PREHOSPITAL STROKE TREATMENT ORGANIZATION

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FAQ'S

1.What is a mobile stroke unit (MSU)?

An MSU is an ambulance fitted with a CT scanner on board, and staffed by a doctor, nurse, CT tech and medic, and also equipped with medications and laboratory apparatus, all of which enables treatment of a stroke patient on-board the MSU.

2.Why is stroke treatment important?

Approximately 800,000 strokes occur yearly in the US. Stroke and heart disease are the two greatest causes of disability worldwide in people over 50 yo. In the US, the yearly direct cost of stroke is $216 billion with another $147 billion in lost productivity, in addition to reduction in quality of life for patients and caregivers. While prevention will always be of paramount importance, we have excellent acute stroke treatments that can completely reverse the stroke and prevent disability if administered quickly enough.

3.What is the treatment for a stroke?

The mainstay of stroke treatment is the clot busting drug tissue plasminogen activator (tPA). It is given into the vein, travels to the blood clot in the brain that is causing the stroke, and dissolves it. In patients with very large clots, tPA may not work and the clot can be removed mechanically via a catheter. Currently there is no treatment to stop the bleeding type of stroke other than blood pressure control.

4. Why do we need a MSU?

MSUs enable tPA treatment to begin on-scene. The faster tPA is given after onset of the stroke, the better the outcome, especially if treatment can be given within the first hour. This is because clots are easier to lyse, and fewer brain cells have died, the earlier the treatment. The only way to deliver treatment within the first hour or so is to bring the treatment to the patient in an MSU, rather than waiting for the patient to be evaluated and treated in the emergency room. While we don't yet have an effective treatment for stroke caused by bleeding, faster treatment will undoubtedly be important as well.

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5. What do the data show?

The Benefits of Stroke Treatment on an MSU compared to standard treatment by EMS (BEST-MSU) study was carried out in 7 US cities, and confirmed findings published by the Berlin MSU. In BEST-MSU, 33% of patients were treated with tPA within the first hour after symptom onset on the MSU compared to only 3% with EMS management. Also, 97% of patients who were eligible for treatment were treated on the MSU compared to 80% with EMS. So patients were treated faster and more frequently on the MSU. This led to more patients completely recovering; for every 100 patients treated by an MSU rather than EMS, 27 will have less final disability, including 11 more who will be disability-free. Over 70% of patients treated within the first hour on the MSU returned back to their pre-stroke level of function.

6. How expensive are MSUs?

An MSU costs anywhere from $1- $1.5 million, with most costing at the lower end. About one-third of that cost is the CT scanner itself. The major cost of operating an MSU is staffing. For one shift per day, staffing and operating costs are about $750,000/yr.

7. How are MSUs currently paid for?

Most MSUs have been bought with philanthropic funds and depend on support from their “parent” hospital systems. Several different operating models exist; most are licensed as level 2 ambulances while others are licensed as extensions of the hospital. Regardless of the model, reimbursement is limited and averages about $500/transport. This is about 20% of the operating cost. The inadequate reimbursement is because there are no coding or billing pathways created by payers for MSU activities.

8. How can MSUs become appropriately reimbursed?

As the leading payer for the medical care of stroke patients, CMS (Medicare) is key to appropriate reimbursement of MSUs.CMS needs to recognize that MSUs are cost effective by achieving better clinical outcomes that reduce downstream medical costs. If MSUs can become financially sustainable, they can proliferate, and avoid death and disability for more than 100,000 American stroke victims each year. For this to happen, CMS needs to create MSU-specific billing codes and pathways so that reimbursement can offset costs of operations, staffing and medications.