


J. Stephen Huff, MD
Associate Professor
Department of Emergency Medicine
University of Virginia
Charlottesville, Virginia


J. Stephen Huff, MD, FACEP 

**EMS Triage and the ED
Transfer of Ischemic
Stroke Patients**

J. Stephen Huff, MD, FACEP 

Disclosures

ACEP Clinical Policies Committee
FERNE support by Abbott, Eisai, Pfizer,
UCB, Concentric Medical


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Questions / Answers?

Who should be transferred to a
another hospital for specialized
stroke care? When?


OR

EMS direct transport to center?

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Questions / Answers?

Which patient?
What time?
What hospital?
What technologies?

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Current systems

Few direct EMS to stroke centers
Fragmented care at multiple levels
Physician attitudes and abilities vary
neurology, radiology, emergency
Hospitals variable in support
emergency, radiology, units, floors

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Patients vary

- Stroke mimics
- Stroke syndromes
- Strokes-ischemic
- Strokes-intracerebral hemorrhage
- Patient age, co-morbidities

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Progress has been made


- EMS Dispatch
- priority
- 911e systems
- EMS training
- ACLS
- Others

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Prehospital identification


- Cincinnati Stroke Scale
- LA Prehospital Stroke Screen

- Time of onset
- Other history
- Medications

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Chain-of-survival

- Parallels with cardiac care striking
- Goals similar
 - appropriate therapy to right patients
 - time limitations
- Problems similar
- Pre-planned action paths are key

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Differences cardiac care

- Lack of clear markers
 - EKG
 - Serum markers
- Infinitely variable presentations
- Different pathophysiology looks similar
 - Ischemic stroke
 - Intracerebral hemorrhage

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ED and Hospital Capacity

- Real issues with ED capacities
- Other real demands on time
 - trauma emergencies
 - cardiac emergencies
 - surgical emergencies

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What we know

Intravenous tPA works in select patients
-small vessel occlusions
Transcranial Doppler may aid lysis
Few patients tPA candidates
Others - interventional radiology

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What we don't know

Interventional radiology
how many patients?
which ones?
what techniques?

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A brief history of IA...

Arteries could be *opened*...

How long to open?
Would they stay open?
Were *outcomes* improved?

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Why might IR work?

“Clot Burden”
too much for IV thrombolytics
amount of clot
location of clot
Directed intra-arterial lytics
Directed mechanical clot extraction

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Modern IR

Better neuroimaging
Better thrombolytics
Better mechanical devices

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Modern IR

Impressive results at some centers
in some patients....
How to select patients?

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Interventional Radiology

Select patients - large vessel occlusion
intra-arterial lytics
clot retrieval

Selected syndromes - Basilar occlusion

IV lytic failure? How to predict / monitor?

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Is all IR alike?

Real world problems

Consultants

Tiers of access

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Is all IR alike?

Parallels to cardiac care

At this time rapid response lacking
in most centers....

Can results be generalized?

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Scenarios

Bypass all but centers with IR
OR

“Hub and spoke” with accepted evaluation
protocols and performance standards
OR

Pre-defined access paths with buy-in by
stakeholders

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Solution-proposal

Networks
Pre-defined buy-in by institutions and groups
Rapid, appropriate transfer of rapidly but
carefully selected patients
Neuroimaging prior to transfer?

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GOAL - MATCH

Appropriate patients
Appropriate technology
Appropriate facility
Appropriate care providers

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What might work (IMHO)

Rapid CT / CT-A at first stop
Prompt interpretation - tele?
Transfer lots of electrons, not necessarily lots of patients
Identify the anatomy
Transfer emergently 10-15%
Delayed transfer or no transfer....

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Barriers

Practice patterns
Financial
Liability
Those old things....

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Until that happens....

Preplanned action paths
Transfer emergently IV lytic candidates
-lyse them there....
Basilar artery occlusion
Others - select
younger?
co-morbidities

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ED and Hospital Capacity

Real issues with ED capacities
Other real demands on time
trauma emergencies
cardiac emergencies
surgical emergencies

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Waiting

Randomized studies
Multiple centers and settings
Community vs. Academic centers
Defined selection standards
Evaluation of outcomes / transparency
Rigorous evaluation of complications

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Questions?

www.FERNE.org

huff@virginia.edu

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