

## Specialised Ambulance Speeds Earlier Treatment for Stroke Patients



An ambulance designed specifically for stroke treatment improved the treatment time for ischaemic strokes, thanks to specialised onboard equipment and staffing. These are the findings of a German study published in JAMA's neurology-themed April 23/30 issue.

Stroke leads to disability or death for thousands of people each year, with time a critical factor for more favourable outcomes. Acute ischaemic stroke is sometimes treated by dissolving the blood clot, or thrombus, through the intravenous administration of tissue plasminogen activator (tPA), a process known as thrombolysis. Thrombolysis is the preferred treatment when brain-bleeding has been excluded by imaging.

Early treatment by tPA is associated with better prognosis for patients presenting with acute ischaemic stroke, with the recommendation of 60 minutes or less from their arrival to the time of injection. However, data from American research indicates that less than a third of patients (30%) meet this standard, thanks to delays in presentation as well as crisis management outside and inside the hospital. A recent study found that a specialised ambulance contributed time-savings for tPA injections for 12 patients who benefited from the vehicle's point-of-care technology, including a computed tomography (CT) scanner and laboratory.

An ambulance designed specifically for stroke treatment can improve treatment times for patients who have suffered an ischaemic stroke. The specialised vehicle, called Stroke Emergency Mobile or "STEMO", features a CT scanner, an on-site laboratory and telemedicine capability, operated by a pre-hospital team of stroke specialists which includes a neurologist, a paramedic and a radiology technician. The ambulance also has a tool that helps to identify stroke patients at the level of the emergency dispatcher.

In the Berlin-based study led by Martin Ebinger, M.D. of Charité–Universitätsmedizin, the STEMO was available for response to emergency calls during a limited number of weeks, assigned at random. Confirmations of ischaemic stroke led to the initiation of thrombolysis when contraindications were excluded. The study showed that "the ambulance-based thrombolysis was safe, reduced alarm-to-treatment time, and increased thrombolysis rates," according to the study's authors.

Key findings of the study, which included a patient population of 6,182 people, include a time reduction of 25 minutes from a dispatcher-activated alarm to tPA treatment, compared to control weeks when the STEMO was not assigned. There was also a higher rate of tPA treatment following STEMO deployment compared to control weeks (33 percent versus 21 percent).

There was no associated higher risk for intracerebral haemorrhage or for 7-day mortality for patients who were transported to hospital by STEMO vehicles. Additional studies will assess clinical outcomes for patients.

Furthermore, a cost analysis is currently being conducted to weigh the study's effects against concept costs. Each STEMO vehicle comes with a price tag of approximately \$1.4 million, depending on configuration of the ambulance.

Berlin has 14 stroke units which comprise an established stroke care system.

[Source: JAMA](#)

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