Different Strokes for Different Folks: Improving Triage for Comprehensive vs Primary Stroke Centers

Jason McMullan, MD
Gathering of Eagles
February 19th, 2016
Talk about ISC session!
Learning from Other Diseases: Triage Models of Trauma and Acute MI

Jason McMullan, MD
International Stroke Conference
February 18th, 2016
Cincinnati Pre-hospital Stroke Scale

1. **FACIAL DROOP**: Have patient show teeth or smile.  
   - **Normal**: both sides of the face move equally  
   - **Abnormal**: one side of face does not move as well as the other side

2. **ARM DRIFT**: Patient closes eyes & holds both arms out for 10 sec.  
   - **Normal**: both arms move the same or both arms do not move at all  
   - **Abnormal**: one arm does not move or drifts down compared to the other

3. **ABNORMAL SPEECH**: Have the patient say “you can’t teach an old dog new tricks.”  
   - **Normal**: patient uses correct words with no slurring  
   - **Abnormal**: patient slurs words, uses the wrong words, or is unable to speak

**INTERPRETATION**: If any 1 of these 3 signs is abnormal, the probability of a stroke is 72%.
Characteristics of Different Stroke Centers

- **Comprehensive Stroke Center**: Academic Medical Center Tertiary Care facility
- **Primary Stroke Center**: Wide range of hospitals; standard stroke care; stroke unit; use TPA
- **Acute Stroke Ready Hospital**: Rural hospitals; basic care; drip and ship; use tele-technologies
CSC
AIS, ICH, SAH
24/7 Endovascular Therapy
Neuroscience ICU
24/7 Neurosurgery
AHA/ASA Policy Statement

Interactions Within Stroke Systems of Care
A Policy Statement From the American Heart Association/American Stroke Association

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Lee Schwamm, MD, FAHA; Debbie Summers, RN, MSN, ACNS-BC, FAHA;
Lawrence Wechsler, MD, FAHA; Joseph P. Wood, MD, JD;
on behalf of the American Heart Association Advocacy Coordinating Committee

Unless there are other compelling mitigating circumstances, EMS should not bypass the closest facility to go to a higher-level facility if such a diversion would add more than 15 to 20 minutes to the transportation time. This is based in part on the 15- to 20-minute time window for arrival of members of an atrial fibrillation thrombus extraction team and EMS diversion...
Patient with abnormal vital functions in need of acute resuscitation

Transport to nearest hospital for stabilization of vital signs

Once vital functions stabilized, transfer to nearest CSC (or PSC if long distances)

Patient with acute onset of stroke symptoms within 6-8 hours

Transport patient to closest PSC or CSC if <15-20 minutes transport time

If PSC and/or CSC >15-20 minutes away, go to closest ASRH

Patient with acute stroke and seen initially at an ASRH

ASRH might use telemedicine to help evaluate the patient and to make transfer recommendations

Transfer to nearest PSC or CSC based on stroke type, patient's medical condition, treatment options
Randomized Assessment of Rapid Endovascular Treatment of Ischemic Stroke


This article was published on February 11, 2015, at NEJM.org.
Unintended Consequences
tri·age
/trēˈæZH, ′trēˌäZH/

noun

1. (in medical use) the assignment of degrees of urgency to wounds or illnesses to decide the order of treatment of a large number of patients or casualties.

verb

1. assign degrees of urgency to (wounded or ill patients).
Implication:

get the right patient to the right place in the right amount of time
1,600,000
Overtriage

Patient taken to CSC who doesn’t need it

Delays tPA

Starves PSC/ASRH

Volume ~ Outcomes
Undertriage

Patient not taken to CSC who needs it

Delays endovascular care or neurosurgery

Transfer times for STEMI/Trauma
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<td>NIHSS 10 79%/89%</td>
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“WHEN YOU COME TO A FORK IN THE ROAD, TAKE IT.”

YOGI BERRA

© Lifehack Quotes
Prevalence of Disease
Drive Times
DTN
P2P
They say no plan survives first contact with implementation...
Regionalization Keys to Success

• Put the patient first
  – *Competing centers may become partners*

• Honestly define centers and capabilities
  – *“Sometimes” doesn’t count*

• Clearly define patients that should bypass
  – *Complicated tools will fail*

• Accept one size will not fit all
  – *Improvise, adapt, and overcome locally*
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