



Stroke Measures: Diagnosis, Treatments & Case Studies of Stroke Patients

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 **Saint Luke's**

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**American Heart Association
American Stroke Association
CERTIFICATION**
Meets standards for
Comprehensive Stroke Center

Participant Disclosure Slide

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FINANCIAL DISCLOSURE:

No relevant financial relationship exists



Objectives

- Stroke Definition & Treatment
- Stroke Team & Work up
- The Laboratory's Critical Role on the Stroke Team
- Case Studies



What is a Stroke?

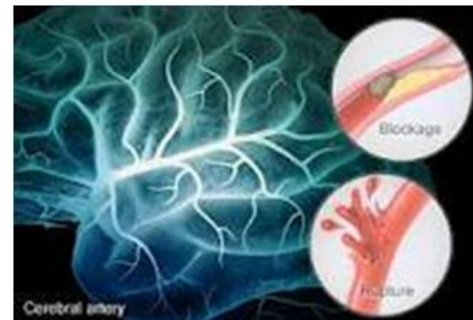


A stroke occurs when blood flow to the brain is interrupted by a blocked or a burst blood vessel.



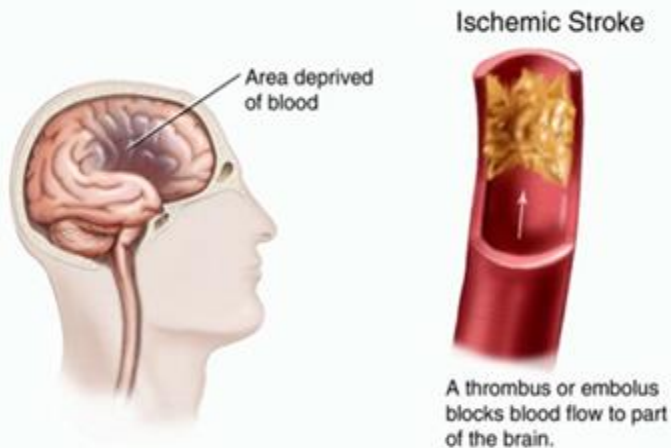
Stroke Statistics

- Stroke is the ~~fourth~~ **FIFTH!** leading cause of death in the United States. Each year, about 795,000 people suffer a stroke and over 143,579 people die from a stroke in the United States.
- On average, every 40 seconds someone in the United States has a stroke.
- Of all strokes, 87 percent are ischemic, 10 percent are intracerebral hemorrhage, and 3 percent are subarachnoid hemorrhage.



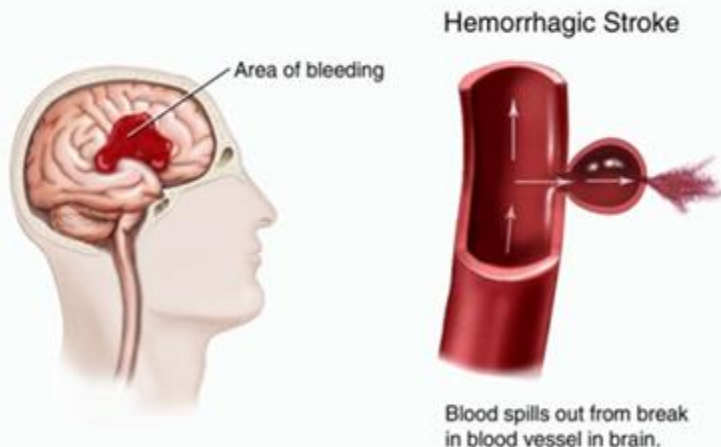
Types of Strokes

Types of Stroke



Ischemic Stroke (Blockage)

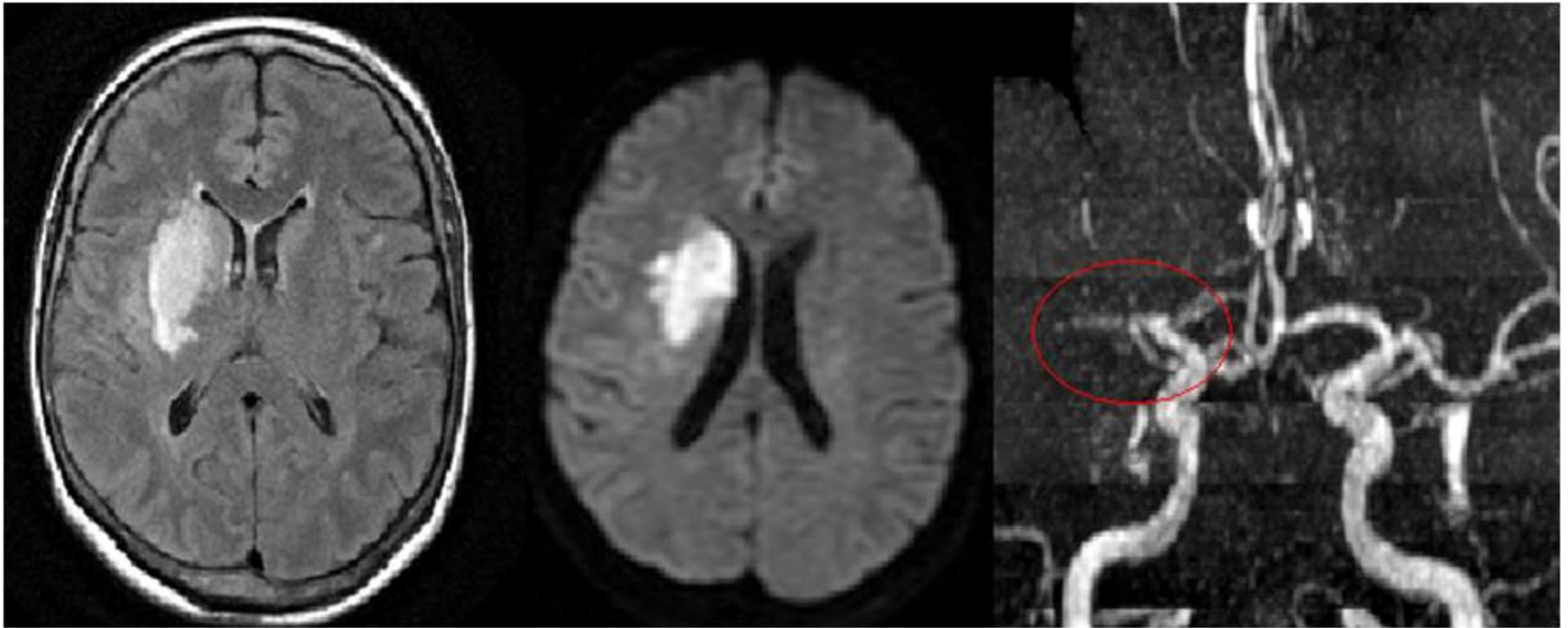
Caused by a blockage
in blood vessels in
brain



Hemorrhagic Stroke (Bleeding)

Caused by burst or
leaking blood vessels
in brain

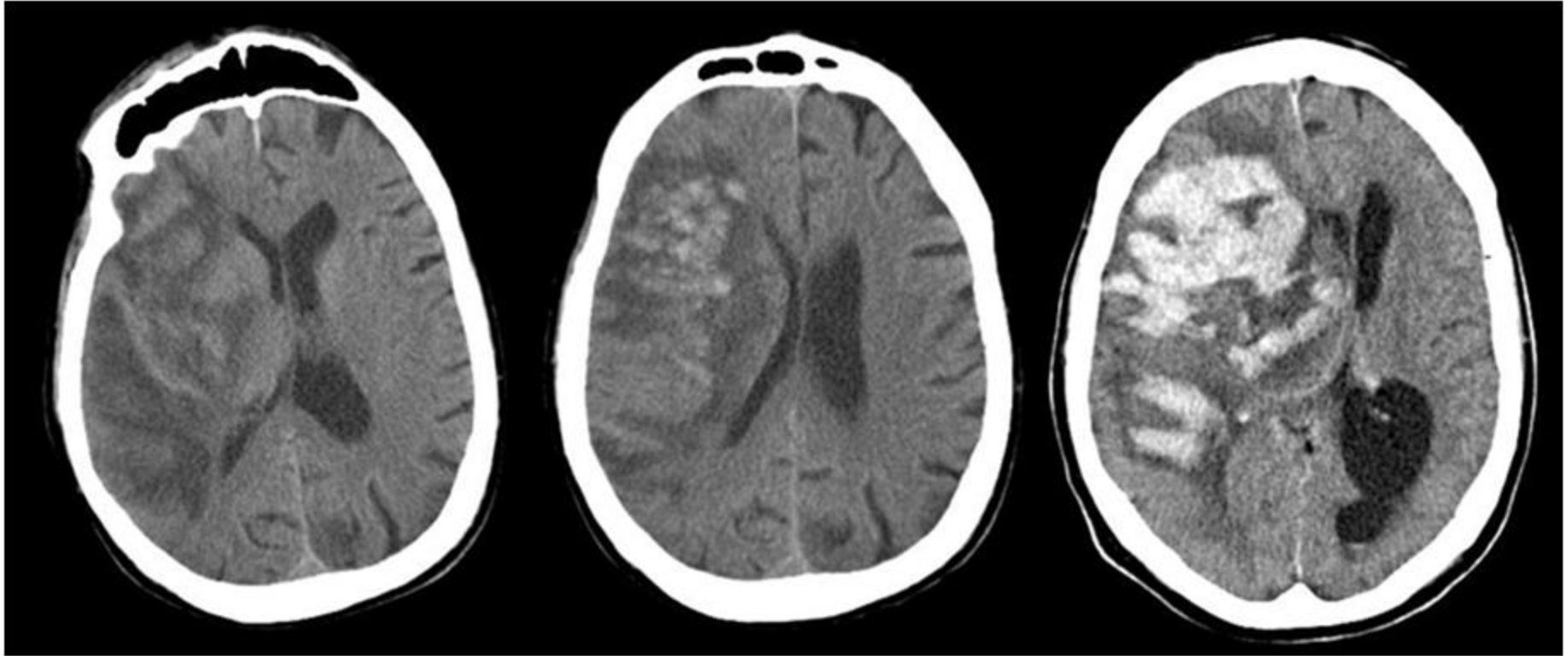
Ischemic Stroke



MRI Scan



Hemorrhagic Stroke



CT Scan



How obvious is a Stroke?



Signs & Symptoms of a Stroke

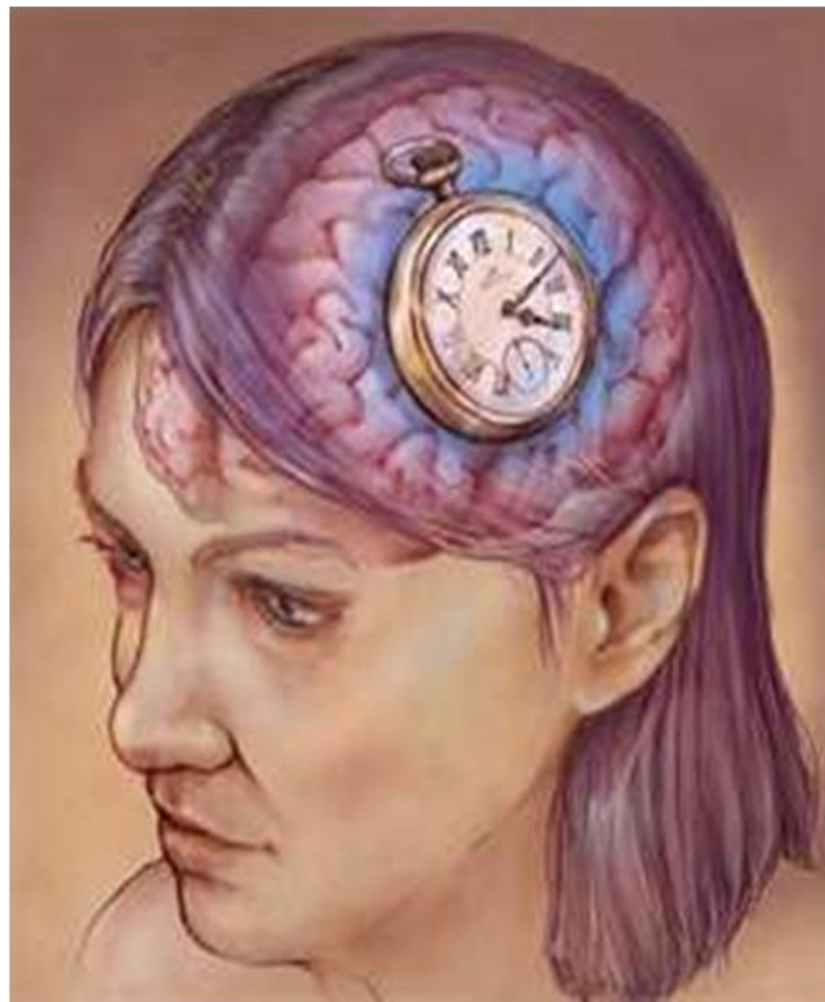


- Sudden weakness or numbness of the face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden, severe headaches with no known cause (for hemorrhagic stroke)



Time is Brain

If you suspect
someone is
having a
stroke, act
F.A.S.T. !!



In a stroke, every minute counts. Don't wait to see if symptoms go away. The longer a stroke goes untreated, the greater the potential for brain damage and disability.

Time Critical Diagnosis

Stroke is now:

Time Critical Diagnosis (TCD) in the state of Missouri.

- Critical Time Goals have been established for timely assessment, diagnosis, treatment, and interventions for stroke patients.
- This means Time Matters!
- All Stroke patients become Super STAT!

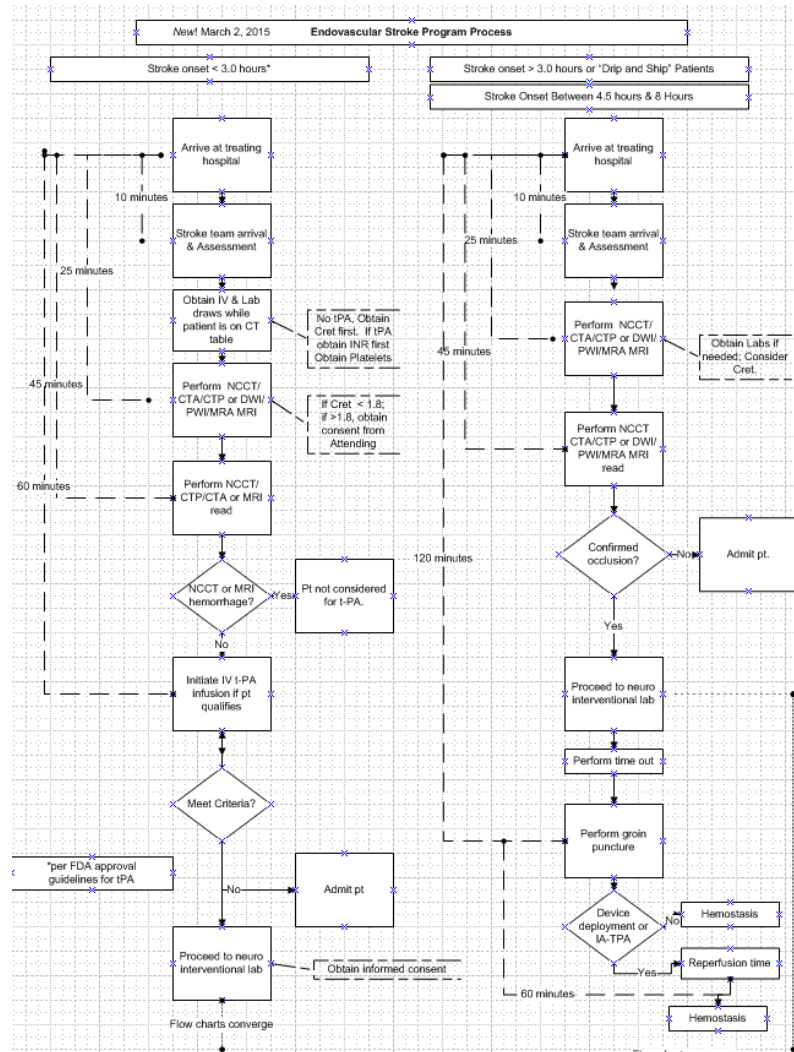


The Stroke Team

To treat an ischemic stroke, doctors must quickly restore blood flow to your brain.

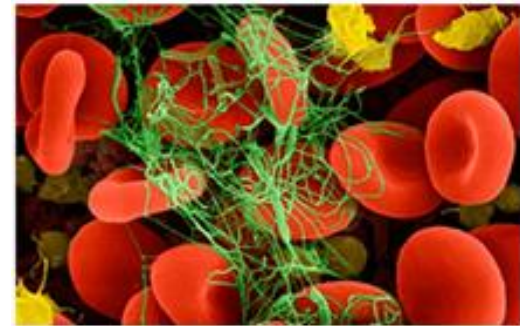


You want *me* Where?

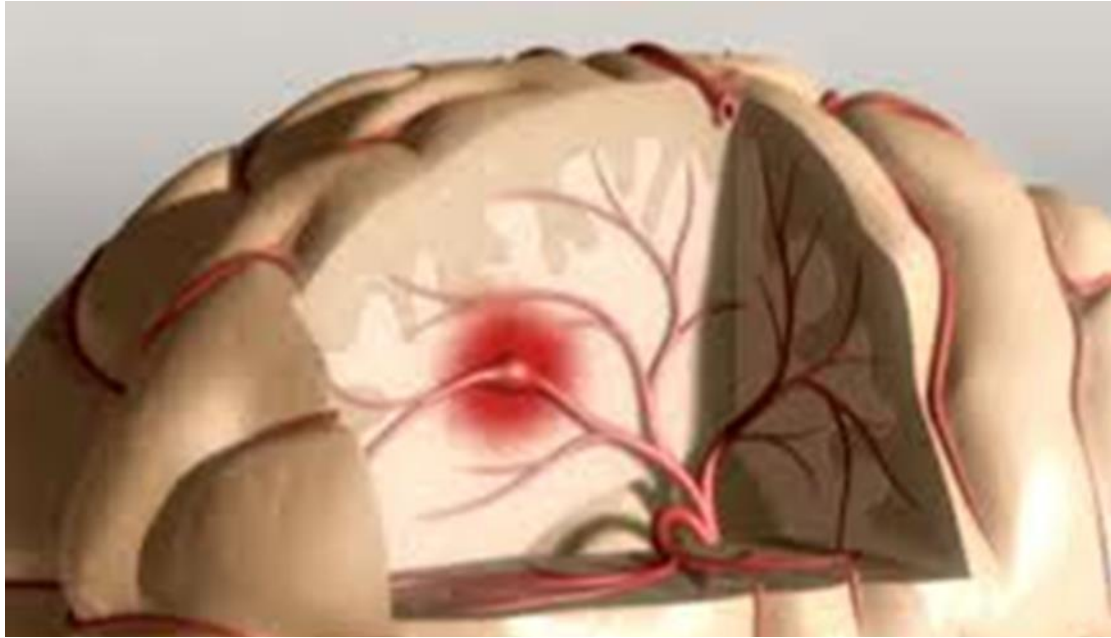


Role of Lab

- Critical Time Goals need to be met by each person on the team.
- Labs become Super STAT!
- Paying attention to time metrics and special labeling and protocols
- Lab results are critical to both types of strokes



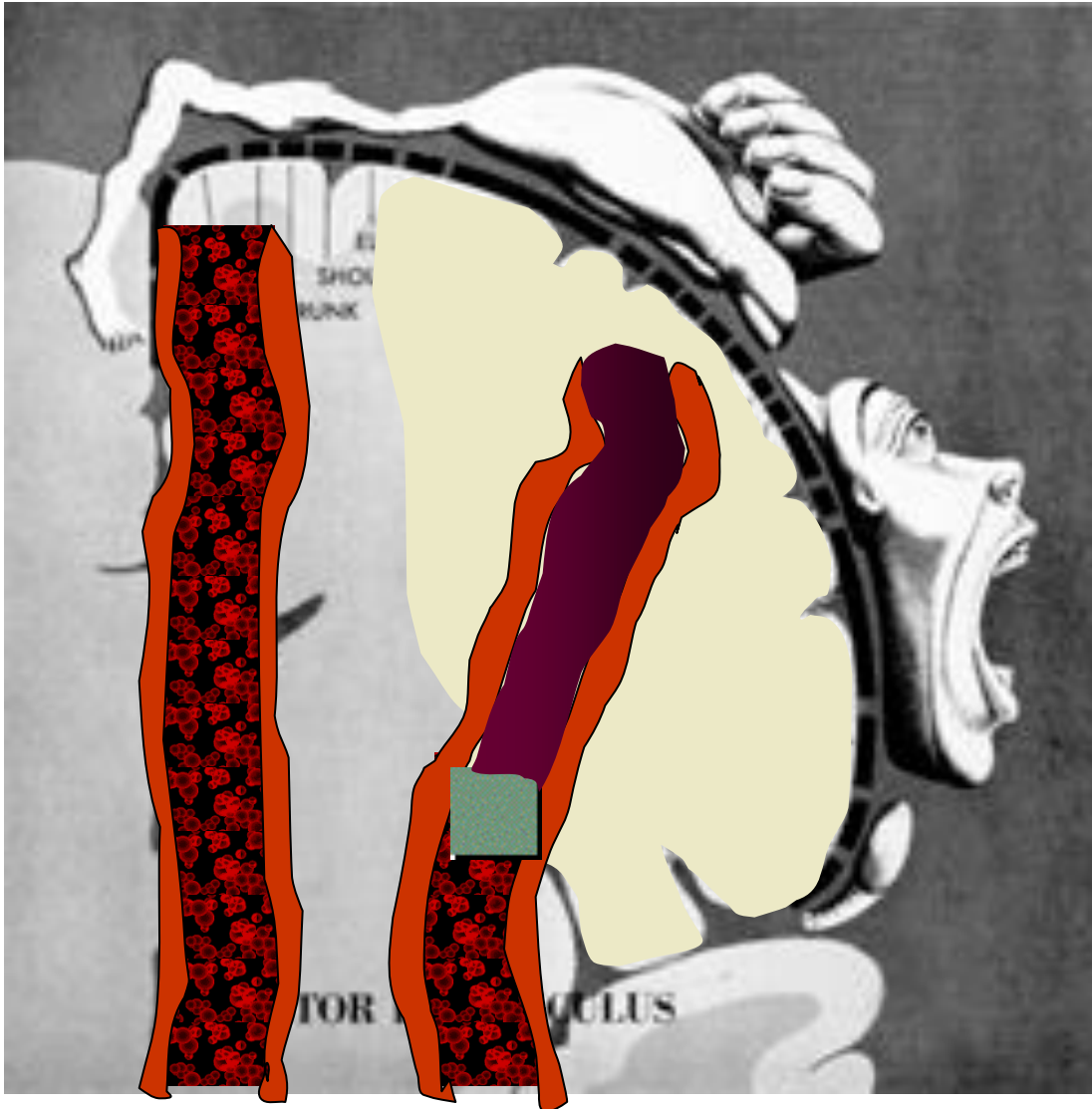
The Penumbra



The effects of Stroke are not just at the point of injury, but in a massive area we call the penumbra. This is the area we can fix!



Why is Stroke Time Critical?



Stroke is Time Critical because we know that time lost is brain lost.

Stroke Treatments

- Ischemic Stroke

Clot-busters: t-PA

Anticoagulants: warfarin

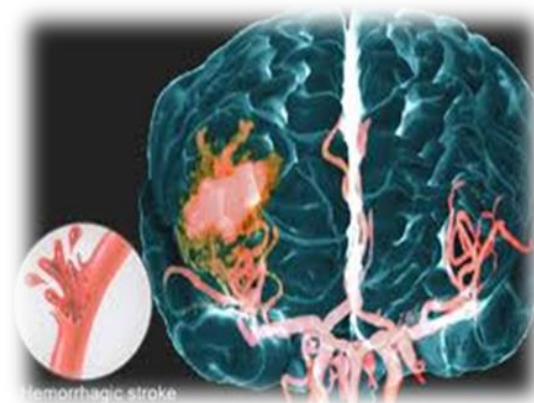
Carotid Endarterectomy (Surgery)

Angioplasty/Stents (Non-Surgical)

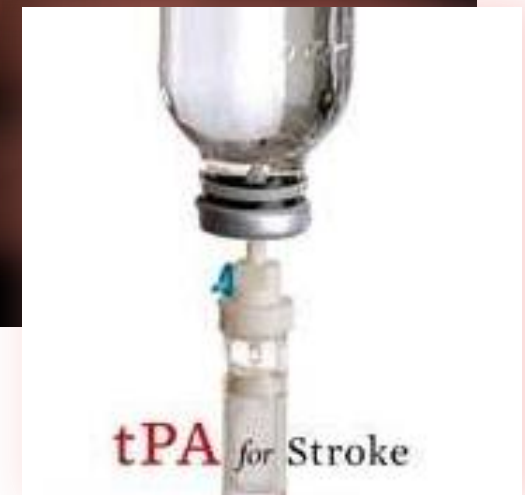
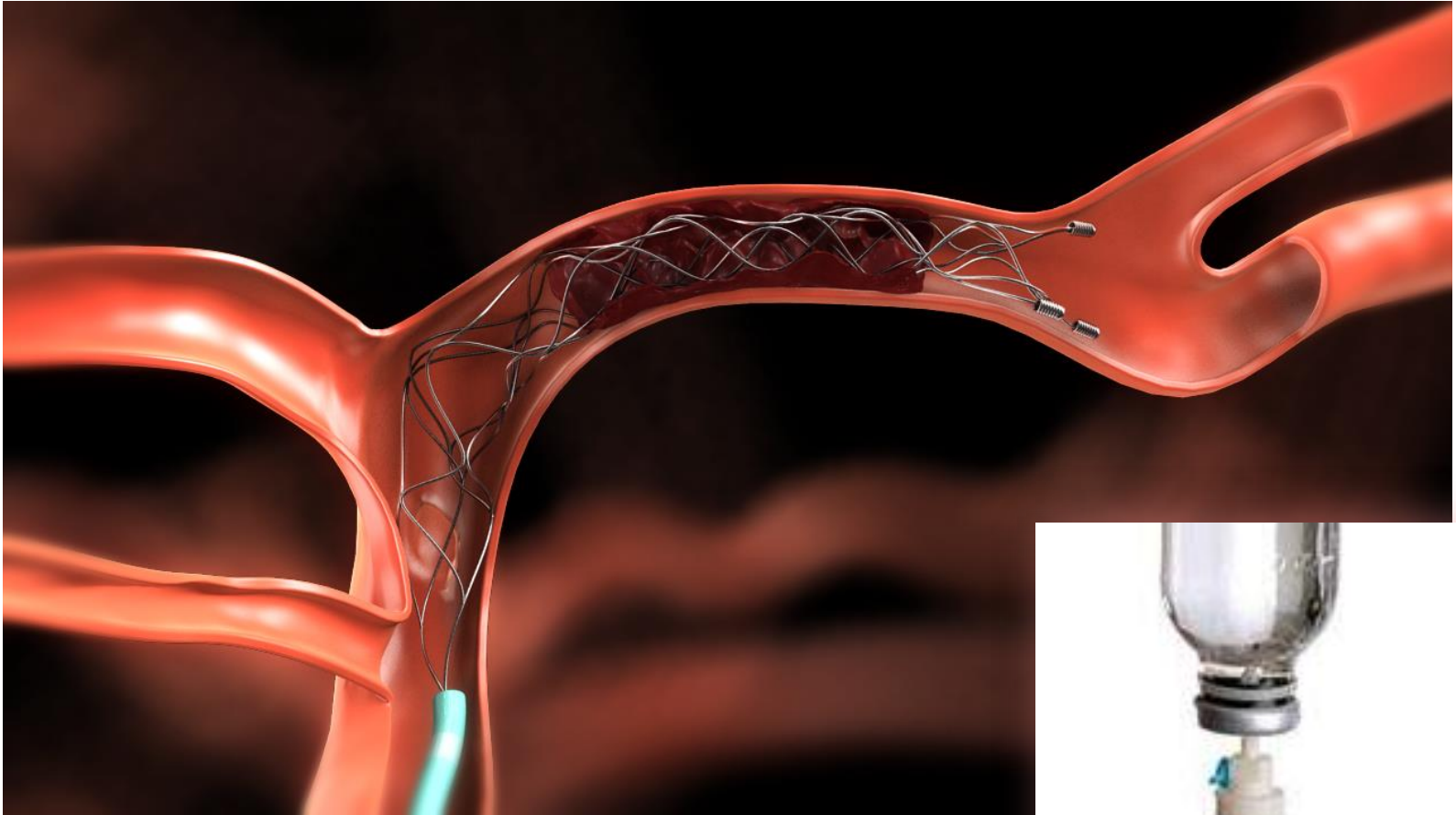
- Hemorrhagic Stroke

Surgical Intervention

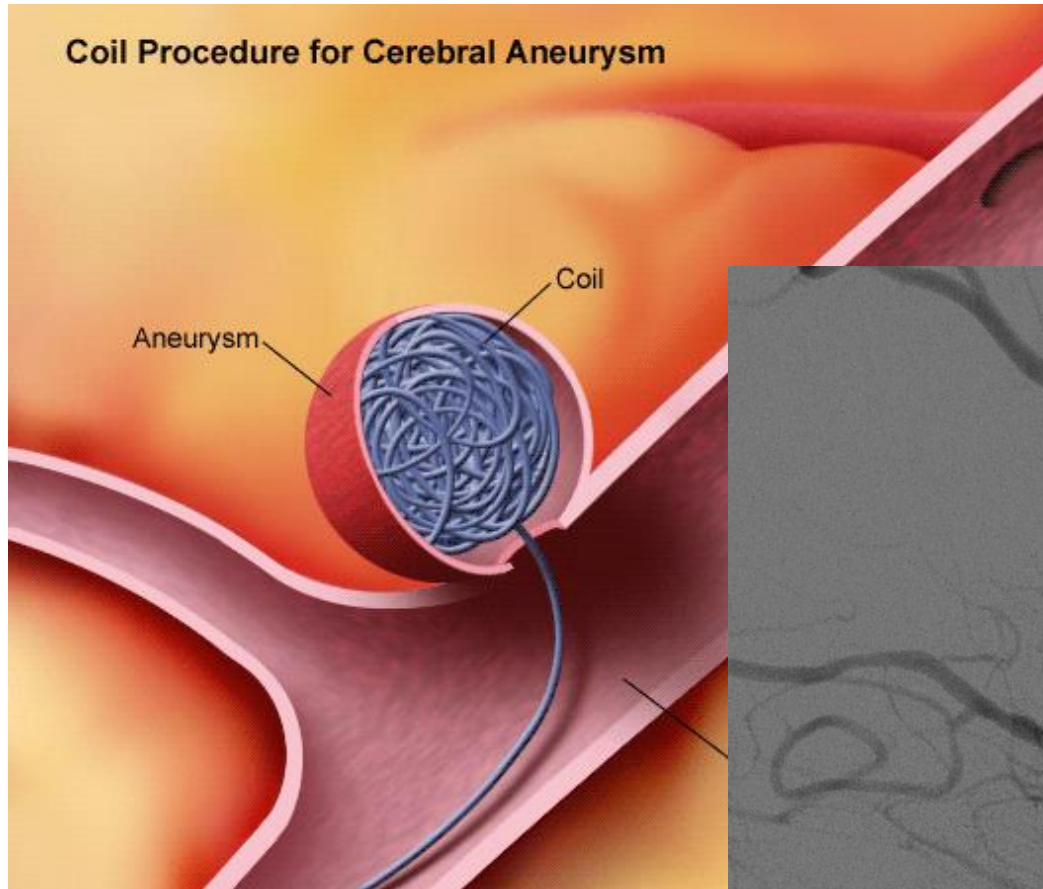
Endovascular Procedures (coils)



Ischemic Stroke Treatments



Hemorrhagic Stroke Treatments



Case Study



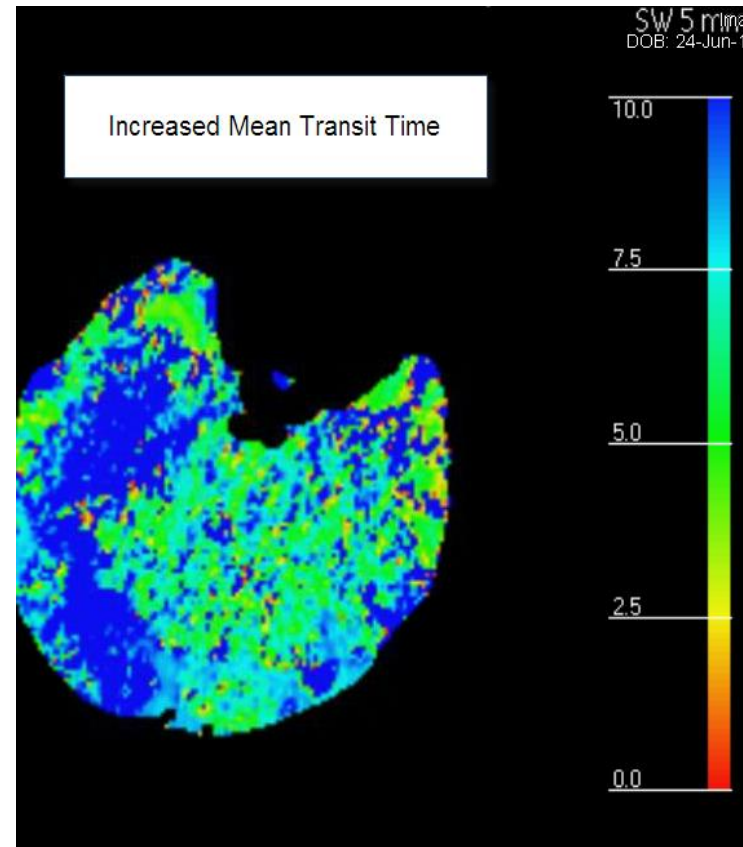
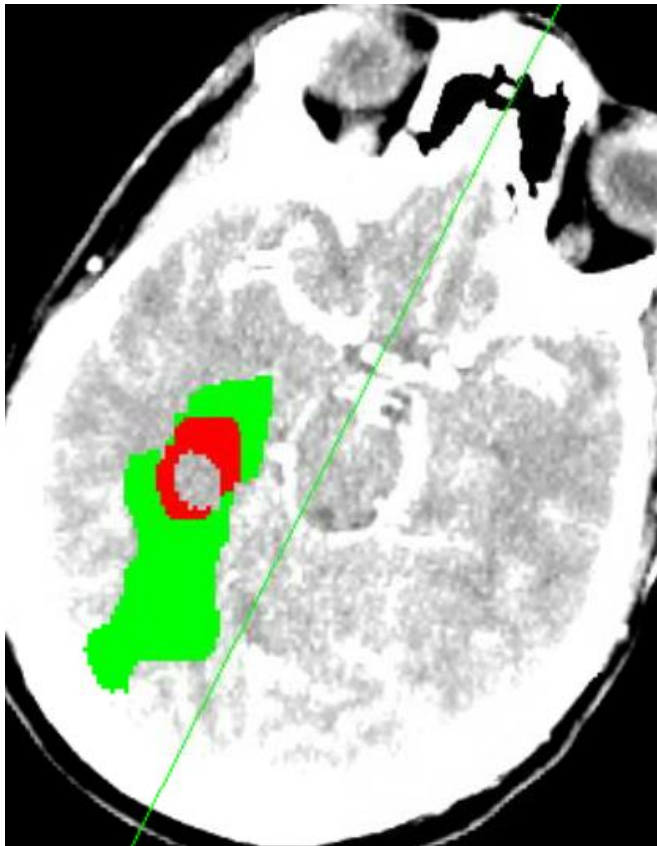
57 y/o female with sudden onset of balance problems and slurred speech. Taken to one of our outlying hospitals where labs and CT were unremarkable for new acute findings.

- NIH-5
- IV tPA administered
- Transferred to SLH Plaza
- NIH-6 on arrival



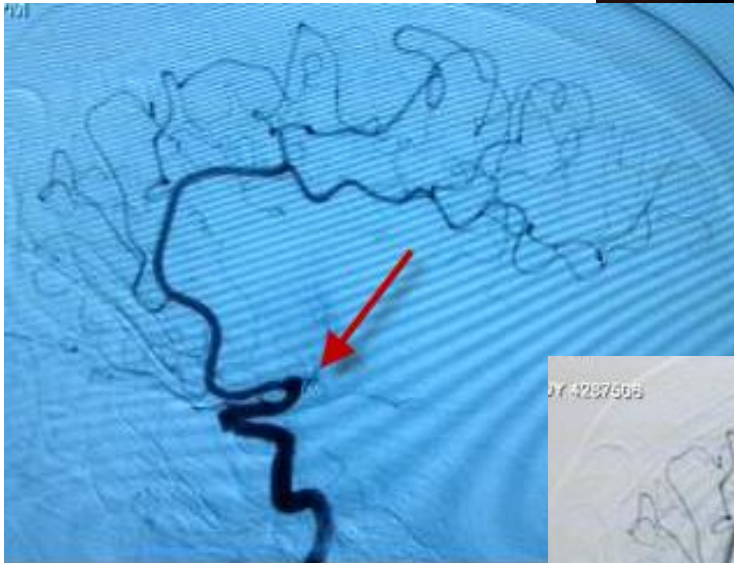
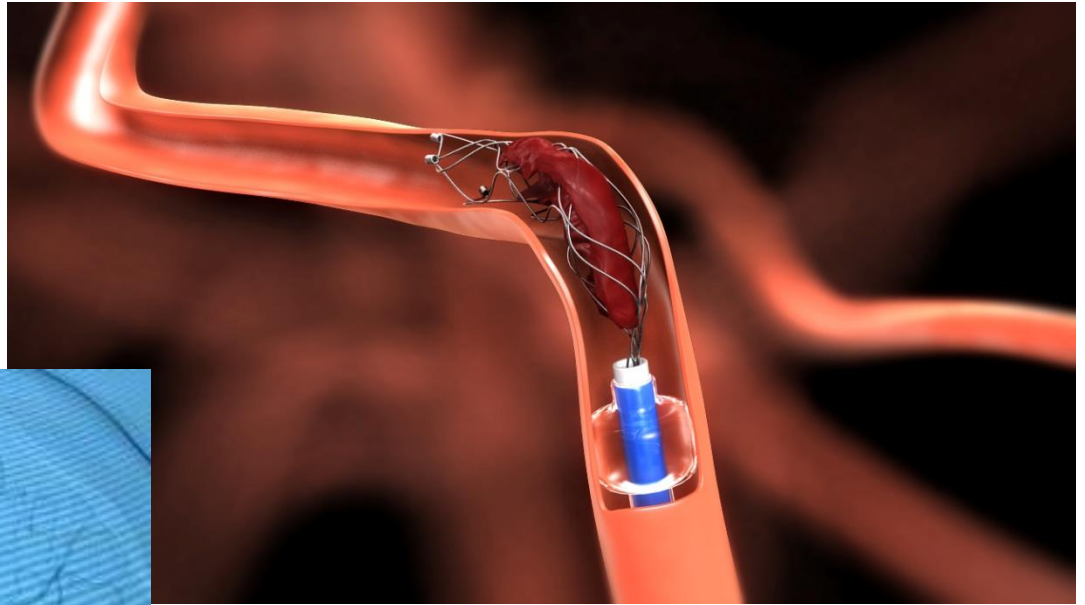
Case Study

Further imaging of CTA/CTP on arrival shows Pneumbra

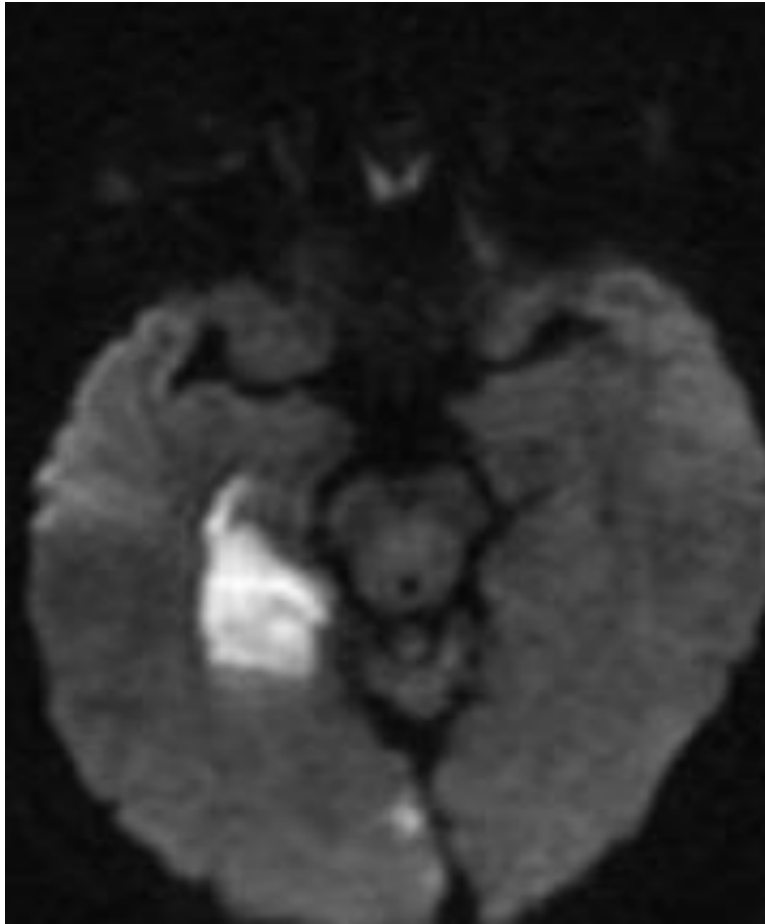


Case Study

Patient is taken to IR
Suite for mechanical
Clot Retrieval



Case Study



MRI showing total
infarct size

MRI shows acute
medial temporal
and medial
occipital stroke.

(1 Day Post Stroke)



Case Study

Successful mechanical retrieval with device.
Patient with almost full resolution of symptoms.
Patient's NIH on discharge was 1.
Patient discharged to Home.





INTENTIONAL
LEADERSHIP

It takes a TEAM!



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Thank you!

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