STROKE is an Emergency.
ACT FAST!

Stroke is prevalent and life-threatening

- 780,000 strokes are estimated to occur annually in the United States[1]
- Stroke is the 3rd leading cause of death and a leading cause of disability[1]
- The longer a stroke goes untreated, the greater the chance of permanent neurologic damage[2]
- Rapid intervention is crucial in the treatment of stroke[2]

EMS management of suspected stroke[3]

Clinical assessments and actions

- Support ABCs: airway, breathing, circulation – give oxygen if needed
- Perform prehospital stroke assessment
  -Cincinnati Prehospital Stroke Scale
  -Los Angeles Prehospital Stroke Screen (LAPSS)
- Establish time when patient last known normal
- Transport (consider triage to a center with a stroke unit if appropriate; consider bringing a witness, family member, or caregiver)
- Alert receiving hospital stroke center
- Check glucose level if possible

Prehospital stroke assessment scales

Cincinnati Prehospital Stroke Scale[4]

Facial Droop **(have patient smile)**

Normal: Both sides of face move equally

Abnormal: One side of face does not move as well

Arm Drift **(have patient hold arms out for 10 seconds)**

Normal: Both arms move equally or not at all

Abnormal: One arm drifts compared to the other, or does not move at all

Speech **(have patient speak a simple sentence)**

Normal: Patient uses correct words with no slurring

Abnormal: Slurred or inappropriate words, or mute

Adapted from Kothari RU, et al. *Ann Emerg Med*. 1999;33:373-378.
Prehospital assessment scale may not capture all patients.

Los Angeles Prehospital Stroke Screen[5]

Screening Criteria

- Age >45 years
- History of seizures or epilepsy absent
- Symptom duration <24 hours
- At baseline, patient is not wheelchair bound or bedridden
- Blood glucose between 60 and 400 mg/dL
- Obvious asymmetry (right vs left) in any of the following 3 exam categories:
  -Facial smile/grimace (equal, droop)
  -Grip (equal, weak grip, no grip)
  -Arm strength (equal, drifts down, falls rapidly)

Adapted from Kidwell CS, et al. *Stroke*. 2000;31:71-76.
Prehospital assessment screen may not capture all patients.

Take the patient to the nearest certified stroke center.

To find certified primary stroke centers in your area, go to

- **www.jointcommission.org/CertificationPrograms/PrimaryStrokeCenters**

  -Select "Open link in new browser window" when prompted

  -Select the "Search for a Joint Commission Disease-Certified Organization" option

  -Enter your state and indicate "Primary Stroke Center" from certified option list

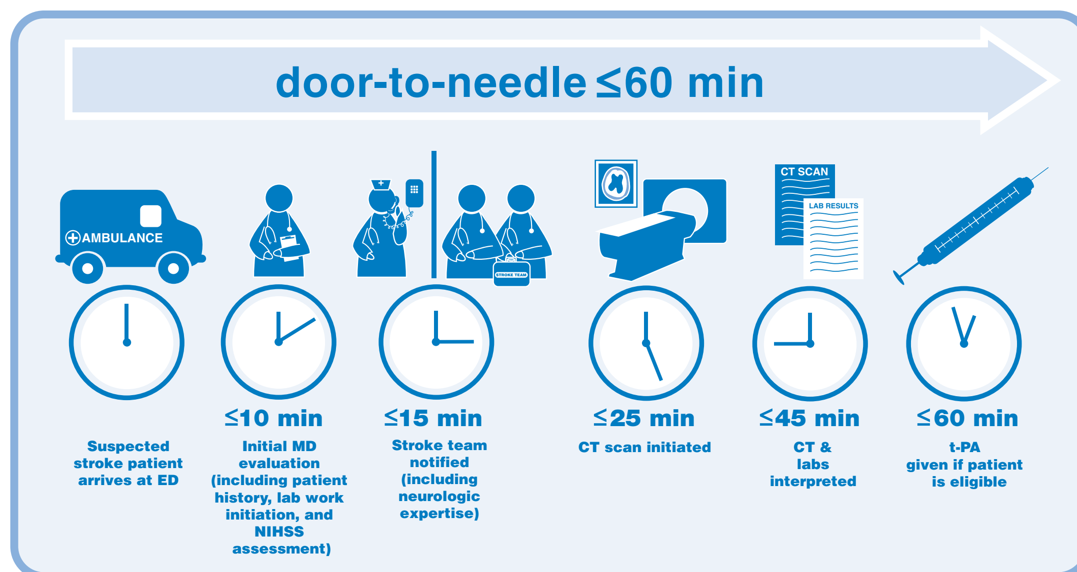
Time equals brain

AHA/ASA recommendations stress urgency of response[6]

- Call 9-1-1 for rapid emergency response and timely treatment of stroke
- Dispatchers should make stroke a priority dispatch
- More initial management of stroke in the field
- Rapid transport of patients to the nearest stroke center

Window for IV t-PA treatment limited to within 3 hours of stroke onset[6]

- t-PA therapy remains the only FDA-approved treatment for stroke
- Patient eligibility must first be established to reduce associated risks
- Designated stroke centers are equipped to quickly evaluate and treat stroke with IV t-PA
  –National Institutes of Health (NIH) recommends time intervals that enable eligible stroke patients to receive t-PA treatment within 60 minutes of hospital arrival.[7]



Adapted from: http://www.ninds.nih.gov/news_and_events/proceedings/stroke_proceedings/recs-emerg.htm. Accessed March 6, 2008.

- EMS bypass of hospital without stroke resources supported by guidelines if stroke center within reasonable transport range[6]

Indication: Activase (Alteplase) is indicated for the management of acute ischemic stroke in adults for improving neurological recovery and reducing the incidence of disability. **Treatment should only be initiated within 3 hours after the onset of stroke symptoms, and after exclusion of intracranial hemorrhage by a cranial computerized tomography (CT) scan or other diagnostic imaging method sensitive for the presence of hemorrhage (see CONTRAINDICATIONS in the full prescribing information).**

Please see important safety information on next page.

AHA=American Heart Association. ASA=American Stroke Association.

Important Safety Information

Safety Information: All thrombolytic agents increase the risk of bleeding, including intracranial bleeding, and should be used only in appropriate patients. Not all patients with acute ischemic stroke will be eligible for Activase therapy, including patients with evidence of recent or active bleeding; recent (within 3 months) intracranial or intraspinal surgery, serious head trauma, or previous stroke; uncontrolled high blood pressure; or impaired blood clotting.

For full prescribing information, click here.

References

1. Rosamond W, Flegal K, Furie K, et al. Heart disease and stroke statistics—2008 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation*. 2008;117:e25-e146. Available at: http://circ.ahajournals.org/cgi/content/full/117/4/e25. Accessed March 6, 2008.
2. National Institute of Neurological Disorders and Stroke. Know stroke. Know the signs. Act in time. NIH Publication No. 08-4872. January 2008. Available at: www.ninds.nih.gov/disorders/stroke/knowstroke.htm. Accessed March 6, 2008.
3. 2005 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. Part 9: Adult stroke. *Circulation*. 2005;112:111-120.
4. Kothari RU, Pancioli A, Liu T, Brott T, Broderick J. Cincinnati Prehospital Stroke Scale: reproducibility and validity. *Ann Emerg Med*. 1999;33:373-378.
5. Kidwell CS, Starkman S, Eckstein M, Weems K, Saver JL. Identifying stroke in the field: prospective validation of the Los Angeles Prehospital Stroke Screen (LAPSS). *Stroke*. 2000;31:71-76.
6. Adams HP Jr, del Zoppo G, Alberts MJ, et al. Guidelines for the early management of adults with ischemic stroke. *Stroke*. 2007;38:1655-1711.
7. The Internet Stroke Center. The "golden hour" of acute ischemic stroke. Treatment guidelines and recommendations. November 22, 2006. Available at: www.strokecenter.org/education/jauch/02.htm. Accessed March 6, 2008.

©2008 Genentech, Inc. 9219400