster LVO detection and overall patient workflow.
- This large multicenter study, when combined with the results of previous reports, represent a call to action for wider adoption of this technology into the armamentarium of acute stroke care.

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