

Stroke 101: Signs, Symptoms & Prevention

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Stroke Education Seminar



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UCLA

Health

David Geffen
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MAY is
Stroke Awareness Month

Together
to End Stroke™



American
Heart
Association

American
Stroke
Association®



Acute Stroke Basics

BY THE NUMBERS



Every 40 seconds
someone has a
stroke



55,000



About 55,000 more women than
men have a stroke each year



1 in 4 strokes
are in people
who have had a
previous stroke

No. 5

Cause of
Death in USA



#1 cause of serious long-term *disability* in the US

80% of Stroke is Preventable

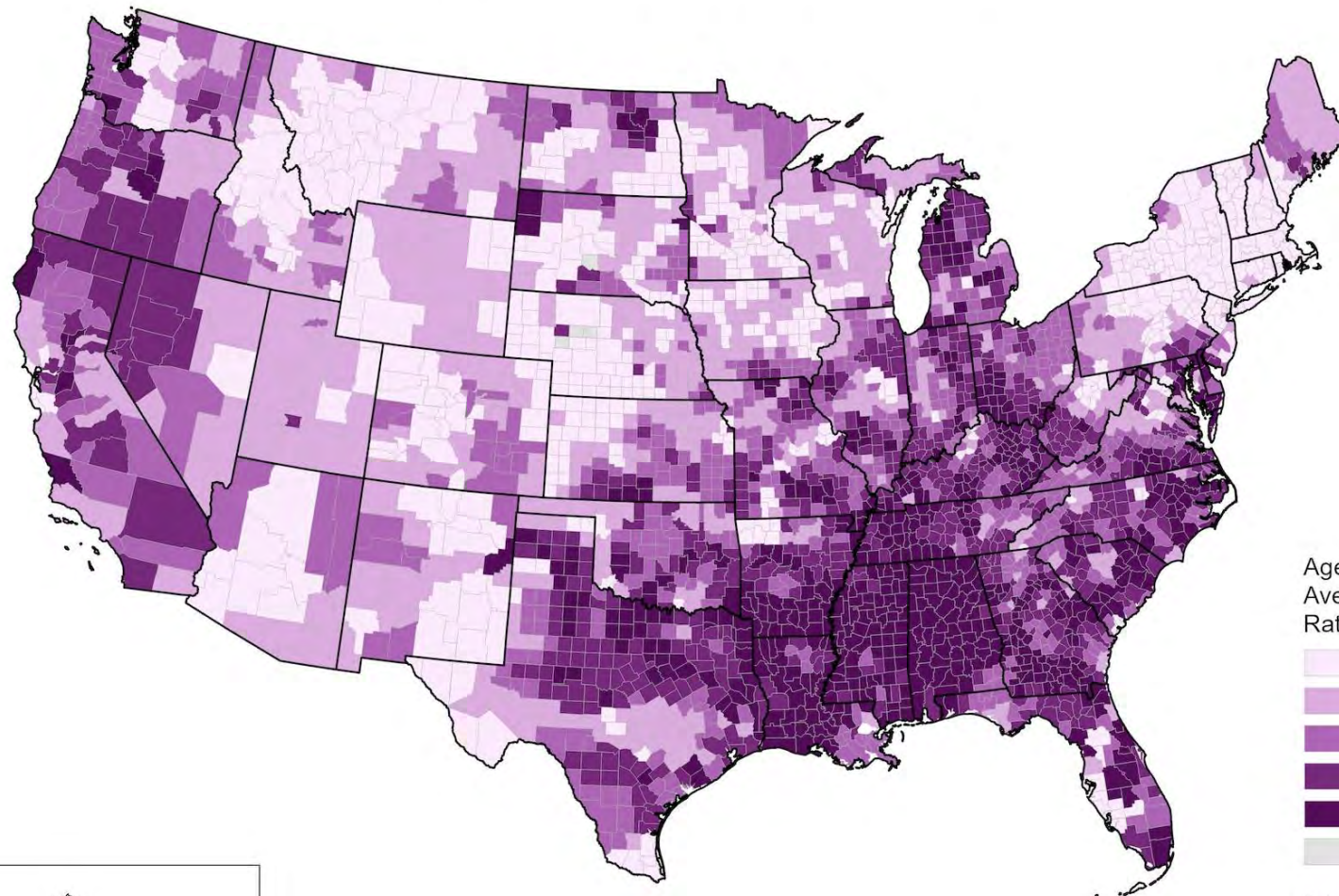
Deaths from Stroke

Breast Cancer

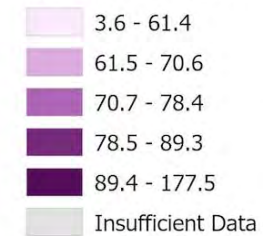


More Women Die from Stroke
Each Year than Breast Cancer

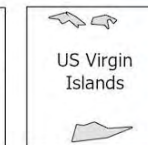
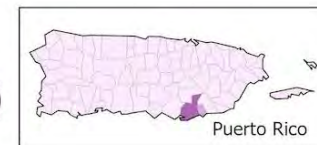
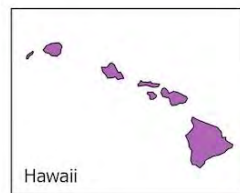
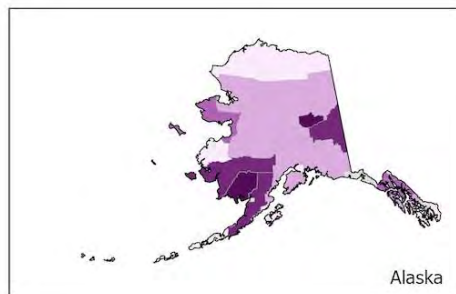
Stroke Death Rates, 2018 - 2020 Adults, Ages 35+, by County



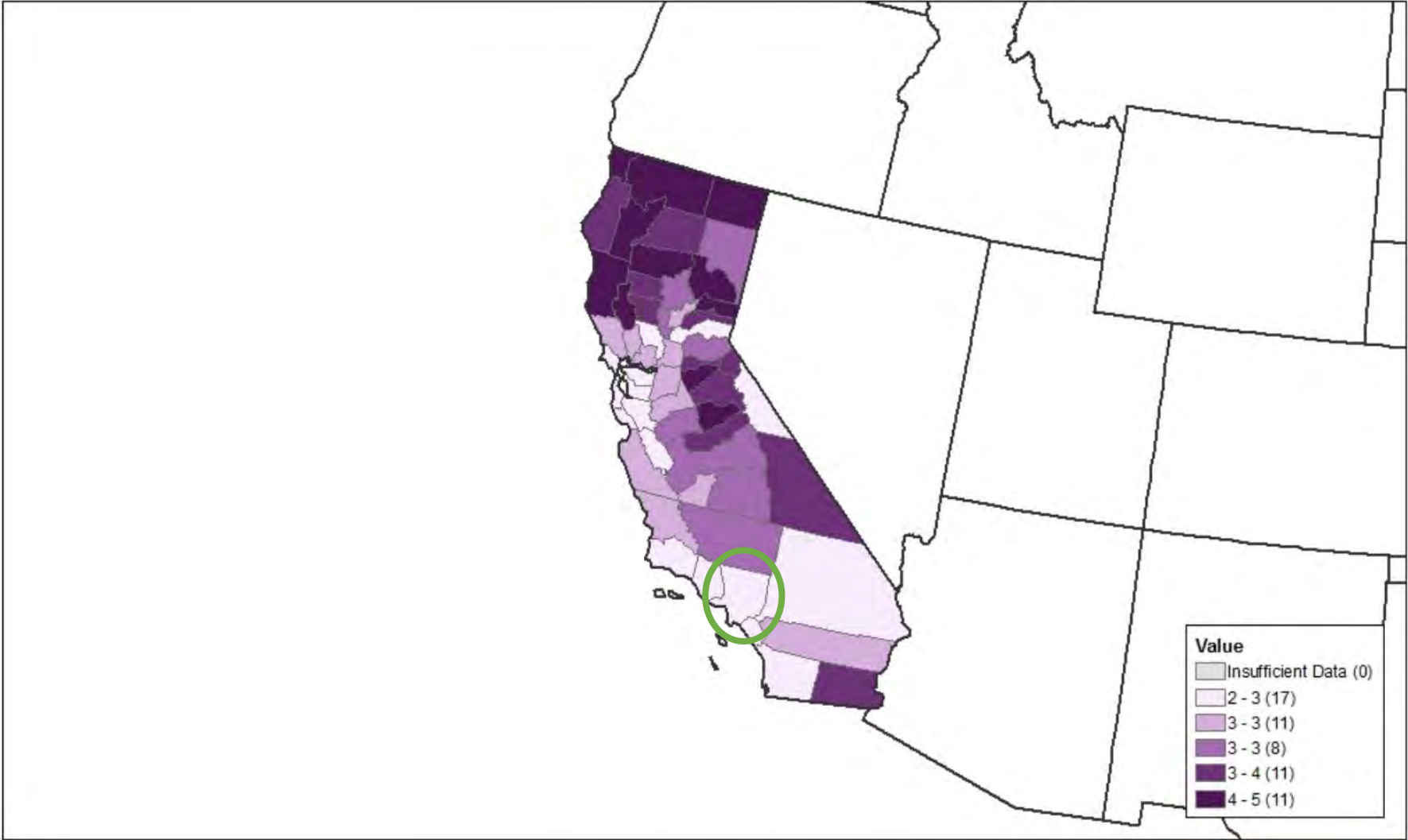
Age-Adjusted
Average Annual
Rates per 100,000



Data source and methodology found at:
www.cdc.gov/dhdsp/maps/atlas/statistical-methods



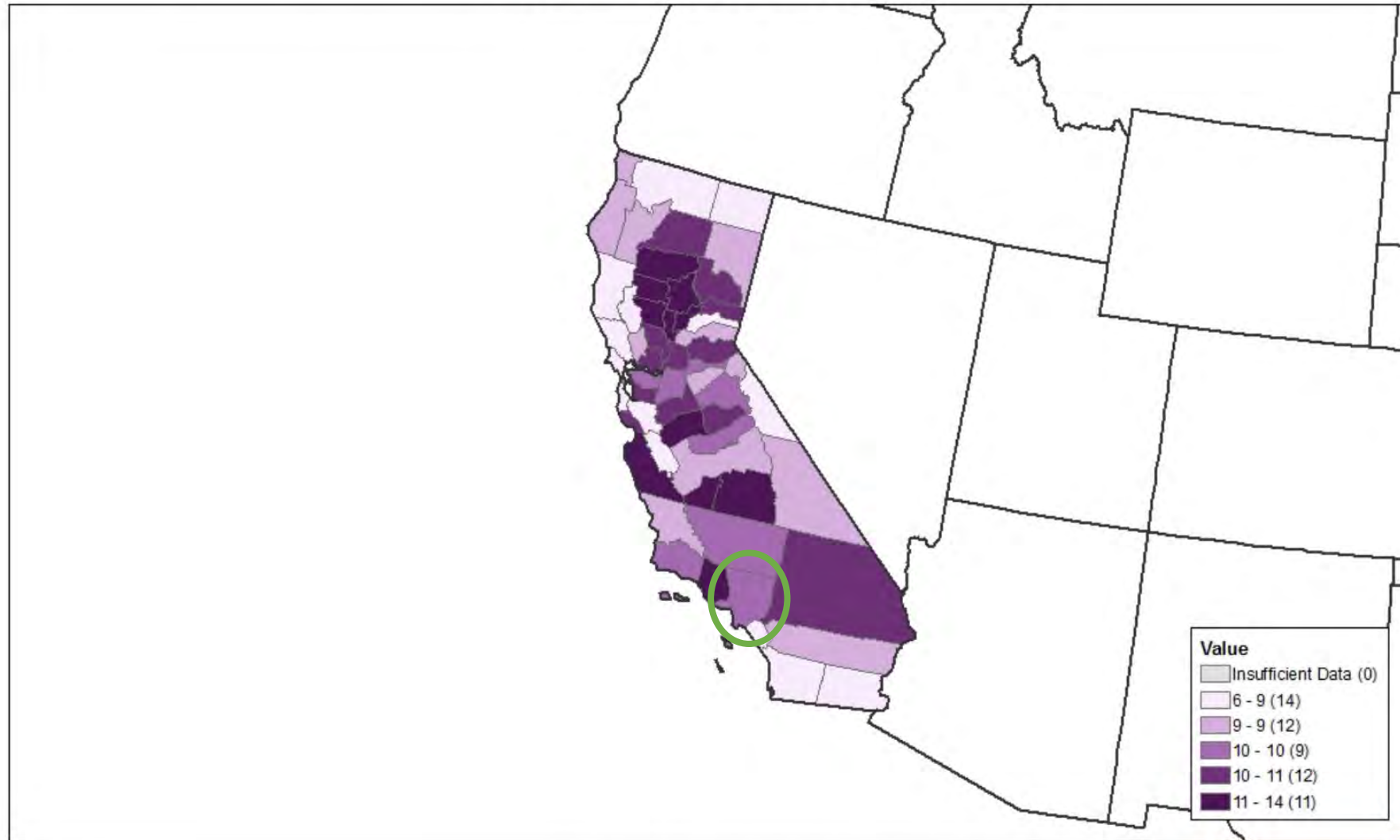
Stroke Among Adults Ages 18+, 2021



This map was created using the Interactive Atlas of Heart Disease and Stroke, a website developed by the Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. <http://www.cdc.gov/dhdsp/maps/atlas>



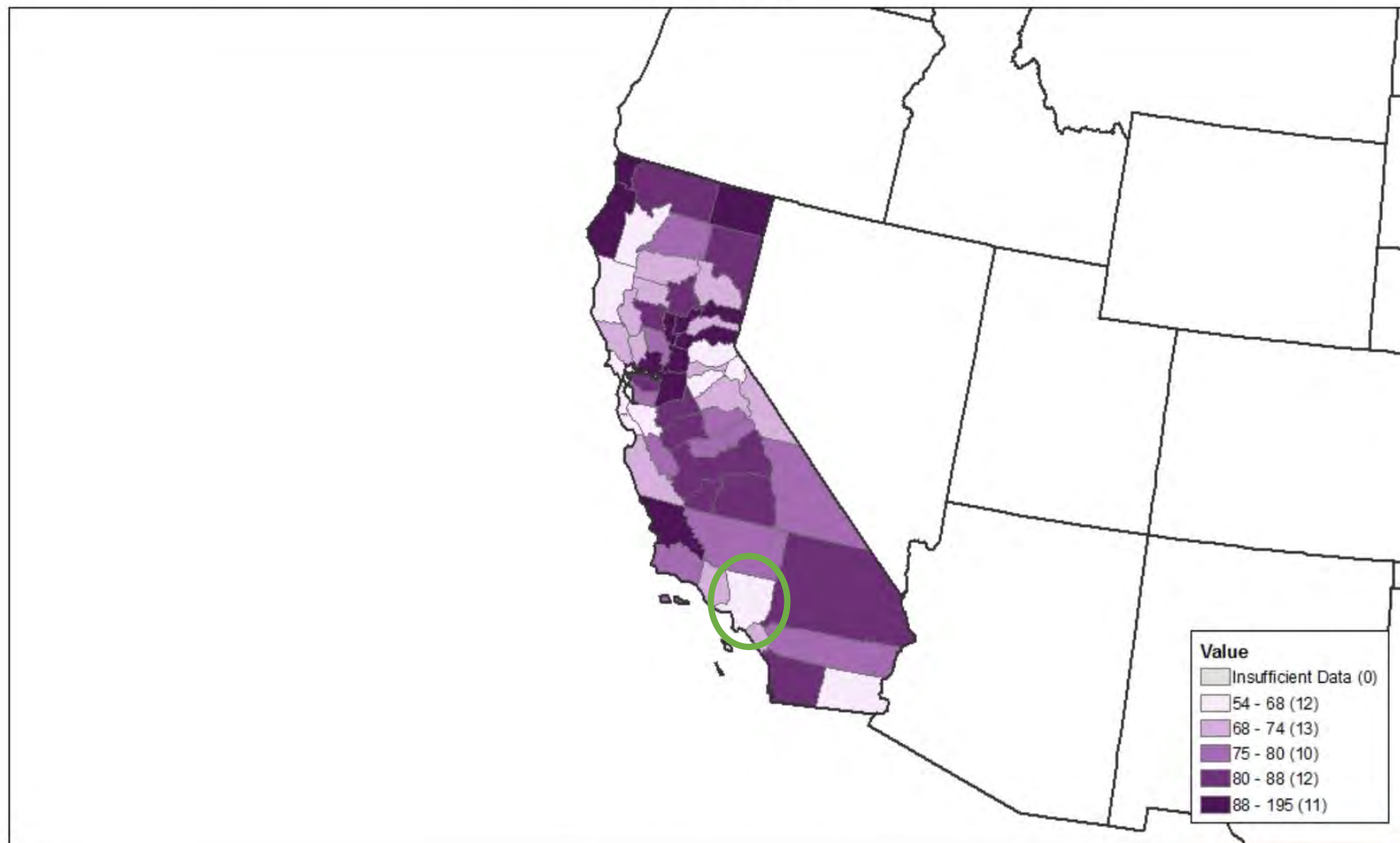
Stroke Hospitalization Rate per 1,000 Medicare Beneficiaries, All Races/Ethnicities,
All Genders, Ages 65+, 2019-2021



This map was created using the Interactive Atlas of Heart Disease and Stroke, a website developed by the Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. <http://www.cdc.gov/dhdsp/maps/atlas>



Stroke Death Rate per 100,000, All Races/Ethnicities, All Genders, Ages 35+,
2019-2021



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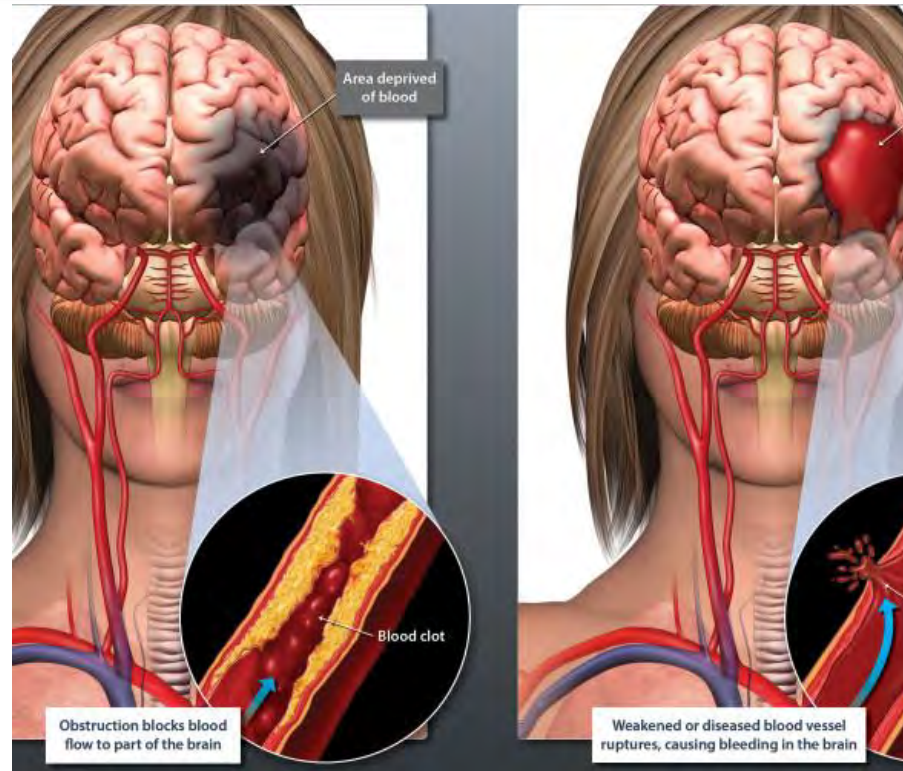
Stroke

87%

Ischemic

Hemorrhagic

13%



The incidence of stroke in patients >65 has declined.

Incidence of stroke in the younger population is on the rise.

Women & Stroke

- Stroke is the **third leading cause of death** for women (in comparison, stroke is the fifth leading cause of death for men). Each year **55,000 more women** have stroke than men.
- Because in general women live longer than men, stroke will have more negative impact on their lives. **More women will:**
 - Live alone when they have stroke
 - Be more likely to live in long term health care facility after stroke
 - Have worse recovery after stroke

Stroke Prevention for Women

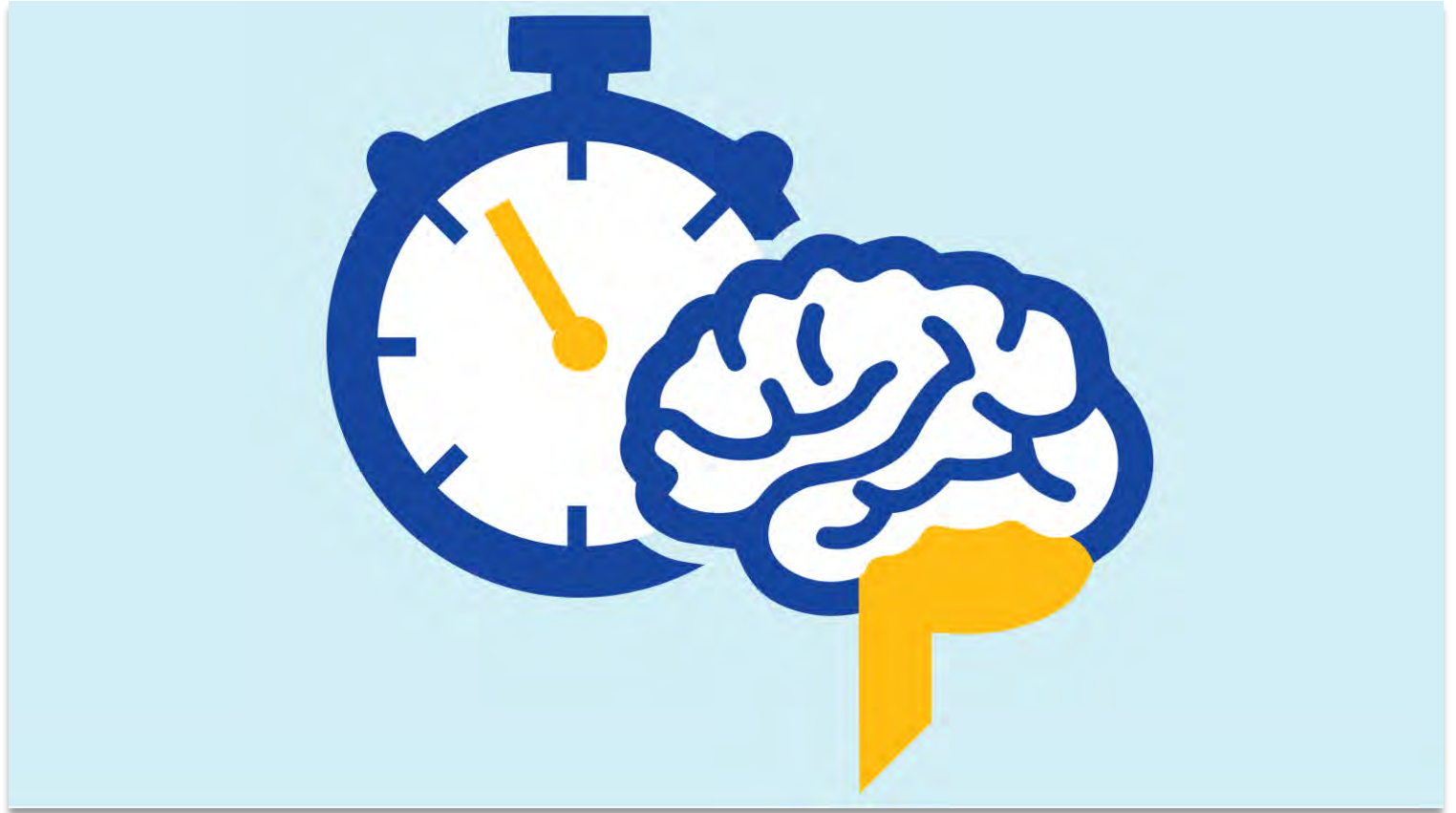
- **Migraine.** Women who experience migraines with aura and smoke are advised to stop smoking immediately
- **Pregnancy.** Women who are pregnant should monitor their blood pressure during and after pregnancy to lower the risk of stroke
- **Age.** Women over 75 should be screened for Atrial Fibrillation
- **Birth Control.** Women should be screened for high blood pressure prior to starting a birth control regimen
- **Physician Consultation.** Women with concerns about high blood pressure or stroke should consult a doctor

Treatment of Acute Stroke



Time Lost is Brain Lost

- Stroke is a Golden Hour Emergency
- For each minute with lack of blood flow to brain tissue, **2 million brain cells die**



IV Clot Busting Medications for Treatment of Ischemic Stroke

- Treatment is time sensitive
- Crucial to establish an accurate **last known well time**
- Treatment beyond therapeutic time window can be harmful



TPA (Tissue Plasminogen Activator)



TNK (Tenecteplase)



Courtesy of May Nour, MD, PhD

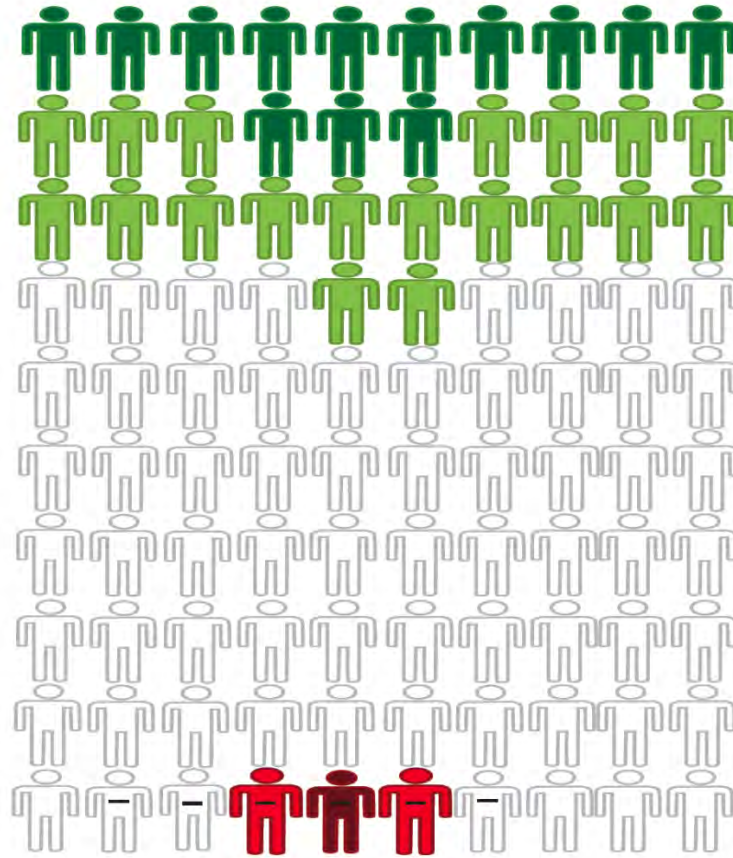
What is the “Clot Buster” TPA?

Tissue Plasminogen Activator (TPA)

- Protein involved in breakdown of blood clots
- Delivered through an IV
- Time to administer is limited to within **4.5 hours** from symptom onset in most patients



TPA for Cerebral Ischemia within 3 Hours of Onset-Changes in Outcome Due to Treatment



Changes in final outcome as a result of treatment:

- Normal or nearly normal 13 patients for every 100 patients treated
- Better 32 patients for every 100 patients treated
- No major change
- Worse 3 patients for every 100 patients treated
- Severely disabled or dead 1 patient for every 100 patients treated

Early course:

- No early worsening with brain bleeding
- Early worsening with brain bleeding

Intracerebral Hemorrhage

Etiologies Include:

Hypertension

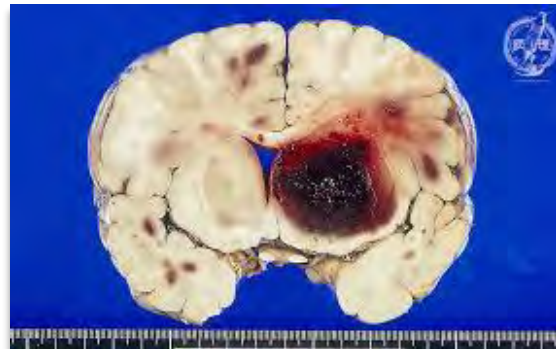
Arteriovenous Malformation

Cerebral aneurysm

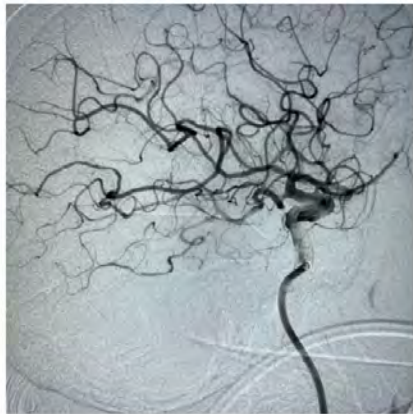
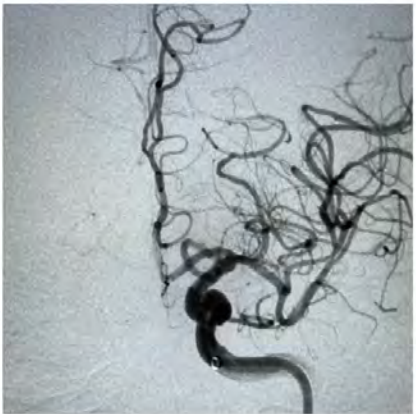
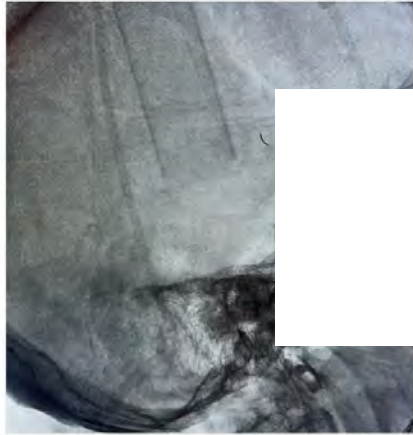
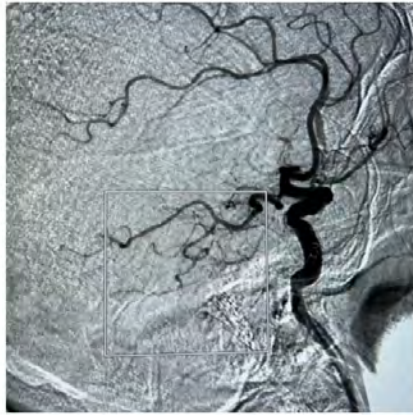
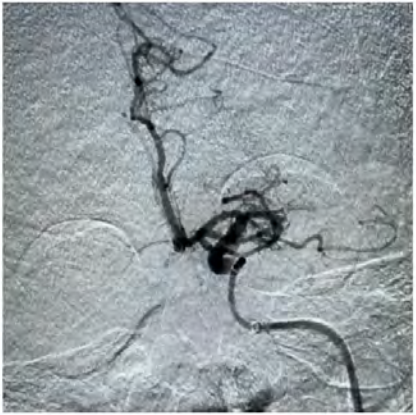
Trauma

Excessive Blood Thinning

Other



Courtesy of May Nour, MD, PhD

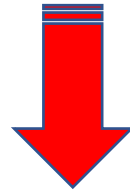


Endovascular Treatment for Ischemic Stroke

Beyond IV Clot Busting Medications

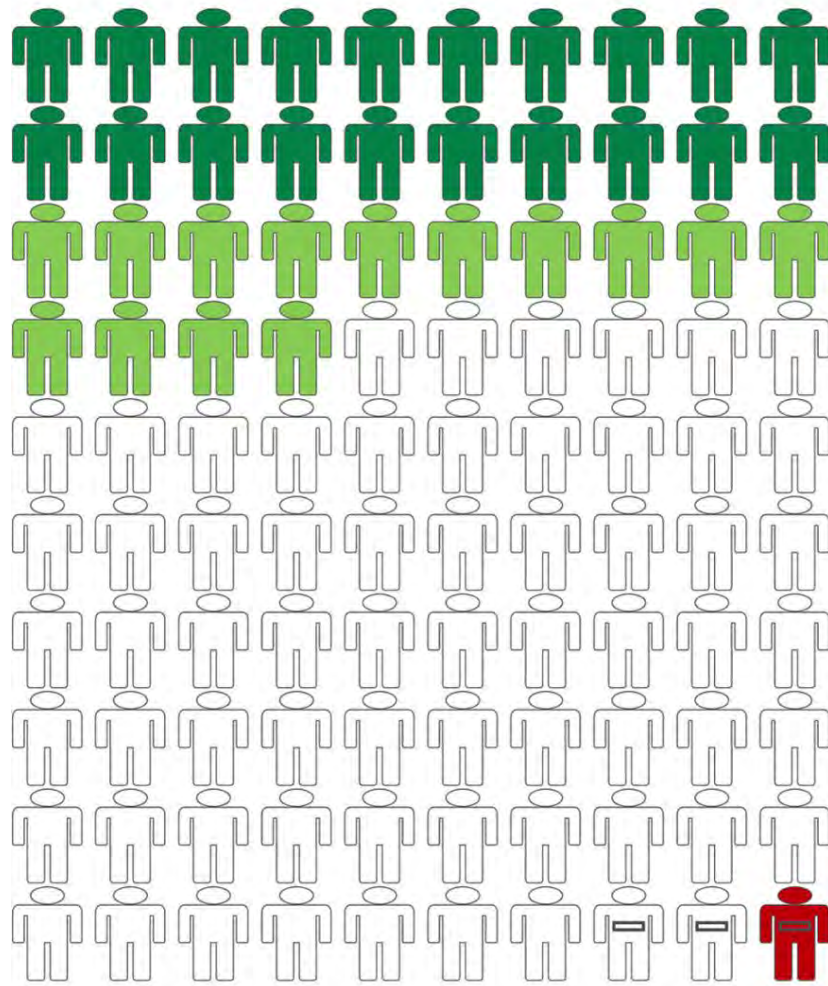
For some patients with large clots & devastating symptoms:

IV clot busting medication alone is **NOT** enough



Must be swiftly followed by **mechanical removal of clot to restore blood flow & save brain tissue**

Thrombectomy Plus tPA vs tPA Alone (tPA-Eligible Patients)



Changes in final outcome as a result of treatment:

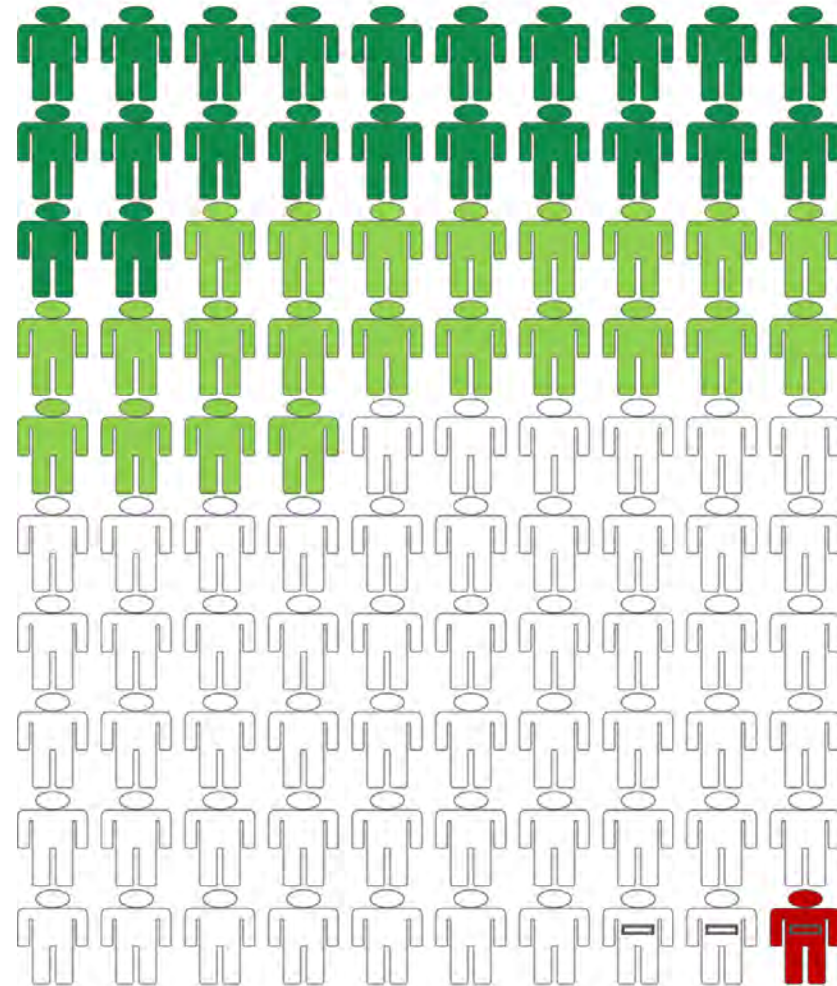
- Able to live independently
- Other improvement
- No major change
- Other worsening
- Severely disabled or dead

Early course:

- New territory infarct
- Early worsening with brain bleeding (SICH)*

(*No differences observed in the rate of SICH due to thrombectomy)

Thrombectomy vs No Reperfusion Therapy (tPA-Ineligible Patients)



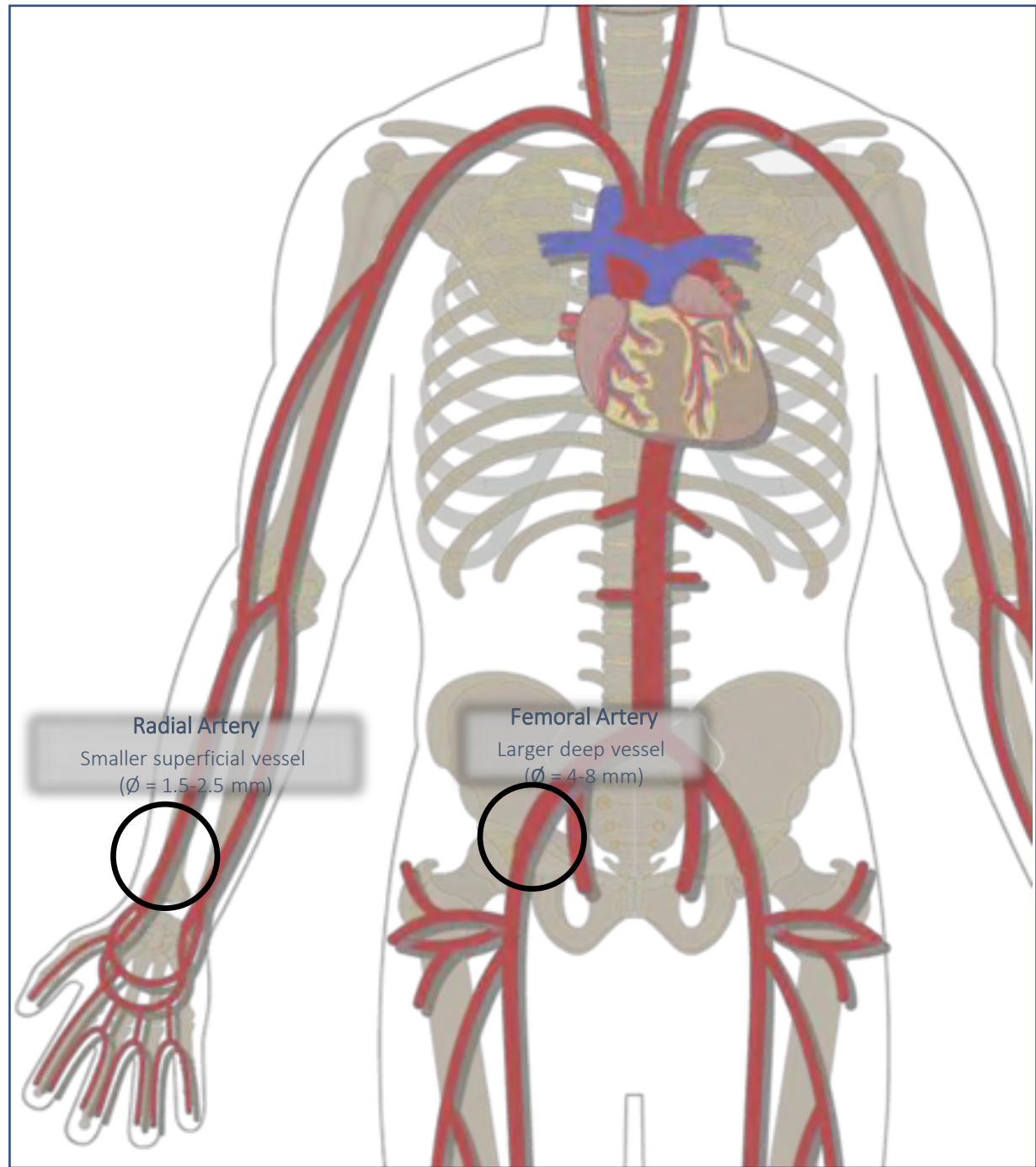
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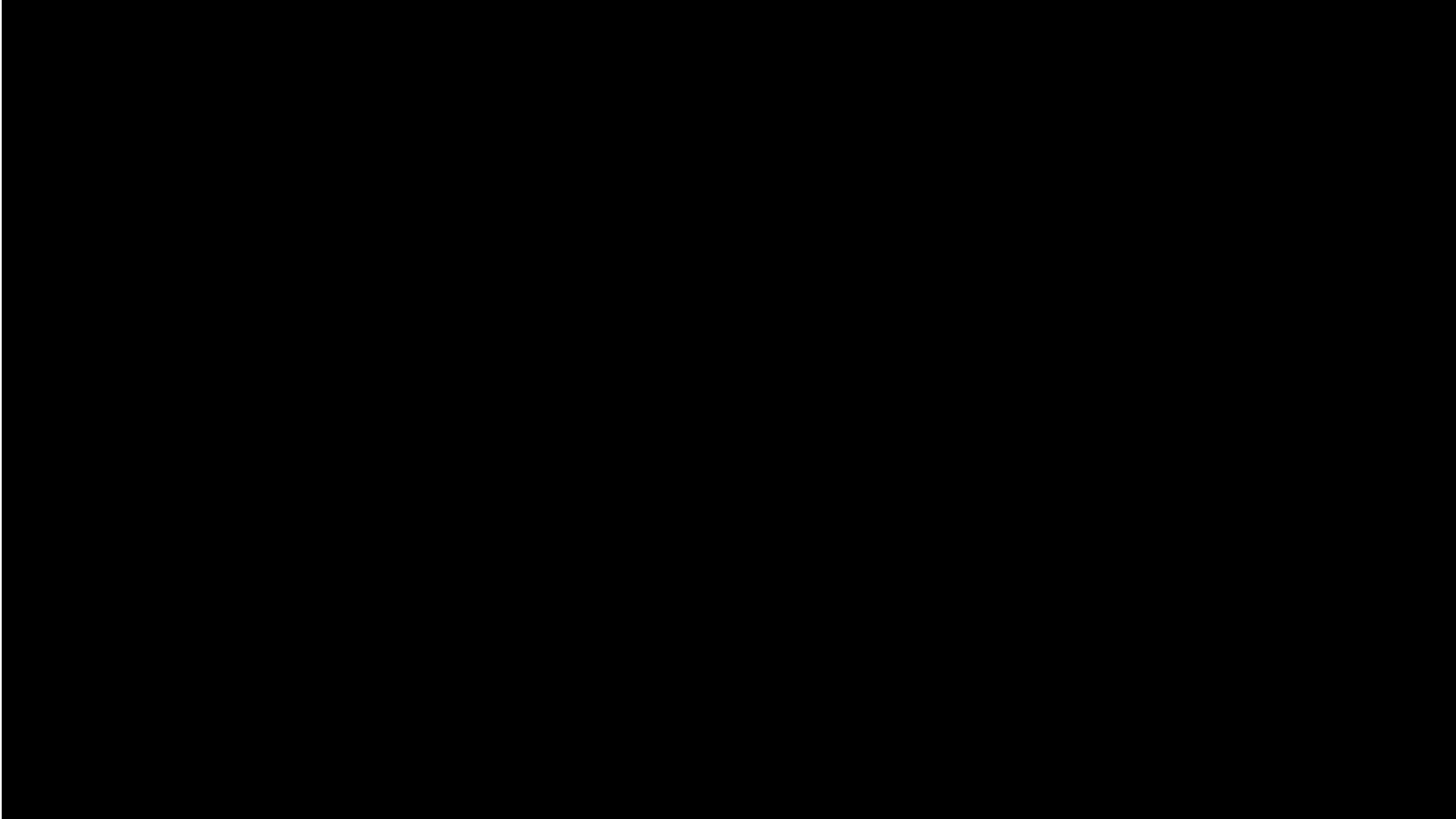
- New territory infarct
- Early worsening with brain bleeding (SICH)*

(*No differences observed in the rate of SICH due to thrombectomy)



Radial Artery
Smaller superficial vessel
($\varnothing = 1.5-2.5$ mm)

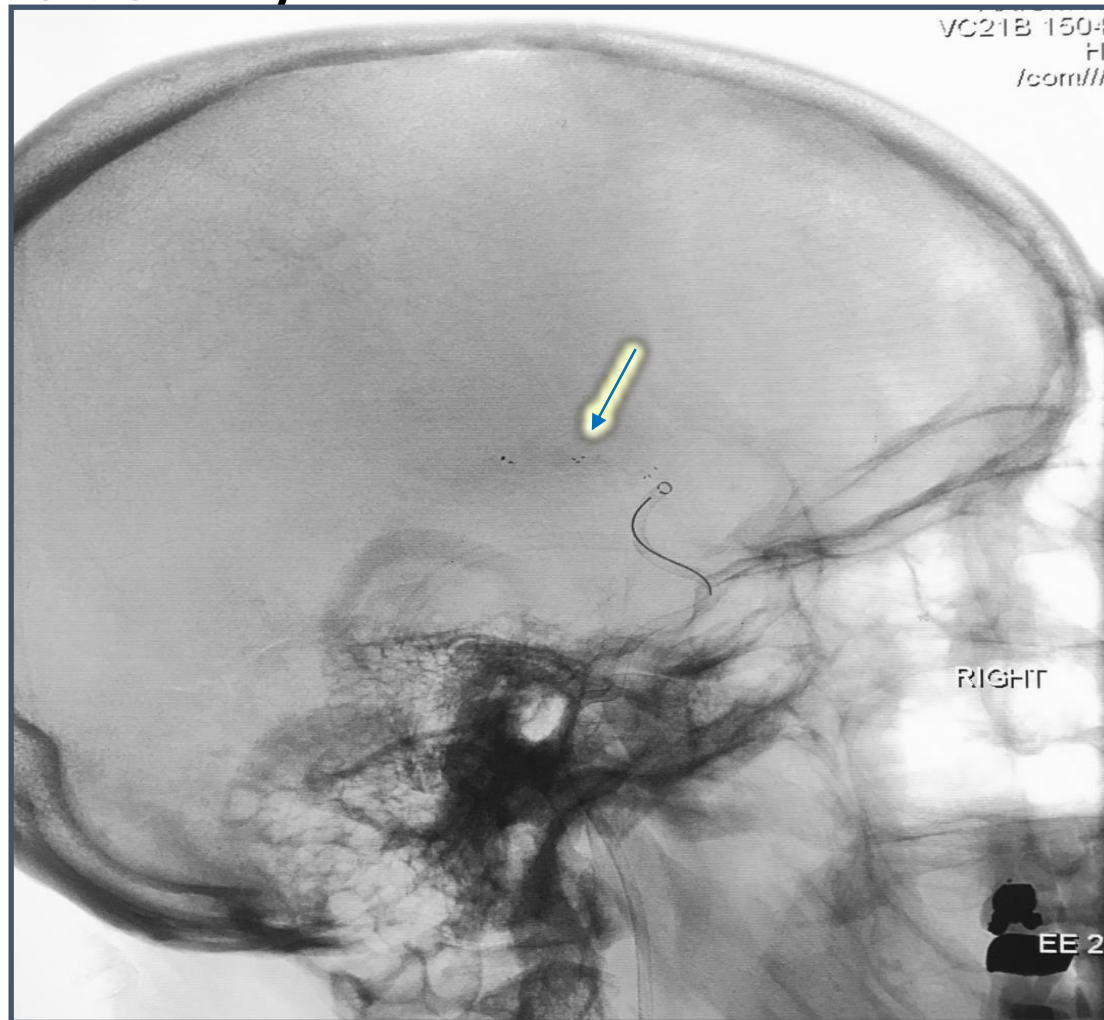
Femoral Artery
Larger deep vessel
($\varnothing = 4-8$ mm)



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Mechanical Thrombectomy

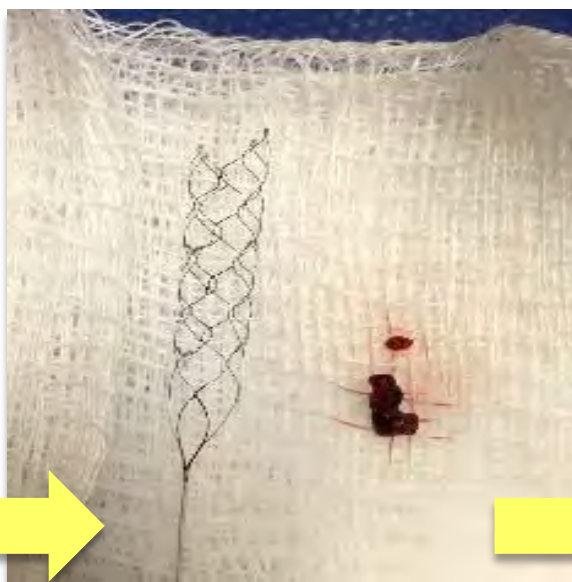


Courtesy of May Nour, MD, PhD

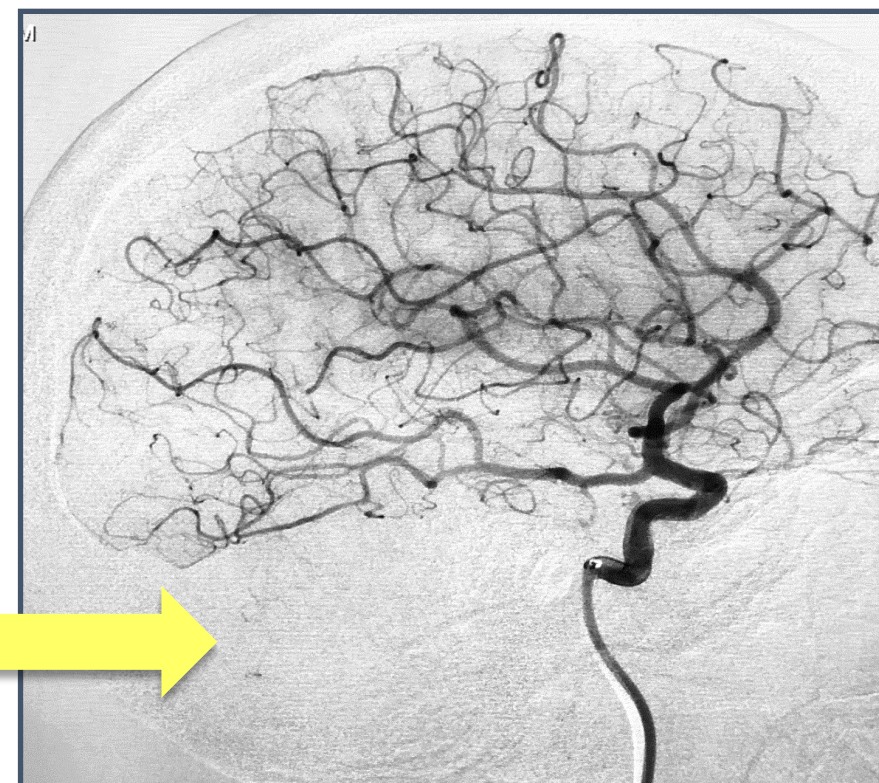
Mechanical Thrombectomy



Before: Blood Vessel Occluded



Removed



After: Return of Normal Cerebral Blood

The Best Way to Treat a Stroke is to **NOT HAVE ONE!**

Angie West, MSN, RN, CCRN-K, SCRNP, ANVP

Objectives

Explain what happens with a stroke

Define the symptoms of a stroke

Understand reasons why people have a stroke

Describe how to prevent a stroke

Our Patient...

At 10 am a 52-year-old gentleman was at home with his wife when he suddenly could not speak or move the right side of his body.

What would you do?

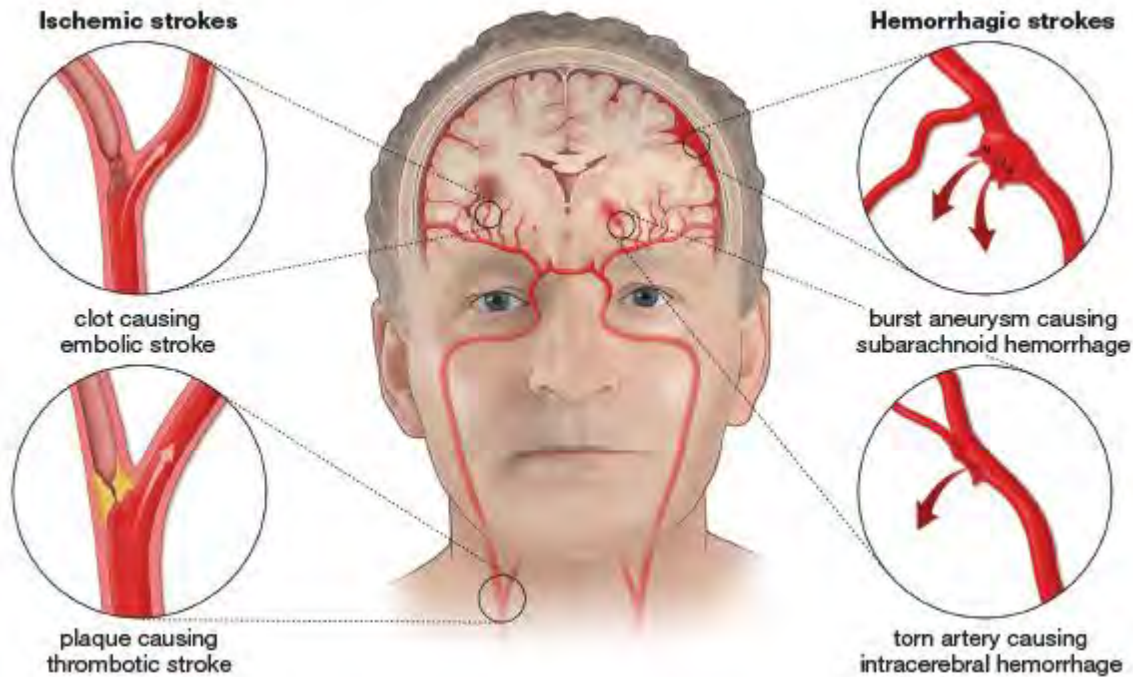


Call 911



**Stroke is a
medical emergency!!
Part of the brain is
DYING!!**

So, What is Happening Inside the Brain???



Frontal Lobe

- Problem solving
- Emotional traits
- Reasoning (judgment)
- Speaking
- Voluntary motor activity

Parietal Lobe

- Knowing right from left
- Sensation
- Reading
- Body orientation

Occipital Lobe

- Vision
- Color perception

Temporal Lobe

- Understanding language
- Behavior
- Memory
- Hearing

Brain Stem

- Breathing
- Body temperature
- Digestion
- Alertness/sleep
- Swallowing

Cerebellum

- Balance
- Coordination and control of voluntary movement
- Fine muscle control

Transient Ischemic Attack TIA

Stroke symptoms that resolve in less than 24 hours.

Usually resolve in 15-30 minutes.

Similar to chest pain prior to a heart attack.



WARNING

Stroke After TIA

Time after TIA	Risk of Stroke (%)
48 hours	10%
90 days	20%

[When you play basketball and you get a stroke 🙄🙄🙄🙄🙄🙄🙄 \(youtube.com\)](#)

What Are Our Patient's Stroke Symptoms?

Our Patient:

- Right arm & leg are weak and numb
- Right sided facial droop
- Unable to speak clearly



Stroke Signs: **REMEMBER BE FAST!!!**

B- balance

E- eyes- blurred vision

F- facial droop

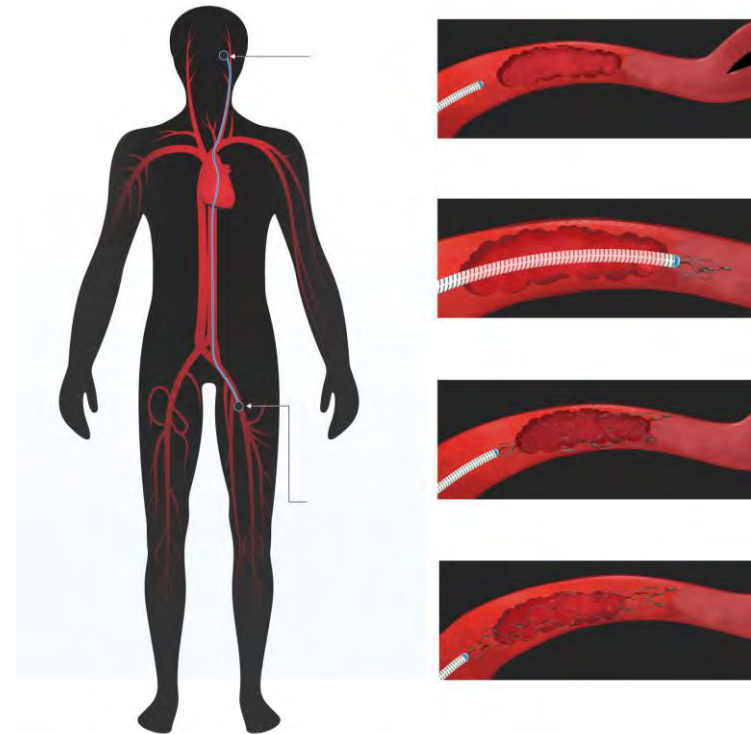
A- arm or leg weakness/numbness

S- speech

T- time– stroke is a medical emergency!!

What About Our Patient?

- He is picked up by EMS (911) at 10:30 am
- EMS let's us know they are bringing in a stroke patient
- The Stroke Team meets him at the door
- Quick evaluation– CT scan of the head
- No blood
- Stroke is caused by a blockage– it's now 10:50 am
- Treatment Options:
- IV tPA
- Endovascular Thrombectomy



How Do YOU Prevent a Stroke



So, the best way to TREAT a stroke is NOT to have one!!!!

Live a Healthy Lifestyle!

- Eat healthy
- Low fat, low salt, high fiber, fish, chicken...
- Don't smoke
- Exercise 30 minutes a day 5 days/week
- Manage Diabetes
- Manage Blood Pressure
- Manage Weight
- Manage Cardiac Disease
- Atrial Fibrillation increase stroke risk X5



80% of Strokes Can Be Prevented...What Can We Do?

- ✓ Be aware of our risk (what we have that may)
- ✓ Decrease our risk (healthy lifestyles)
- ✓ Know the signs of stroke
- ✓ Treat stroke like a medical emergency



What Causes a Stroke??

Uncontrollable Risk Factors

- Increased Age
- Gender/Race
- Family history of heart disease or stroke
- Congenital heart disease
- Prior Stroke
- Sickle Cell Anemia



What Causes a Stroke??

Controllable Risk Factors for Stroke

- High Blood Pressure
- High Cholesterol
- Diabetes
- Cardiac Disease
- Smoking
- Excessive Alcohol
- Obesity
- Sedentary Lifestyle
- Illegal Drug use
- Birth Control Pills



Blood Pressure.

What Do The Numbers Mean?

Condition	Top # (systolic)	Bottom # (diastolic)	What to do
Normal	Less than 120	Less than 80	Maintain healthy lifestyle.
Pre-Hypertension	120 to 139	80 to 89	Adopt a more healthy lifestyle.
Hypertension			
Stage 1	140 to 159	90 to 99	Lifestyle changes + ask doctor about adding a medication.
Stage 2	More than 159	More than 99	Lifestyle changes + ask doctor about adding more than one medication.

High Cholesterol

Hypercholesterolemia

Total Cholesterol

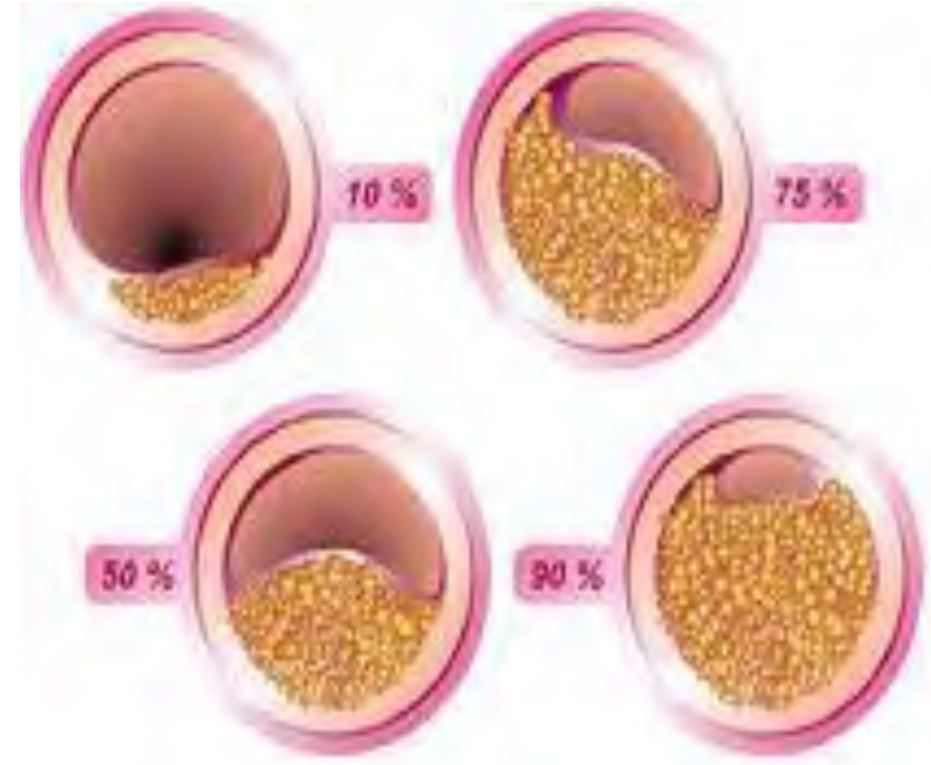
- Less than 200 mg/dL lower risk
- 200-239 mg/dL higher risk
- Above 240 mg/dL very high risk

LDL (bad cholesterol):

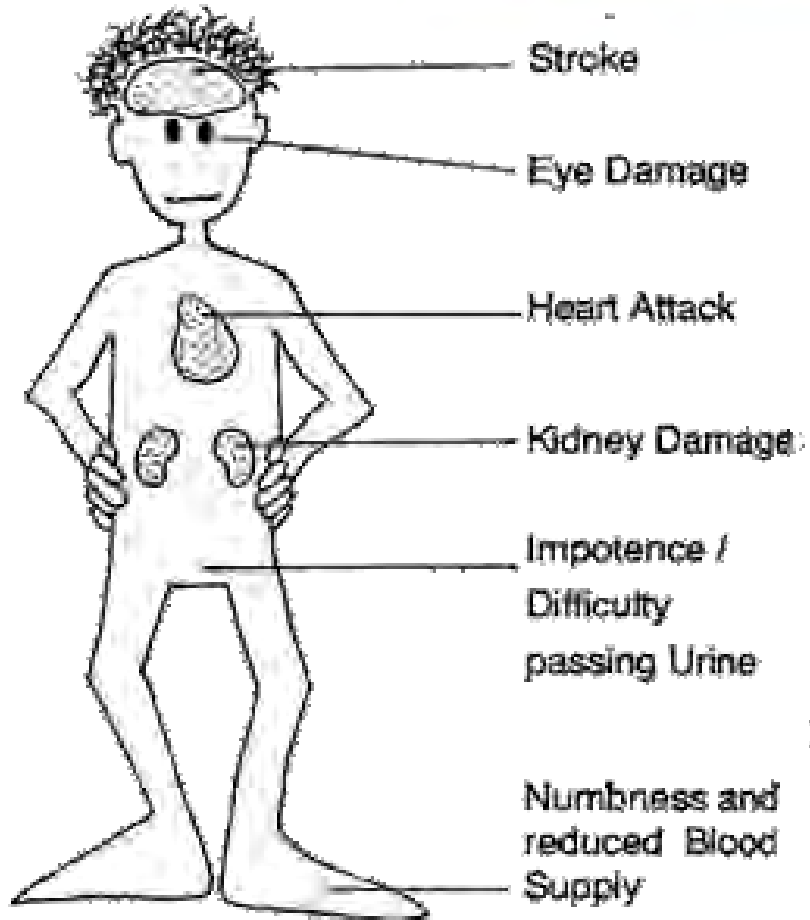
- Less than 100 mg/dL is optimal for people with heart disease or diabetes
- 100-129 mg/dL is above optimal
- 130-159 mg/dL is borderline high
- 160-189 mg/dL high
- 190 mg/dL and above Very High

HDL (good cholesterol)

- > 40 mg/dl



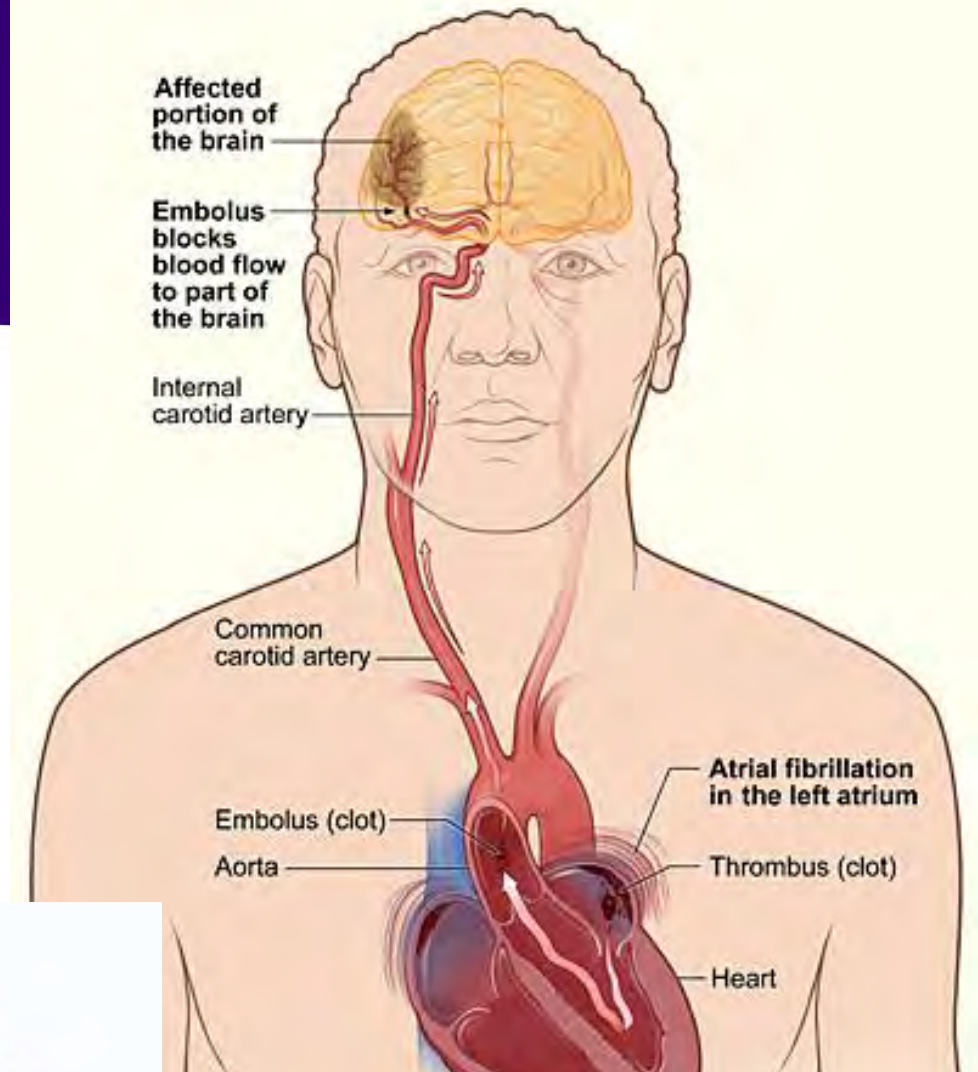
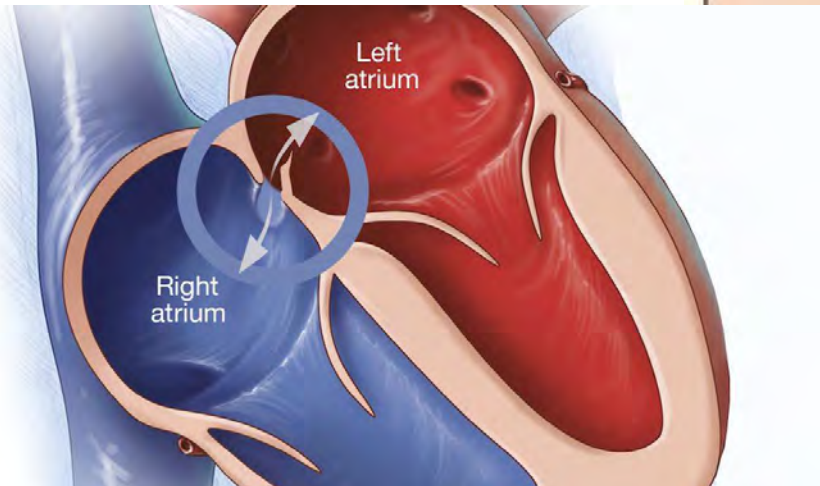
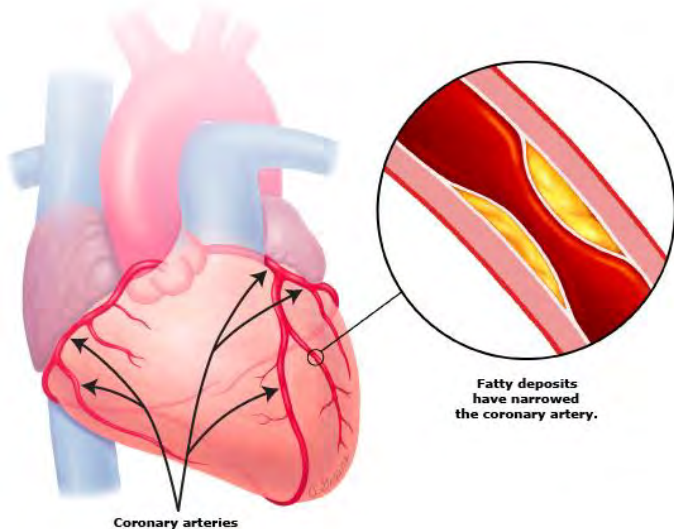
Diabetes



Too much glucose in your system can cause restricted blood flow leading to a variety of symptoms and damage to the blood vessels. Smokers with diabetes are at an even higher risk.

Cardiac Disease

- Atrial Fibrillation
- Recent Heart Attack
- Coronary Artery Disease
- Patent Foramen Ovale



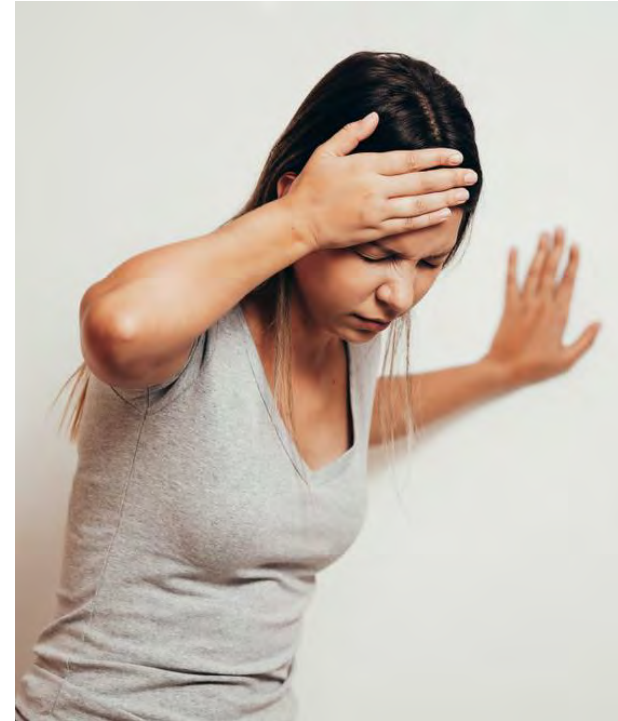
Stroke Signs

- B Balance:** Sudden trouble walking, dizziness or loss of balance
- E Eyes:** Sudden vision changes in one or both eyes
- F Face:** Sudden facial droop, facial numbness
- A Arms or Legs:** Sudden weakness or numbness on one side of the body
- S Speech:** Sudden trouble speaking or understanding
- T Time:** Time is brain saved



BE FAST

Balance is off or person is dizzy



BE FAST

Balance is off or person is dizzy

Eyes are blurry or there are vision field cuts



BE FAST

Balance is off or person is dizzy
Eyes are blurry or there are vision field cuts

Facial Droop



BE FAST

Balance is off or person is dizzy

Eyes are blurry or there are vision field cuts

Facial Droop

Arm or leg weakness or numbness



BE FAST

Balance is off or person is dizzy

Eyes are blurry or there are vision field cuts

Facial Droop

Arm or leg weakness or numbness

Speech is slurred or words are confused.



BE FAST

Balance is off or person is dizzy

Faces are blurry or there are vision field cuts

Facial Droop

Arm or leg weakness or numbness

Speech is slurred or words are confused

Time– Stroke is a medical emergency, call 911



Time is Brain- Get Treatment FAST!

- Every minute the brain is deprived of oxygen:
 - 2 million neurons, 14 billion synapses and 7.5 miles of myelinated fibers are lost.
- After 12 minutes without treatment, a pea-sized piece of brain tissue dies.



Pea Brain

© BumpyBrains.com



How Did Our Patient Do??

We gave him IV tPA

He went to interventional radiology and we pulled the clot out

He left the hospital with very minimal deficits (memory, slightly weak arm)

Outpatient rehab

Back on his Harley 😊



Thank you.

Questions?

Provide Your Feedback

Thank you for attending. We hope you found this event beneficial. Your opinion is highly valued. To assist us in improving our educational seminar series, please scan the QR code to complete the survey.

