

The Importance of EMS Pre-Notification

For quicker and more effective treatment, EMS providers are ideally the first contact a stroke patient has with medical professionals. EMS pre-notification of a suspected acute stroke patient assists the receiving hospital to assemble the appropriate personnel and resources before the patient arrives, which will increase the probability of the appropriately screened acute stroke patient receiving time-sensitive thrombolytic therapy. Eligible stroke patients can receive intravenous (IV) thrombolytics within 4.5 hours of last known well (LKW), and mechanical thrombectomy within 24 hours of LKW. Initial assessment and actions performed prior to hospital arrival will have significant impacts on the patient's subsequent care. Within a stroke system of care, goals for pre-hospital EMS care include (Powers, J, et al. 2018):

- Utilizing established protocols to assist in quickly identifying a stroke during assessment.
- Utilizing established protocols for implementation of a stroke severity tool.
- Providing the most current evidence-based care.
- Pre-notification and transport to the most appropriate hospital. Base transport and destination decisions on local resources and your established stroke system of care.

The pre-notification by EMS and mobilization of the receiving hospital's stroke team will ensure more rapid triage, evaluation, and treatment of patients with acute ischemic stroke. When pre-notifying the hospital of a suspected stroke, use of the word "stroke" and/or any language including the BEFAST signs and symptoms is appropriate ([IQVIA Get With The Guidelines®](#), 2015):

BALANCE: Sudden loss of coordination or balance

EYES: Sudden change in vision

FACE: Sudden weakness on one side of the face or facial droop

ARM: Sudden arm or leg weakness or numbness

SPEECH: Sudden slurred speech, trouble speaking, or trouble understanding speech

TERRIBLE HEADACHE: Sudden onset of a terrible headache

When using a stroke severity tool, utilize specific language for pre-notification of suspected large vessel occlusions.

Research has shown that 9%-31% of events originally suspected as strokes are actually mimics (American Heart Association/American Stroke Association, 2015), some of the most common being:

- Alcohol intoxication
- Cerebral infections
- Drug overdose/Toxicity
- Metabolic disorders
- Epidural Hematoma
- Hypoglycemia
- Migraines
- Neuropathies (Bell's Palsy)
- Seizure and post seizure, Todd's Paralysis

Mimics are often undistinguishable in the field and will require further in-hospital testing, imaging, and neurological expertise. The best practice is to pre-notify the hospital of a suspected stroke to ensure a timely workup which will determine if the presenting signs and symptoms are a stroke. It is imperative for hospitals to ensure a system of non-reprisal when EMS identifies a stroke that is later determined to be a mimic after clinical workup.

It is essential for hospitals and EMS to develop a forum to review cases on a consistent basis. This environment will assist in developing a trusting, working relationship and can occur over the phone or by having EMS be a member of the hospital's Stroke Committee. Open and honest communication between hospitals and EMS should include information on outcomes, and provide learning opportunities for both entities.

References:

- American Heart Association/American Stroke Association. 2015. [Is it a Mimic or a Stroke- Key Indicators to Help Your Staff \(heart.org\)](#)
- IQVIA Get With The Guidelines®. [StrokeCodingInstructions_print \(iqvia.com\)](#) © 2015 Quintiles.
- Powers, J, et al. 2018 Guidelines for the Early Management of Patients with Acute Ischemic Stroke: A Guideline for Healthcare Professionals from the American Heart Association/American Stroke Association. <http://stroke.ahajournals.org/content/early/2018/01/23/STR.0000000000000158>
- Wisconsin EMS Protocols. 2021. [Wisconsin EMS Protocols](#)

