



THE UNIVERSITY
of TEXAS
HEALTH SCIENCE CENTER
AT HOUSTON

A Collaborative Effort to Improve Emergency Stroke Care: Mobile Stroke Unit

What can we do to cut down the time it takes to give a clot dissolving drug (tPA)?

MOBILE STROKE UNIT!

Mobile Stroke Unit

Mobile Stroke Unit (MSU)- an ambulance equipped with all diagnostic equipment and staff needed for pre-hospital stroke assessment and treatment



Mobile Stroke Unit

Diagnostics Equipment

- ✓ Portable CT scanner (CereTom)- brain CT can be done in the field to rule out bleeding into the brain
- ✓ Point-of-care laboratory system- labs recommended for the approval of TPA administration
- ✓ Teleradiology/Teleneurology connection



Mobile Stroke Unit

Staffing: Who will be inside?

- Licensed Vascular Neurologist with an ACLS Certification
- Critical Care/ER trained Registered Nurse with ACLS certification
- Licensed Paramedic with ACLS certification
- Licensed CT radiology technician with BLS certification.



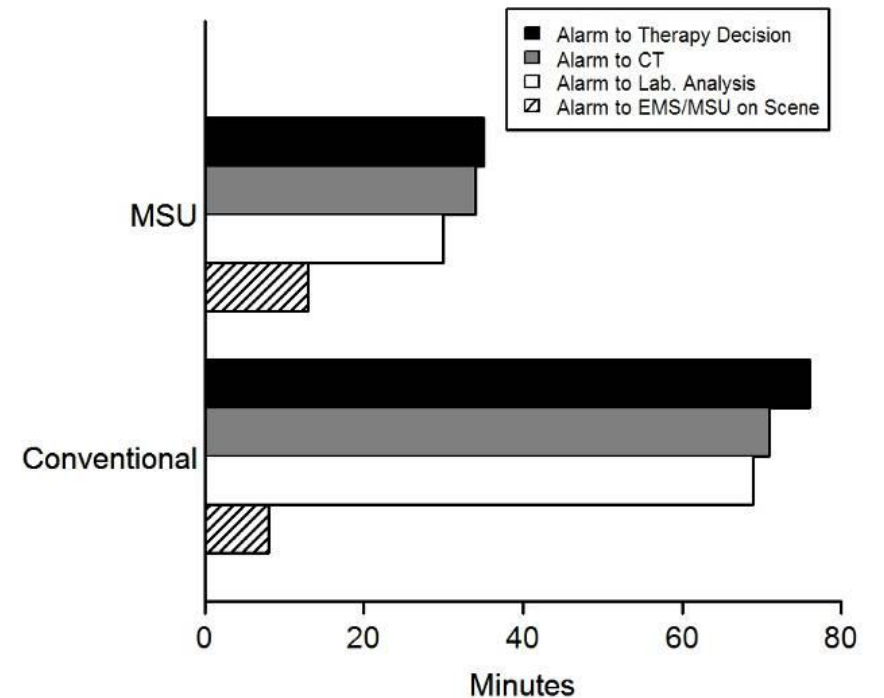
**Pre-hospital versus In-Hospital Stroke Treatment:
a Multicenter Randomized Prospective Trial**

STUDY OBJECTIVES

- ✓ To investigate whether a pre-hospital stroke treatment based on an ambulance that includes all diagnostic tools required for pre-hospital thrombolysis, can significantly decrease the delay between alarm (911 call) and therapy decision and administration of thrombolysis in eligible acute ischemic stroke patients.
- ✓ Important information on rate of administration of recanalizing treatments, safety, clinical outcome, best setting, as well as on cost efficiency will be obtained.

Pre-hospital versus In-Hospital Stroke Treatment: a Multicenter Randomized Prospective Trial

A 50% reduction of the alarm-to therapy decision and stroke management subintervals was reached by MSU-based stroke management in a recent trial (Walter et al., Lancet Neurology 2012).



911 call

HFD ambulance
immediately
dispatched per
routine

Call takers
specifically trained
to recognize
signs/symptoms of
a possible stroke

MSU team called
and dispatched to
site

MSU team meets
HFD ambulance at
emergency site

Mobile Stroke Unit Process

Mobile Stroke Unit Process

- MSU stationed at the University of Texas Medical School at Houston
- Staffed by an on-call EMT driver, CT technician, stroke neurologist (faculty or fellow) and a nurse
- Catchment area- predetermined for patient enrollment, will allow dispatch and arrival of the MSU and EMS together at the emergency site at the same time
- Catchment area- 3 mile radius around Texas Medical Center
- Patient's medical history and physical examination will directly be performed by the EMS paramedics and MSU neurologist
- Patient moved into the MSU

Mobile Stroke Unit Process

- Blood samples will be analyzed by a point of care (POC) laboratory (INR; blood glucose, blood count) by the nurse.
- Non-contrast Brain CT will be performed by a certified radiology technician.
- Brain CT review will be performed by a vascular neurologist on-site or using pacs via telemedicine.
- Therapy decision time
 - if the patient meets inclusion and exclusion criteria for thrombolysis according to the latest published guidelines, **IVtPA will be given without delay.**

Mobile Stroke Unit Process

- Patient will be transported by EMS or the MSU to the appropriate stroke center hospital
- Patients will receive standard EMS stroke care en-route
- Patients treated with tPA, will receive standard post-tPA monitoring
 - q5 min vitals
 - Neuro checks and
 - Observation for angioedema
- Destination hospitals include any of the 3 certified Comprehensive Stroke Centers within a 15 minute drive of the emergency site, will be determined by EMS according to usual criteria
- Destination hospital will be pre-notified by EMS, all further care will be carried out at the destination hospital according to their usual routine

Request for Council Action

- Section 4.9 of the current ambulance ordinance defines who can respond to medical emergencies on the streets of Houston.
- Request suspension of this section strictly for the purposes of this research project.

Mobile Stroke Unit Team

