

When the Sirens Go Down in the City

Pre-Hospital Care of Stroke



American Heart Association®
Mission:Lifeline®
Stroke

Mr. Hernandez

- Mr. Hernandez is a 59 y/o Hispanic male who was found sitting at the kitchen table, slumped to the right and having difficulty speaking. Mrs. Hernandez had gone shopping at 9:00 and returned about an hour later to find him this way. She called 911 at 9:55.



American Heart Association.
Mission:Lifeline®
Stroke

Why Call 911?

- “Thank you for calling 911. If you are experiencing:
 - Chest Pain – please dial 1
 - Shortness of Breath – please dial 2
 - Stroke – please dial 3
 - Non-specific symptoms (general yuk) dial 4
 - All operators are assisting other callers, but your call is very important to us...



Why call 911?

- Shorter Treatment Times
- Improved outcomes (mRS) at 90 days
- Better destination choices



Mr. Hernandez

- EMS arrived at 10:00 and found Mr. Hernandez sitting at the table with a profound right sided facial droop and difficulty speaking. He also had complete right hemiplegia with a left gaze deviation.



Mr. Hernandez

- What do we want to know about Mr. Hernandez?
- ... yes, this is the audience participation portion of the program...



Mr. Hernandez

- EMS personnel determine the LKW time of 9:00 AM. On physical exam:
 - A & O to person, place and time with some difficulty speaking
 - Hemiplegia and gaze deviation confirmed
 - 230/118
 - Blood Glucose 120
 - Sinus rhythm
 - RACE Score 7

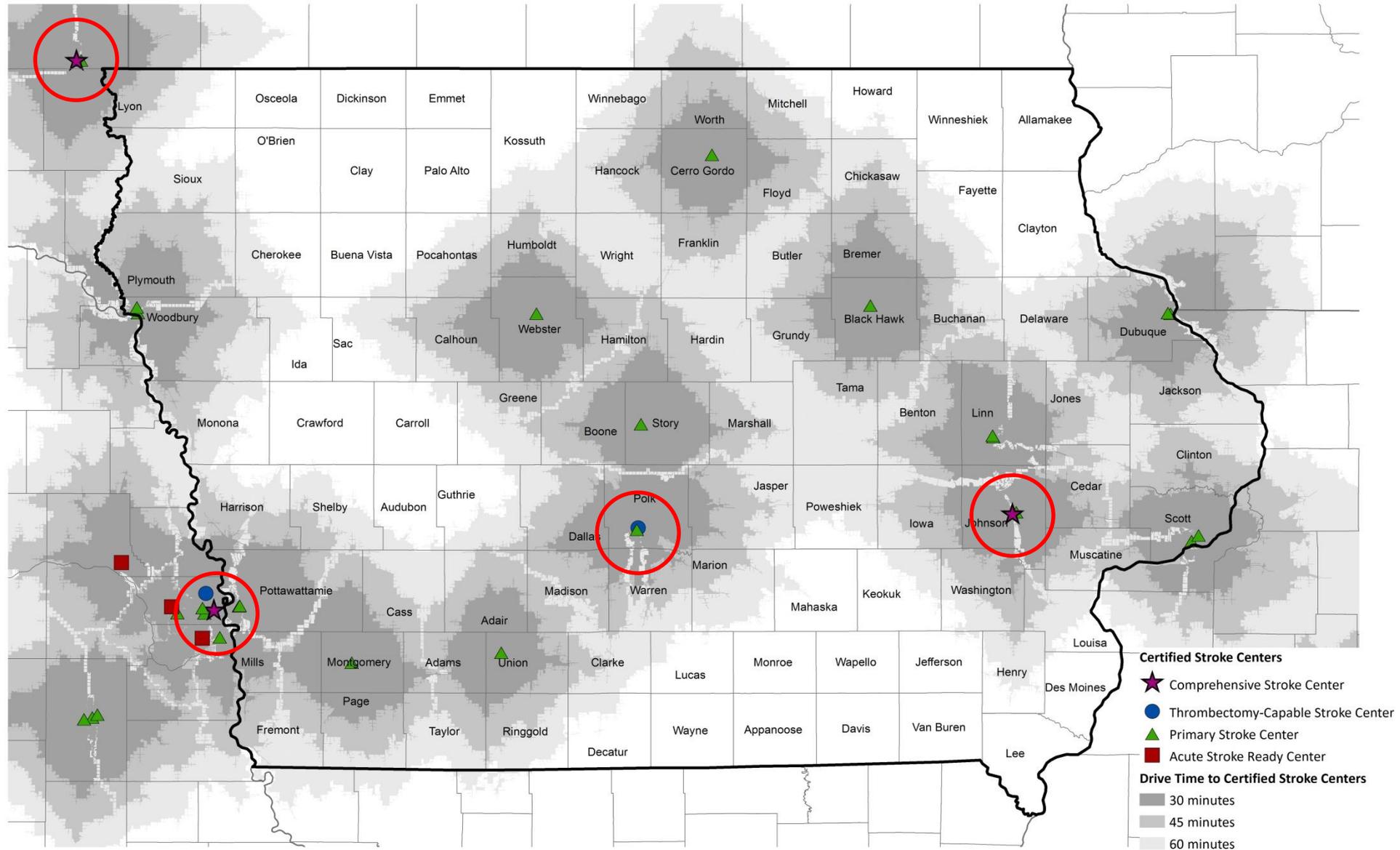


RACE Score

EMS RACE Stroke Scale - Rapid Arterial Occlusion Evaluation Scale, used to predict large cerebral arterial occlusions.*			
ITEM	INSTRUCTION		RACE Score
FACIAL PALSY	Ask the patient to show their teeth	ABSENT (symmetrical movement) MILD (slightly asymmetrical) MODERATE TO SEVERE (completely asymmetrical)	0 1 2
ARM MOTOR FUNCTION	Extending the arm of the patient 90 degrees (if sitting) of 45 degrees (if supine)	NORMAL TO MILD (limb upheld more than 10 seconds) MODERATE (limb upheld less than 10 seconds) SEVERE (patient unable to raise arm against gravity)	0 1 2
LEG MOTOR FUNCTION	Extending the leg of the patient 30 degrees (if supine)	NORMAL TO MILD (limb upheld more than 5 seconds) MODERATE (limb upheld less than 5 seconds) SEVERE (patient unable to raise leg against gravity)	0 1 2
HEAD AND GAZE DEVIATION	Observe eyes and cephalic deviation to one side	ABSENT (eye movements to both sides were possible and no cephalic deviation was observed) PRESENT (eyes and cephalic deviation to one side was observed)	0 1
APHASIA If right hemiparesis	Ask the patient two verbal orders: - "close your eyes" - "make a fist"	NORMAL (performs both tasks correctly) MODERATE (performs one task correctly) SEVERE (performs neither task)	0 1 2
AGNOSIA If left hemiparesis	Asking: - "Who's arm is this?" while showing him/her the paretic arm (asomatognosia) - "Can you move your arm?" (anosognosia)	NORMAL (no asomatognosia nor anosognosia) MODERATE (asomatognosia or anosognosia) SEVERE (both asomatognosia and anosognosia)	0 1 2
* Chart adapted from Perez de la Ossa N, Carrera D, Gorchs M, et al. Design and validation of a prehospital stroke scale to predict large arterial occlusion: the rapid arterial occlusion evaluation scale. Stroke; a journal of cerebral circulation. Jan 2014;45(1):87-91.		RACE SCALE TOTAL: Any score above a "0" is a "Stroke Alert" Signs and Symptoms of Large Vessel Occlusion RACE >4	

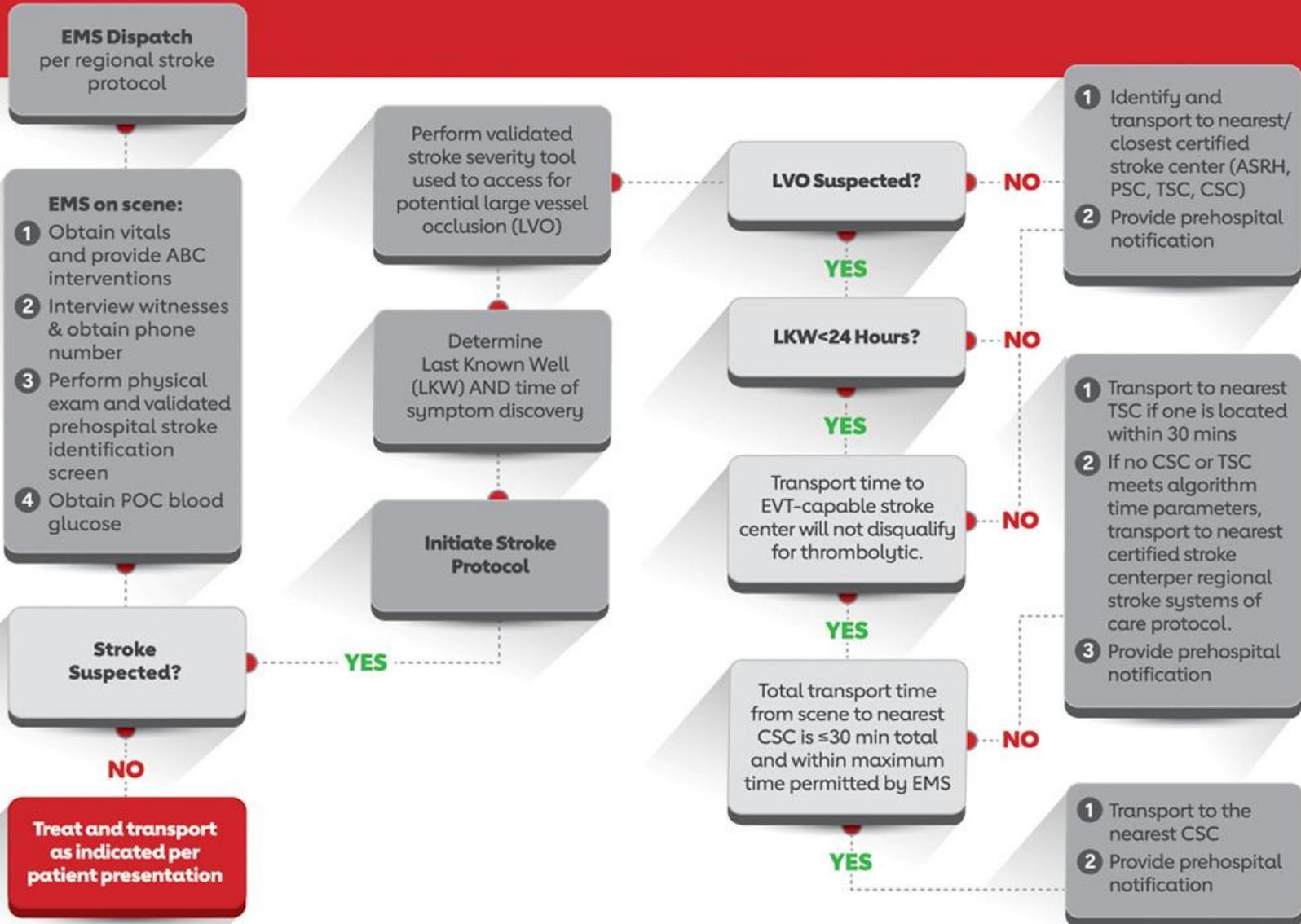


Where do we take Mr. Hernandez?





EMERGENCY MEDICAL SERVICES ACUTE STROKE ROUTING





American Heart Association.
Mission:Lifeline®
Stroke

EMERGENCY MEDICAL SERVICES

ACUTE STROKE TRIAGE AND ROUTING

- “...If no CSC is within 60 minutes, then EMS should go directly to a TSC if the additional transport time past the nearest PSC or ASRH does not exceed 30 minutes, and the maximum total transport time from scene to TSC does not exceed 60 minutes...”



American Heart Association.
Mission:Lifeline®
Stroke

Mr. Hernandez

- EMS crew determines their best destination is the local hospital where Mr. Hernandez can be evaluated and given thrombolytics if he is eligible.
- Early notification to the receiving hospital allows them to prepare
 - Call CT, physician, pharmacy, etc.)
 - Start arrangements for inter-facility transfer



Barriers to EMS & Stroke

- Stroke ~ 1% EMS call volume
- Lack of formalized follow up
- Lack of EMS resources
- Lack of Public Awareness
- Differential Diagnoses
 - Seizure / postictal
 - Hypoglycemia
 - Conversion Disorder
 - Sepsis
 - Electrolyte imbalance
 - Bell's Palsy
 - Migraine
 - Tumor



Mr. Hernandez

- Mr. Hernandez is delivered to the local hospital team who are ready and waiting with “Open Arms...”

