

Comprehensive Stroke Centers

In a Regional Stroke System of Care

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Disclosures

- ✓ Nothing to disclose



Objectives

- Discuss the history of leveled stroke centers
- Discuss Comprehensive Stroke Center (CSC) accreditation agencies
- Identify New York State Stroke Centers and resources
- Outline CSC requirements and resources
- Consider *opportunities and challenges* within a CSC
- Review case scenarios demonstrating stroke systems of care



A history of stroke centers- 1990's



**Brain Attack
Coalition**



Primary Stroke Centers

CONSENSUS STATEMENT

Recommendations for the Establishment of Primary Stroke Centers

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George Hademenos, PhD

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Michael D. Walker, MD

for the Brain Attack Coalition

Objective To develop recommendations for the establishment and operation of primary stroke centers as an approach to improve the medical care of patients with stroke.

Participants Members of the Brain Attack Coalition (BAC), a multidisciplinary group of representatives from major professional organizations involved with delivering stroke care. Supplemental input was obtained from other experts involved in acute stroke care.

Evidence A review of literature published from 1966 to March 2000 was performed using MEDLINE. More than 600 English-language articles that had evidence from randomized clinical trials, meta-analyses, care guidelines, or other appropriate methods supporting specific care recommendations for patients with acute stroke that could be incorporated into a stroke center model were selected.

Consensus Process Articles were reviewed initially by 1 author (M.J.A.). Members of the BAC reviewed each recommendation in the context of current practice parameters, with special attention to improving the delivery of care to patients with acute stroke, cost-effectiveness, and logistical issues related to the establishment of primary stroke centers. Consensus was reached among all BAC participants before an element was added to the list of recommendations.

Conclusions Randomized clinical trials and observational studies suggest that several elements of a stroke center would improve patient care and outcomes. Key elements of primary stroke centers include acute stroke teams, stroke units, written care



Dr. Mark J. Alberts

Key elements of a primary stroke center

- Acute stroke teams
- Stroke units
- Written care protocols
- Integrated emergency response system
- Availability of CT scans 24/7
- Rapid laboratory testing
- Administrative support and stroke leadership
- Continuous stroke education



Comprehensive Stroke Centers

Stroke

Volume 36, Issue 7, 1 July 2005; Pages 1597-1616
<https://doi.org/10.1161/01.STR.0000170622.07210.b4>



SPECIAL REPORT

Recommendations for Comprehensive Stroke Centers

A Consensus Statement From the Brain Attack Coalition

[See Editorial Comment, pg 1616](#)

Mark J. Alberts, MD, Richard E. Latchaw, MD, Warren R. Selman, MD, Timothy Shephard, RN, Mark N. Hadley, MD, Lawrence M. Brass, MD, Walter Koroshetz, MD, John R. Marler, MD, John Booss, MD, Richard D. Zorowitz, MD, Janet B. Croft, PhD, Ellen Magnis, MBA, Diane Mulligan, Andrew Jagoda, MD, Robert O'Connor, MD, C. Michael Cawley, MD, J.J. Connors, MD, Jean A. Rose-DeRenzy, CN, RN, Marian Emr, Margo Warren, Michael D. Walker, MD, and for the Brain Attack Coalition



Stanford Hospital Stroke Team 2012

Key elements of a Comprehensive Stroke Center

- Care for patients with a wide variety of diseases
- Advanced healthcare providers: neurosurgery and vascular neurology
- Advanced neuroimaging: MRI and cerebral angiography
- surgical and endovascular techniques, including clipping and coiling of intracranial aneurysms, carotid endarterectomy, and intra-arterial thrombolytic therapy
- other specific infrastructure items such as a neuroscience intensive care unit and a stroke registry
- Research participation



Stroke Center Designation



The Joint Commission (TJC)

Primary Stroke Center, Thrombectomy Capable Stroke Center, Comprehensive Stroke Center



Det Norske Veritas (DNV-GL)

Primary Stroke Center, Thrombectomy Capable Stroke Center, Comprehensive Stroke Center



Accreditation Commission for Health Care, Inc. (ACHC) formerly known as HFAP

Primary Stroke Center, Thrombectomy Capable Stroke Center, Comprehensive Stroke Center



Center for Improvement in Healthcare Quality (CIHQ)

Primary Stroke Center

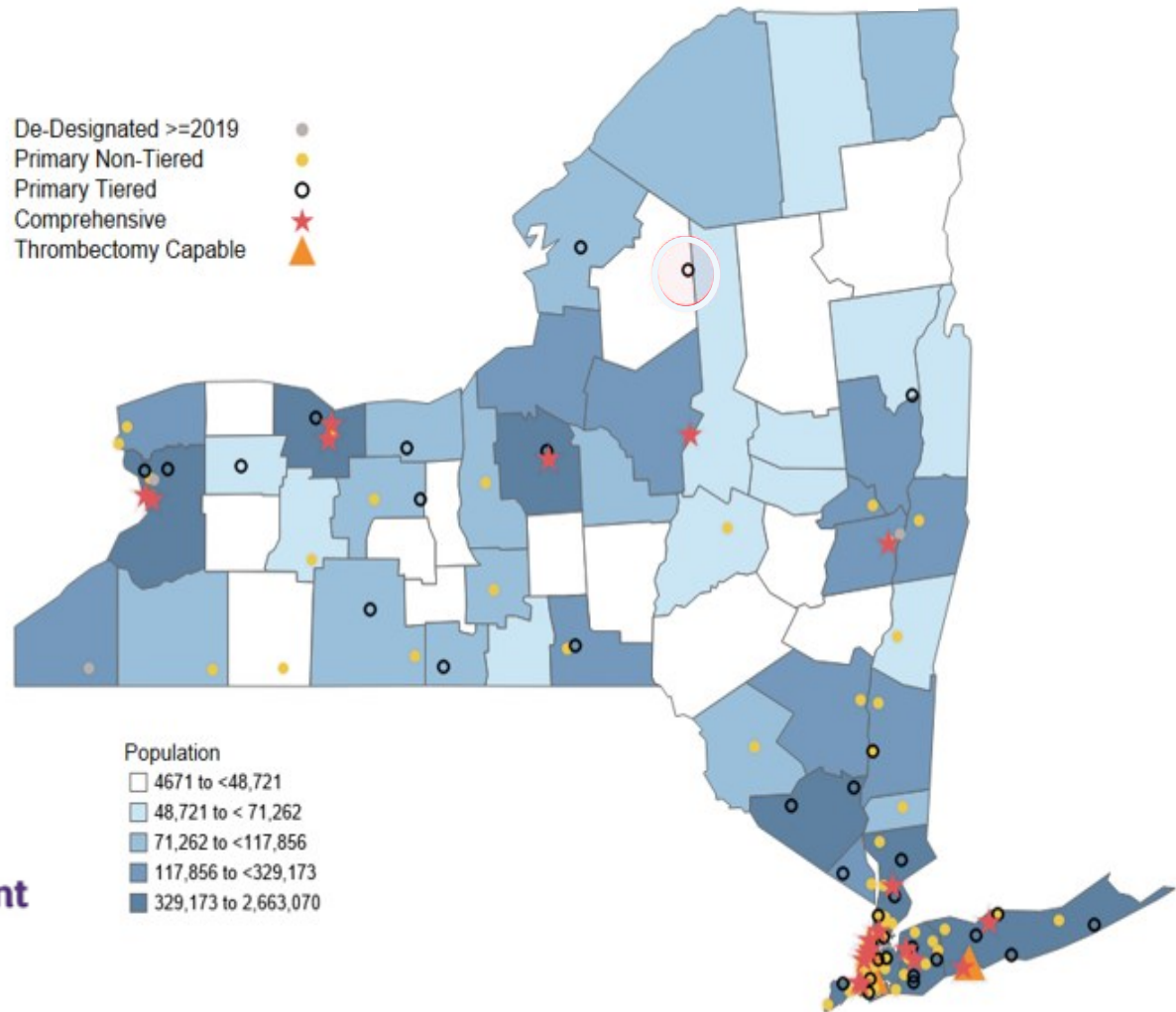


New York State

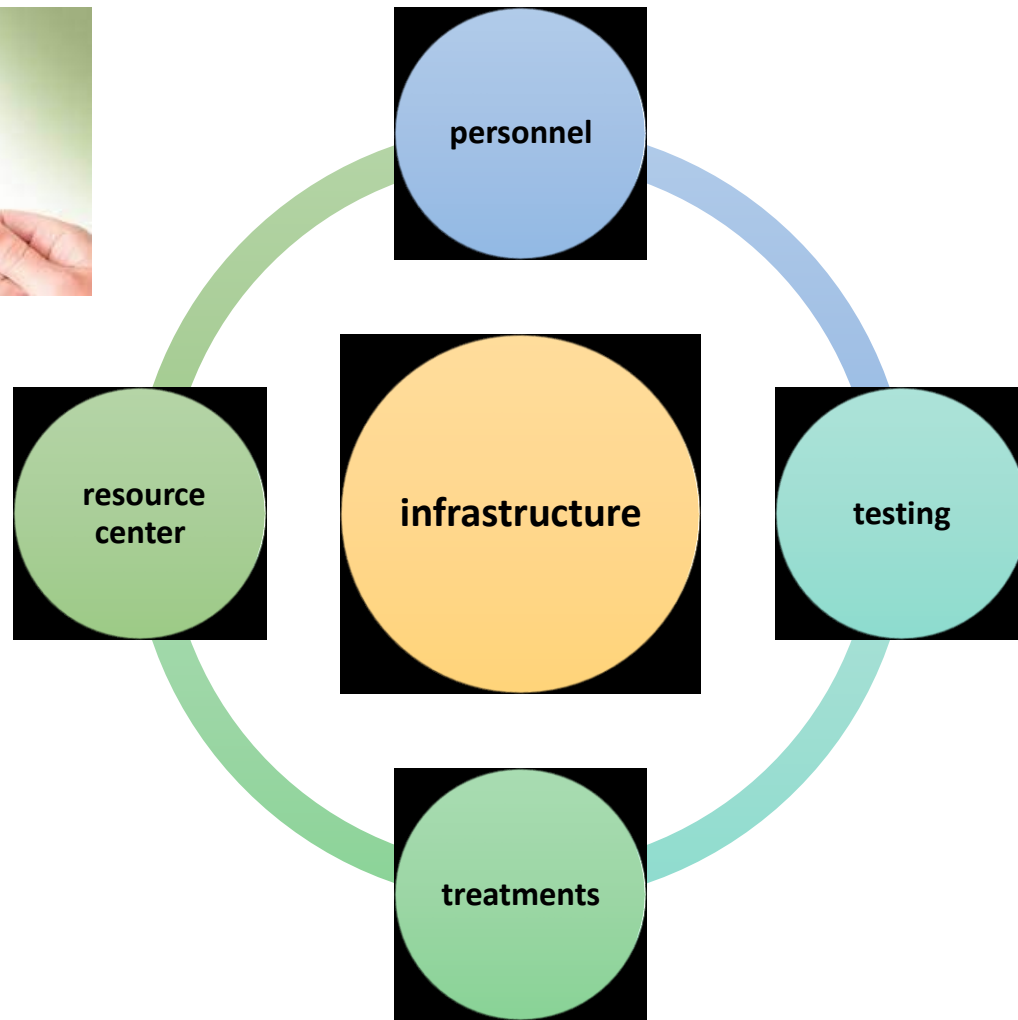
Primary Stroke Center, Thrombectomy Capable Stroke Center, Comprehensive Stroke Center



2022 New York State Map of Stroke Centers



Stroke Center Requirements- from DNV



Stroke Center Requirements- from DNV

Regulatory

- Medicare Conditions of Participation



Volumes

- At least 15 thrombectomies on-site over the past 24 months
- 20 or more patients with a diagnosis of subarachnoid hemorrhage
- At least 10 endovascular or surgical procedures for aneurysms and AVM
- At least 25 doses of IV thrombolytics over 24 months

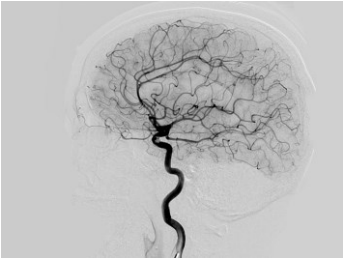
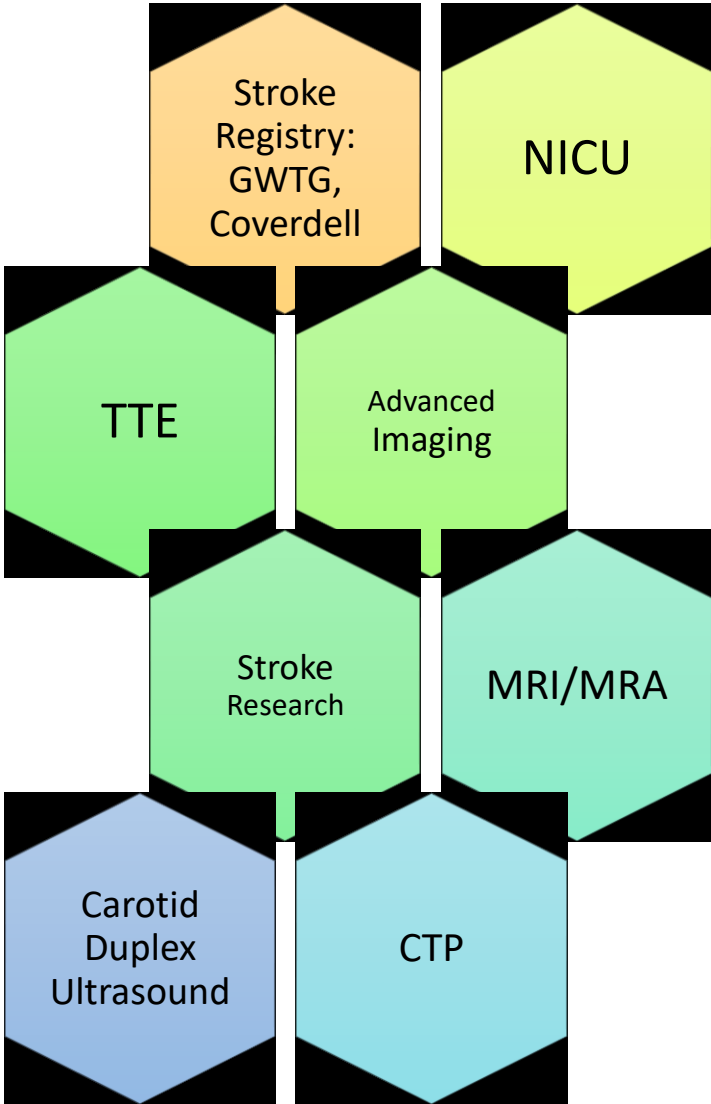


Care

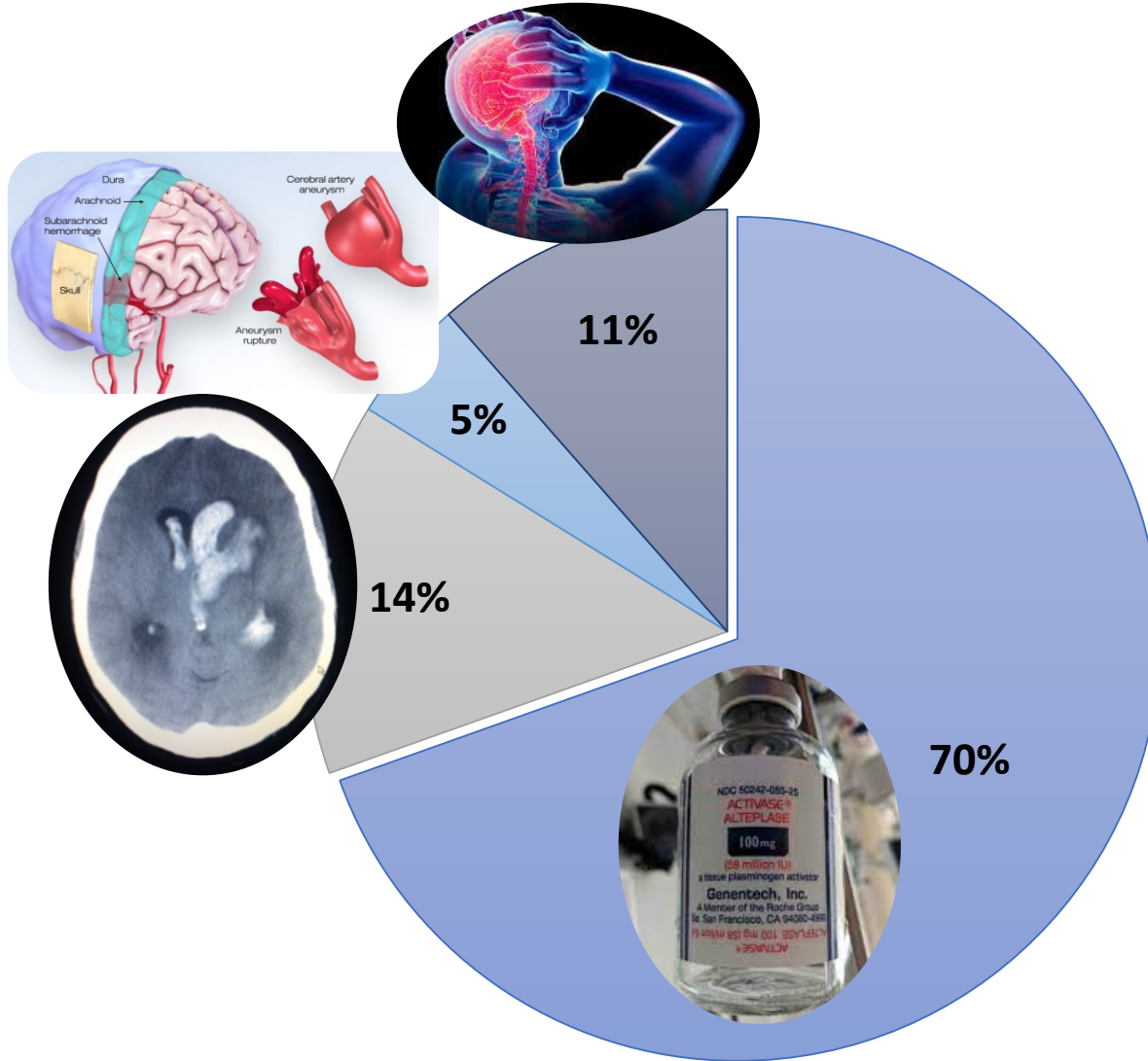
- Provide care for patients with a diagnosis of spontaneous intracerebral hemorrhage on-site (No minimum volume requirement)



Stroke Center Requirements- from DNV



Upstate Comprehensive Stroke Center



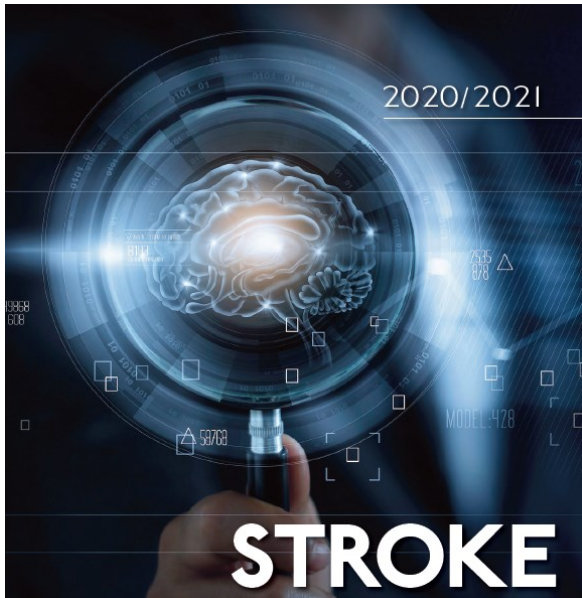
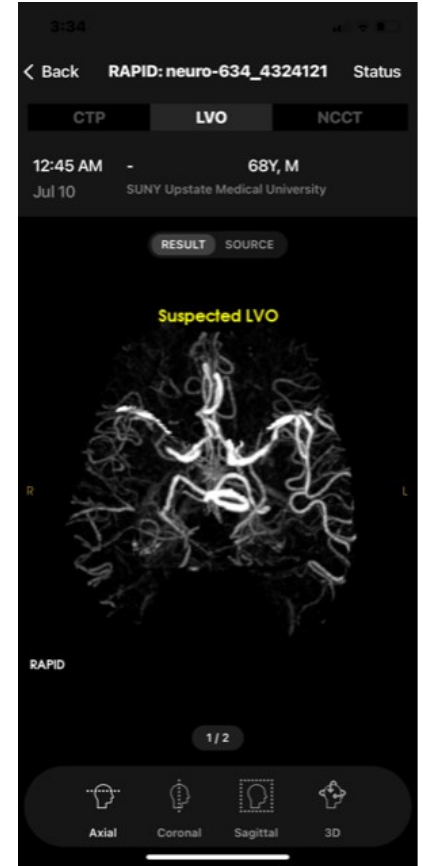
Research Studies



PASSPoRT



Cool things



STROKE

UPSTATE
COMPREHENSIVE STROKE CENTER

750 EAST ADAMS STREET | SYRACUSE, NY | WWW.UPSTATE.EDU/STROKE



Opportunities and Challenges



Staffed Beds

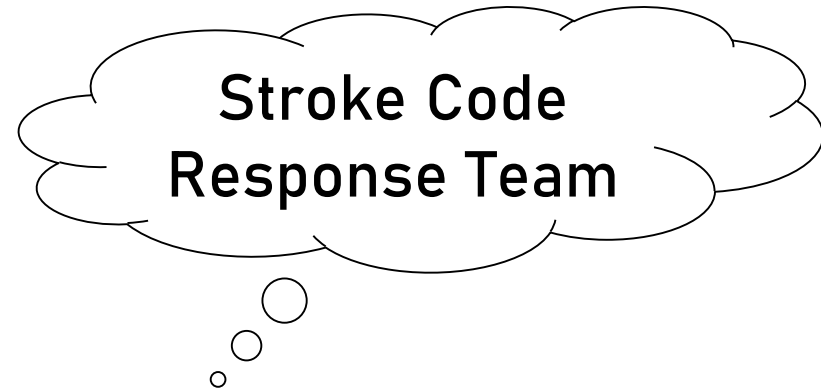


Opportunities and Challenges

Siloed Teams



Opportunities and Challenges



Opportunities and Challenges

Stroke Team



Regional Process Improvement



CWSC

Central and Western New York
Stroke Coordinators Consortium



**Department
of Health**



**PAUL
Coverdell**
NATIONAL ACUTE STROKE PROGRAM

UPSTATE COMPREHENSIVE STROKE CENTER
PRESENTS THE **REGIONAL UPSTATE STROKE
AND HEALTH SUMMIT (RUSH)**

**VIRTUAL
RUSH CONFERENCE SERIES**



Case Scenario #1

56-year-old female presents at OSH with c/o chest pain with elevated troponin. Cardiac catheterization was planned and the patient exhibited signs of stroke (right-sided weakness)

09:30 Last Known Well

11:00 Time first Noticed

CTA head abrupt occlusion of proximal M2 branch and L MCA

11:55 Alteplase bolus at OSH

12:45 EMS Called for transport to CSC

13:25 *Neuro IR Code Activated*

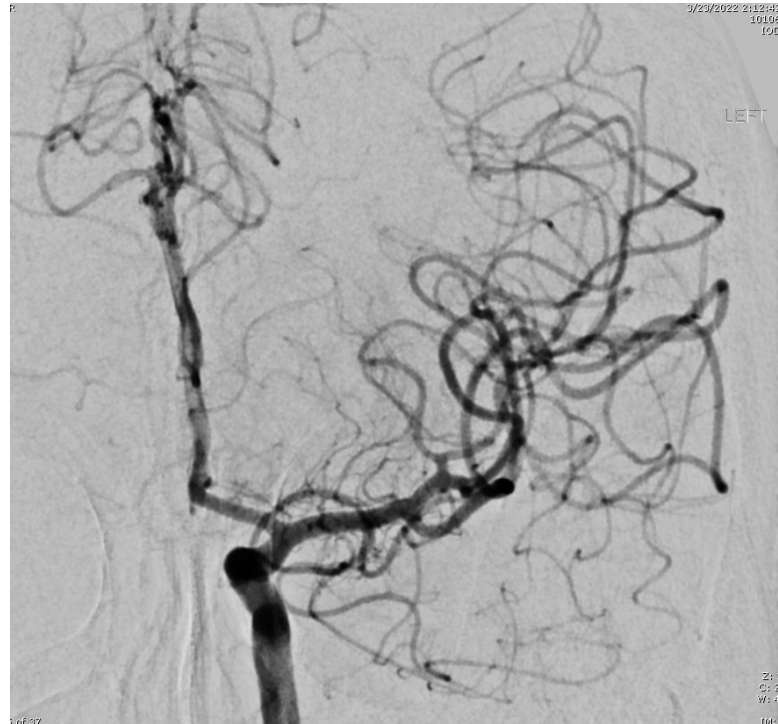
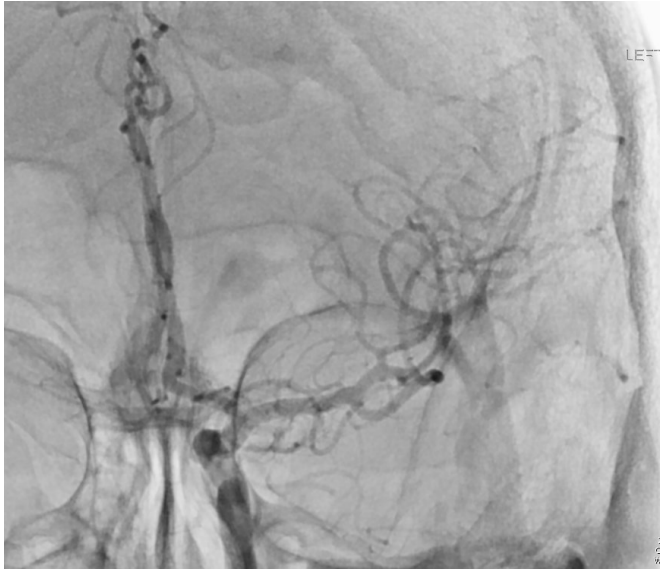
13:41 Patient Arrival at Neuro ICU

13:41 Seen by Neurology ICU NIHSS 16

13:45 Transported to NIR suite for thrombectomy



Case Scenario #1



Cerebral angiography shows recanalization of occluded branch (Alteplase helps)



Case Scenario #2

53-year-old female with sudden onset weakness of the right face, right arm/hand, left gaze preference
PMH: HTN, A-fib on Xarelto, other cardiac issues requiring pacer

05:45 Last known well

18:57 OSH arrival

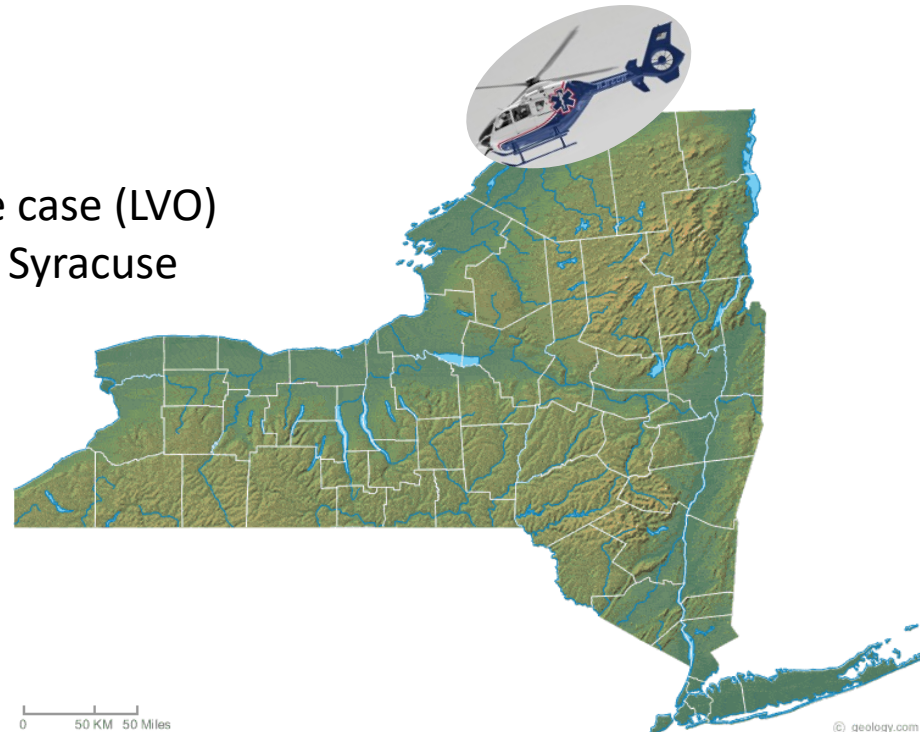
OSH CTA Tandem left ICA/MCA

19:11 Flight EMS notified of emergent stroke case (LVO)

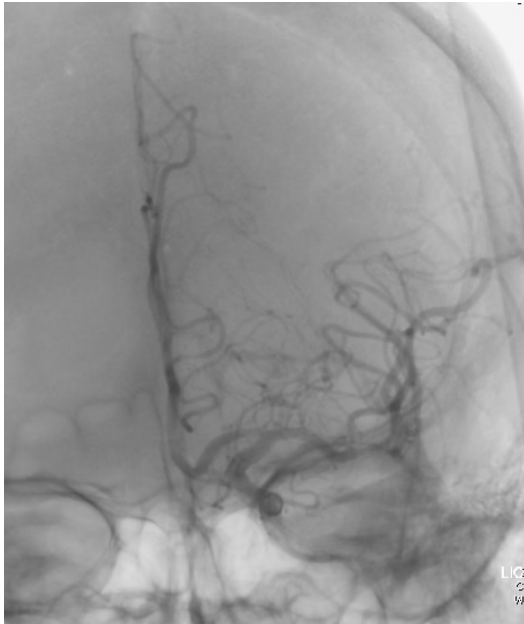
20:47 Flight EMS departs with the patient to Syracuse

21:49 Patient arrives at CSC

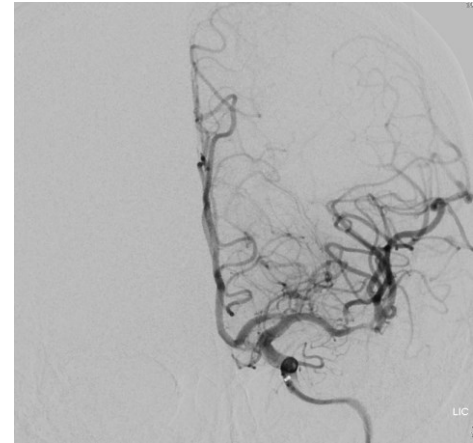
22:00 CSC stroke/NIR code NIHSS 27



Case Scenario #2



22:07 In NIR suite
22:29 Skin Puncture
22:43 First Pass
22:50 Reperfusion



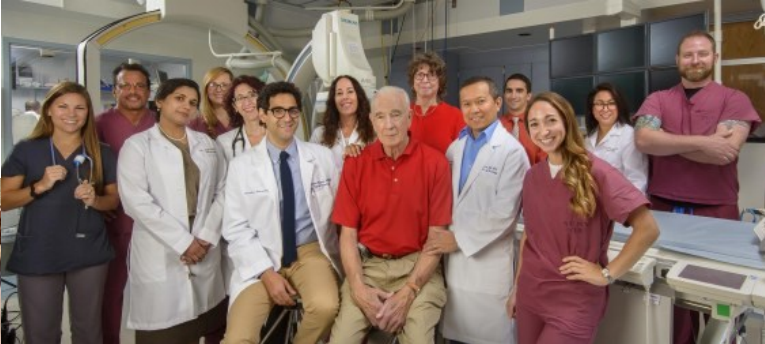
Left supraclinoid ICA occlusion with stenting and TICI 2b (out of 3) reperfusion



Conclusion

Stroke care is a team effort.

Learn how CDC helps improve care and **save lives.**



References

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<https://doi:10.1001/jama.283.23.3102>

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Questions?



QUESTIONS

