



---

**ED Stroke Patient Management:**  
*What must we be able to do in order to provide tPA in the ED (mimickers, stroke scales, and CT interpretation)?*

Edward P. Sloan, MD, MPH 

---


**EMRA /FERNE Case Conference:**  
**The ED Management of Acute Ischemic Stroke Patients**

Edward P. Sloan, MD, MPH 

---

**ACEP Scientific Assembly**

**Seattle, WA**  
**October 9, 2007**


Edward P. Sloan, MD, MPH 

---

**Edward P. Sloan, MD, MPH**

**Professor**

*Department of Emergency Medicine*  
**University of Illinois College of Medicine**  
**Chicago, IL**


Edward P. Sloan, MD, MPH 

---

**Attending Physician**  
**Emergency Medicine**

*University of Illinois Hospital*  
*Our Lady of the Resurrection Hospital*


**Chicago, IL**

Edward P. Sloan, MD, MPH 

---

**Disclosures**

- ACEP Clinical Policies Committee
- ACEP Scientific Review Committee
- Executive Board, Foundation for Education and Research in Neurologic Emergencies
- No individual financial disclosures

Edward P. Sloan, MD, MPH 



### Key Clinical Questions

- You are obliged to be able to give tPA...
- What diagnostic skills?
- What use of stroke scales?
- What CT interpretation skills?
- What IV tPA use skills?

Edward P. Sloan, MD, MPH

### Diagnostic Skills

- Identify a stroke
- Start with the Cincinnati stroke scale
- Identify speech and language deficit
- Identify hemiparesis
- Identify CN deficits c/w stroke
- Consider mental status changes

Edward P. Sloan, MD, MPH

### Diagnostic Skills

- Exclude toxic/metabolic causes
- Exclude seizure syndromes
- Exclude TIAs
- Is the deficit significantly improving during the time that you are preparing to give IV tPA?

Edward P. Sloan, MD, MPH

### Stroke Scales Use

- Estimate the severity of the stroke
- Know what patients were treated in the NINDS clinical trials
- Be able to identify significant or moderate stroke
- Consider use in elderly pts with severe stroke (NIHSS > 20) and AFib

Edward P. Sloan, MD, MPH

### NIHSS: LOC

• LOC overall	0-3 pts
• LOC questions	0-2 pts
• LOC commands	0-2 pts
• LOC:	7 points total

Edward P. Sloan, MD, MPH

## NIHSS: Cranial Nerves

- Gaze palsy 0-2 pts
- Visual field deficit 0-3 pts
- Facial motor 0-3 pts
  
- Gaze/Vision/  
Cranial nerves: 8 points total

Edward P. Sloan, MD, MPH



## NIHSS: Motor

- Each arm 0-4 pts
- Each leg 0-4 pts
  
- Motor: 8 points total  
(8 right, 8 left)

Edward P. Sloan, MD, MPH



## NIHSS: Cerebellar

- Limb ataxia 0-2 pts
  
- Cerebellar: 2 points total

Edward P. Sloan, MD, MPH



## NIHSS: Sensory

- Pain, noxious stimuli 0-2 pts
  
- Sensory: 2 points total

Edward P. Sloan, MD, MPH



## NIHSS: Language

- Aphasia 0-3 pts
- Dysarthria 0-2 pts
  
- Language: 5 points total

Edward P. Sloan, MD, MPH



## NIHSS: Inattention


- Inattention 0-2 pts
  
- Inattention: 2 points total

Edward P. Sloan, MD, MPH




### NIHSS Composite

- CN (visual): 8
- Unilateral motor: 8
- LOC: 7
- Language: 5
- Ataxia: 2
- Sensory: 2
- Inattention: 2

Edward P. Sloan, MD, MPH 


### Four Main NIHSS Areas

- CN/Visual: Facial palsy, gaze palsy, visual field deficit
- Unilateral motor: Hemiparesis
- LOC: Depressed LOC, poorly responsive
- Language: Aphasia, dysarthria, neglect
- 28 total points

Edward P. Sloan, MD, MPH 


### NIHSS ED Estimate

- CN (visual): 8
- Unilateral motor: 8
- LOC: 8
- Language/Neglect: 8
- Mild: 2, Moderate: 4, Severe: 8
- +/- Incorporates other elements

Edward P. Sloan, MD, MPH 


### NIHSS Patient Estimate

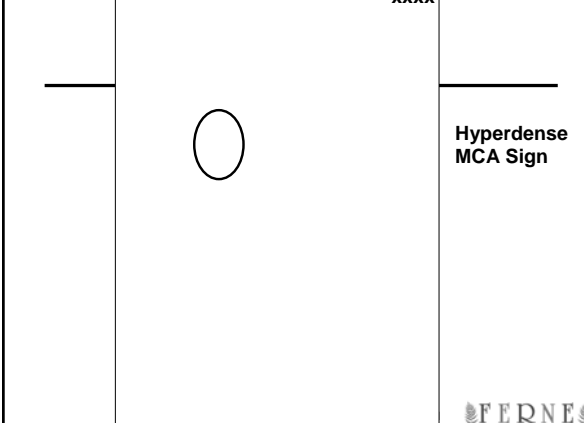
- CN/Visual: R vision loss, no fixed gaze 4
- Unilateral motor: hemiparesis 8
- LOC: mild decreased LOC 2
- Language: speech def, neglect 4
- Approx 18 points total
- Moderate to severe stroke range


Edward P. Sloan, MD, MPH 

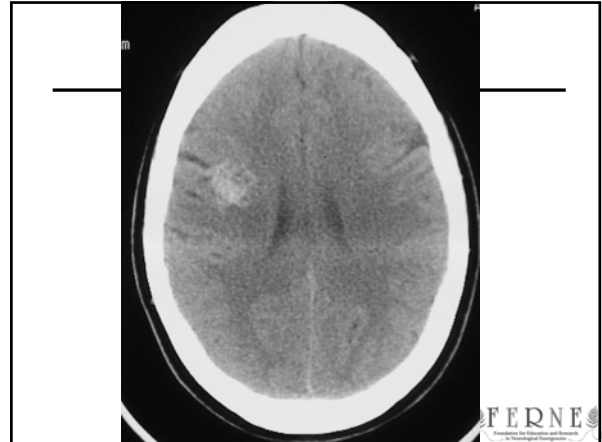
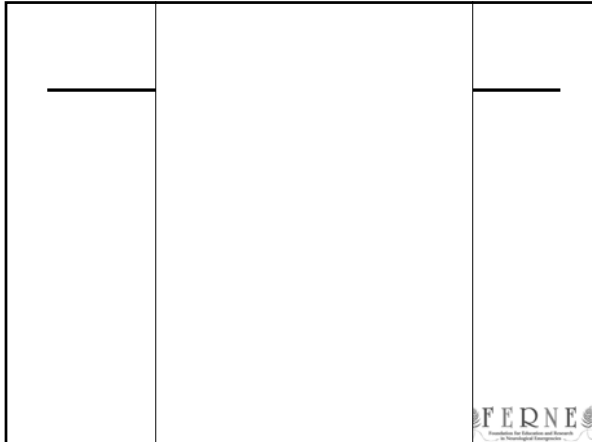
### CT Interpretation Skills

- No insular ribbon or MCA sign
- No detailed assessment
- Identify asymmetry and edema
- Identify blood, mass lesion
- Identify any area of hypodensity c/w a recent stroke of many hours duration that precludes IV tPA use

Edward P. Sloan, MD, MPH 







### IV tPA Use Skills

- Identify indications, contraindications
- Quickly get the tests and consults
- Communicate with the neurologist
- Obtain consent with family and know what statistics are relevant
- Document the interaction
- Maintain BP below 185/110 range
- Follow the NINDS protocol closely

Edward P. Sloan, MD, MPH

### ED tPA Documentation

- With tPA, there is a 30% greater chance of a good outcome at 3 months
- With tPA use, there is 10x greater risk of a symptomatic ICH (severe bleeding stroke)
- Mortality rates at 3 months are the same regardless of whether tPA is used
- What was the rationale, risk/benefit assessment for using or not using tPA?
- What was done to expedite Rx, consult neurology and radiology early on?

Edward P. Sloan, MD, MPH

### Conclusions

- The IV tPA skill set is identified, limited, and manageable
- It is possible to provide quality emergency services with IV tPA
- Identify good patient candidates
- Make it happen quickly
- Document the ED management

Edward P. Sloan, MD, MPH

---

## **Questions?**

**[www.FERNE.org](http://www.FERNE.org)**

**[edsloan@uic.edu](mailto:edsloan@uic.edu)  
312 413 7490**

ferne\_emra\_2007\_caseconf\_sloan\_tpaskills\_100907\_finalcd  
10/25/2007 9:17 AM

Edward P. Sloan, MD, MPH

