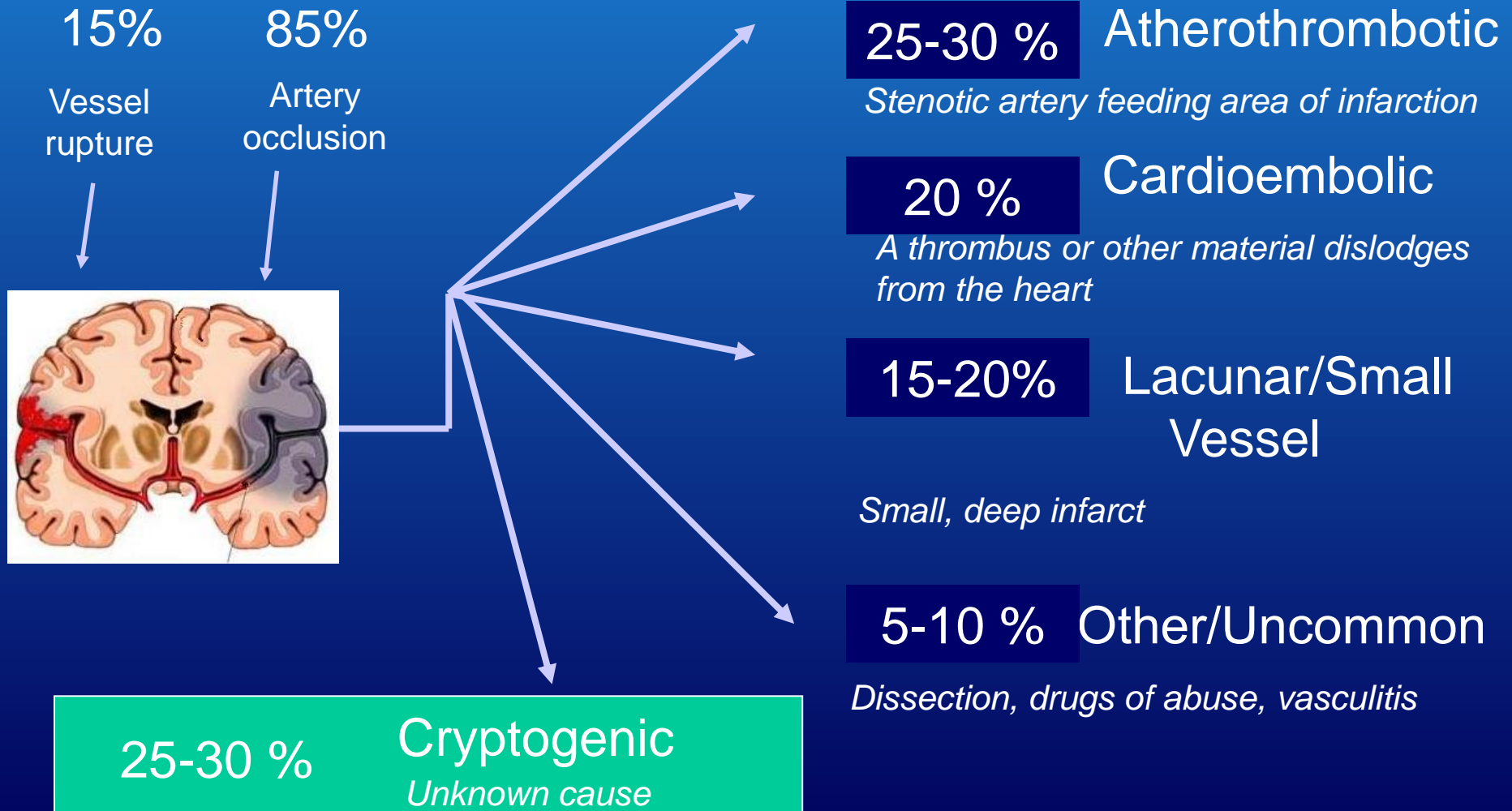




# **CRYPTOGENIC STROKE PUBLIC HEALTH CONFERENCE**

**Shyam Prabhakaran, MD, MS  
Associate Professor of Neurology  
Director, Stroke Research  
Northwestern University**

# Stroke: Multiple mechanisms



### Minor-risk potential cardioembolic sources\*

#### Mitral valve

- Myxomatous valvulopathy with prolapse
- Mitral annular calcification

#### Aortic valve

- Aortic valve stenosis
- Calcific aortic valve

#### No

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- 
- 

#### Atr

- 
- 

#### Lef

- 
- 
- 

#### Co

#### Car

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#### Art

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- Cerebral artery non-stenotic plaques with ulceration

#### Paradoxical embolism

- Patent foramen ovale
- Atrial septal defect
- Pulmonary arteriovenous fistula

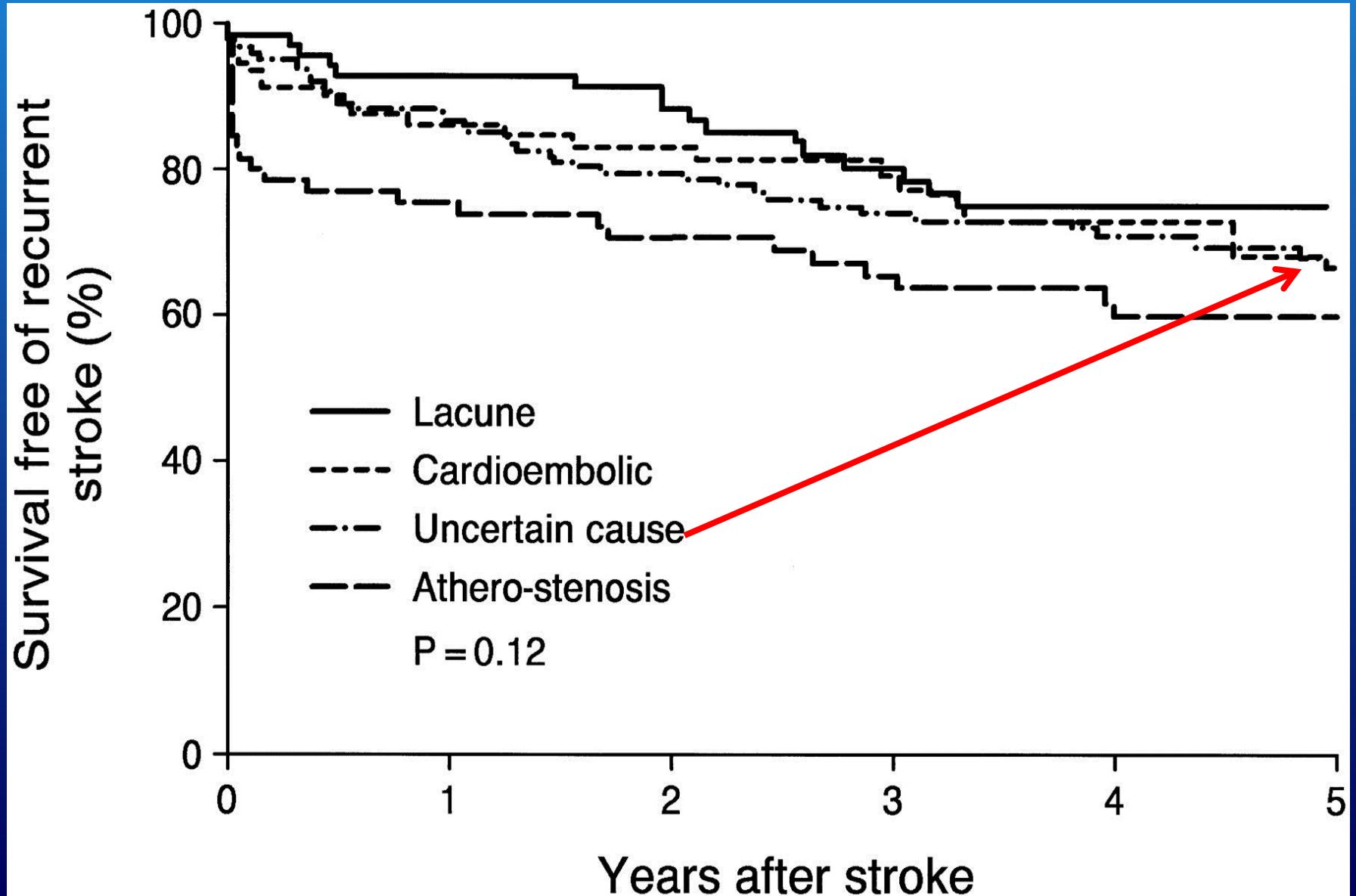


1. Occult AF

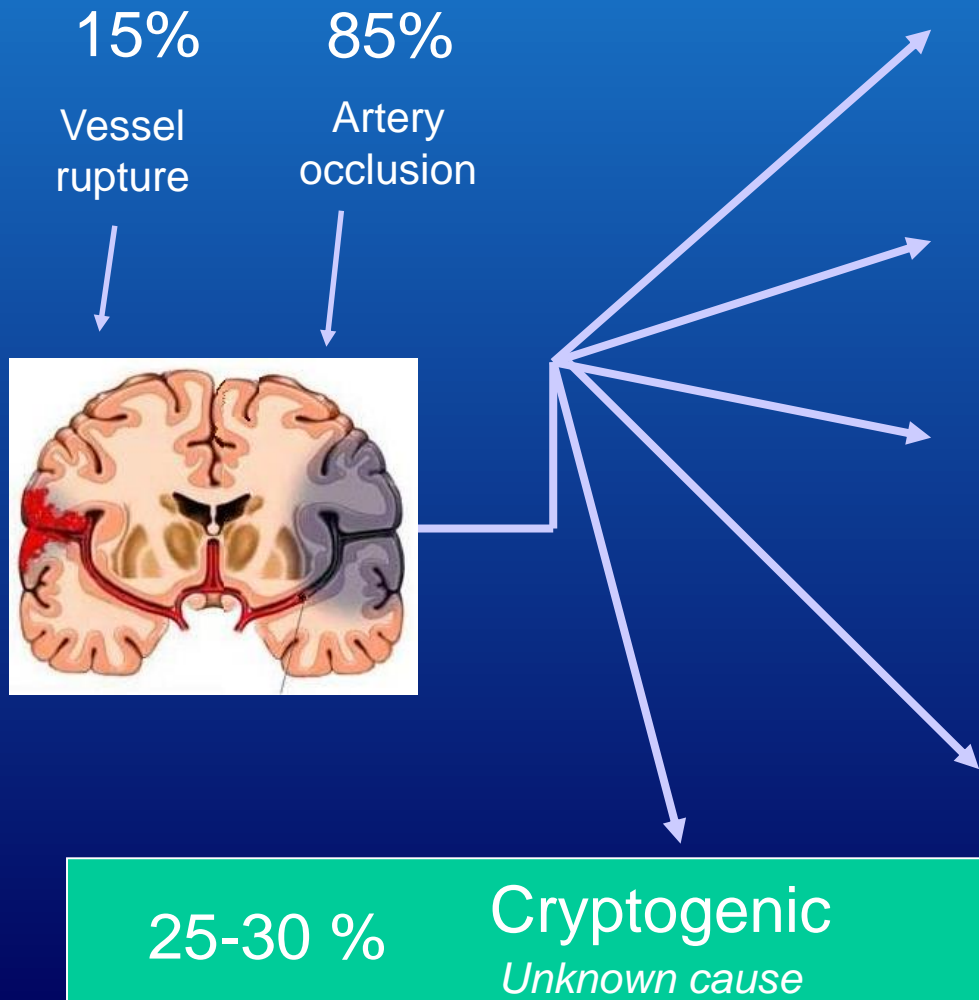
2. Plaque embolism

3. Hypercoagulable state

# Recurrence rates by subtype



# Mechanisms → Treatments



25-30 % Atherothrombotic

*Surgery reduces risk by nearly 70% in carotid stenosis*

20 % Cardioembolic

*OAC reduces risk by nearly 70% in AF*

15-20% Lacunar/Small Vessel

*Risk factor control and AP drugs*

5-10 % Other/Uncommon

*Targeted treatments based on cause*

**No specific or targeted treatments**

# Patient Perspective

- “You
  - “Am
  - “I am
  - “If I
  - “You
  - “You
- prevent
- have s
- that is a good thing!”



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can I

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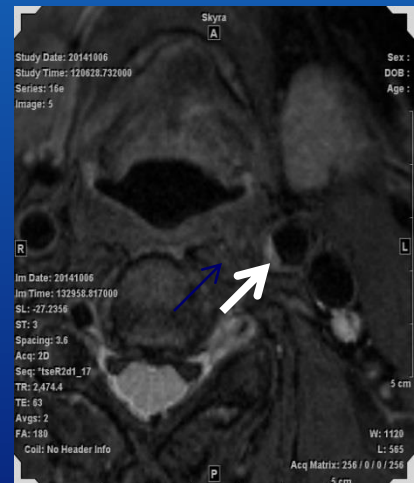
# Vulnerable plaques: carotid and intracranial imaging

- 68-year old man with 1<sup>st</sup> CS
  - MRI showed small left MCA infarct
  - MRA head/neck, TTE/TEE “negative”
  - 30-day monitor negative for PAF
  - Started on aspirin and statin
- 2<sup>nd</sup> event 1 month later
  - CTA < 50% stenosis in left ICA stenosis
  - MRI showed new infarct in left MCA
  - Started on aspirin and Plavix

# Vulnerable plaques: carotid and intracranial imaging

- 3<sup>rd</sup> event 6 months later
  - MRI showed another left MCA infarct
  - High-resolution carotid MRA showed vulnerable plaque
- Underwent carotid endarterectomy
- No events since then

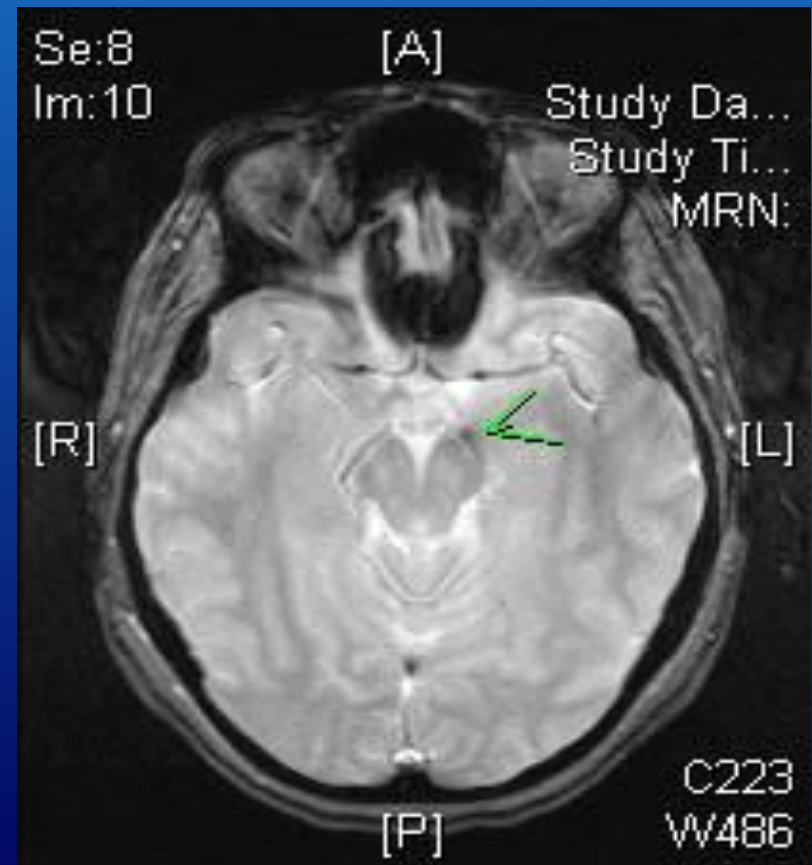
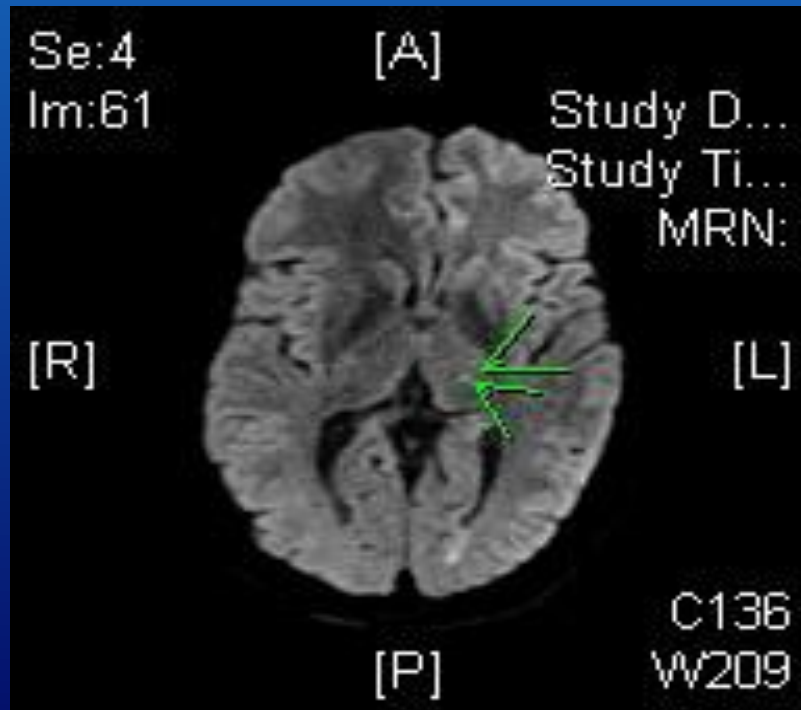




# Continuous monitoring: uncovering AF in CS

- 56 year old female, no risk factors
- Left thalamic infarct with thrombus in PCA
- Negative work-up
  - Normal TTE/TEE, MRA head/neck
  - No AF on several days of telemetry
- Implanted with Reveal XT
  - AF detected at 60 days post-stroke
- Started on apixaban for stroke prevention

# Small stroke, but thrombus suggested embolism



# Research in CS

- Unique opportunities from collaboration across hospitals and regions
  - Get With The Guidelines Stroke
    - Potential to study epidemiology, practice patterns, and outcomes in CS patients

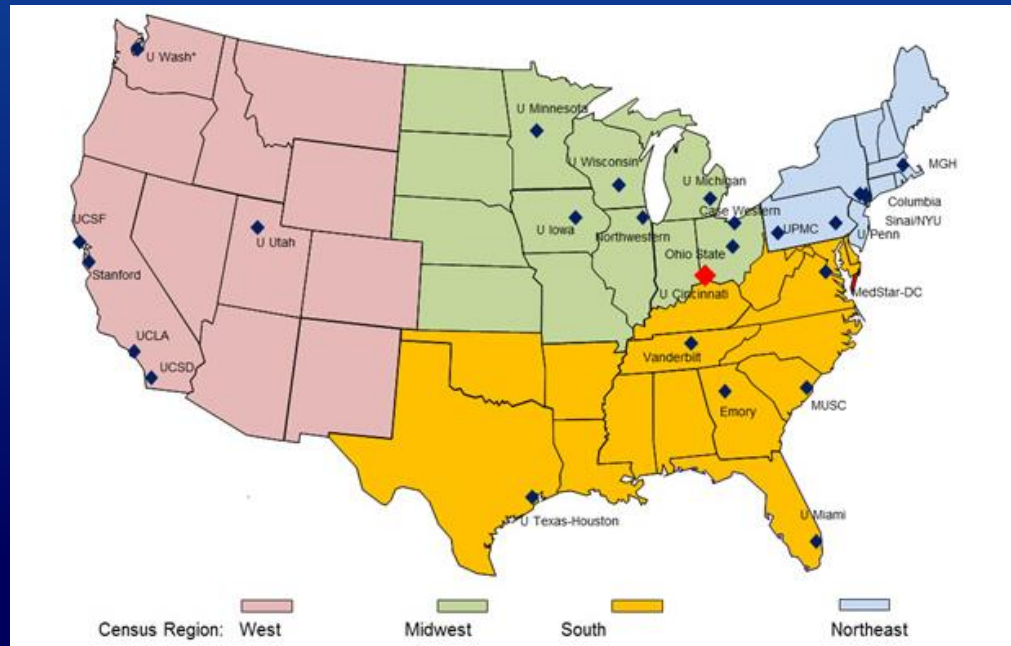
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**GET WITH THE GUIDELINES® - STROKE**  
TOUCHING THE LIVES OF MORE THAN  
**3 MILLION PATIENTS** [LEARN MORE ▶](#)

# Research in CS

- NIH-funded StrokeNET
  - Network of 100+ hospitals with 25 hubs to conduct large-scale, high impact trials efficiently and quickly



# Public Impact

- 25-33% of all ischemic strokes have no known cause!
- Help patients find answers they currently don't receive
- Parse CS into discrete and treatable causes
- Test new ideas for management of CS with well-designed research studies
- **With targeted approaches treatments, we can reduce proportion labeled “cryptogenic” and reduce recurrent strokes**