

# Mobile stroke unit roughly halves time to diagnosis and treatment of patients with suspected stroke

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Using a specialised ambulance or mobile stroke unit (MSU) to assess and treat patients who have had a suspected stroke at the site of the emergency roughly halves the time from the initial call for help to treatment decision, and could increase the number of patients eligible for life-saving treatment, according to results of a study published Online First in *The Lancet Neurology*.

"The MSU strategy offers a potential solution to the medical problem of the arrival of most [stroke patients](#) at the [hospital](#) too late for treatment—and substantially breaks, to our knowledge, all reported times or [stroke management](#)", explains Klaus Fassbender from the University of the Saarland, Homburg, Germany, lead author of the study.

Currently, the only treatment for acute ischemic stroke (in which blood flow to an area of the brain is blocked or reduced) is thrombolysis using the clot-busting drug alteplase (recombinant tissue plasminogen activator) within 4.5 hours of symptom onset. Patients must have computed tomography (CT) scans of the brain before treatment begins to confirm that a clot is the cause of the stroke. Fewer than 15% to 40% of patients arrive at the hospital early enough for treatment, and only an estimated 2% to 5% of eligible patients actually receive thrombolysis.

In this study, 100 patients with a suspected stroke were randomly assigned to receive either treatment before they reached hospital in a MSU equipped with a CT scanner, point-of-care laboratory, and telemedicine (53 patients) or optimised standard hospital-based stroke treatment (47 patients).\*

Prehospital treatment substantially reduced the median time from alarm (emergency call) to

therapy decision compared with hospital care (35 min vs 76 min). The MSU also lowered the time from symptom onset to therapy decision time to less than an hour for 57% of patients compared with just 4% in the hospital-care group.

Additionally, the time from alarm to thrombolysis was also substantially shorter in the MSU group (38 min vs 73 min).

The authors say: "According to the generally accepted 'time is brain' concept, such a large reduction in delay should translate into improved outcome...although in secondary analyses no significant difference was recorded in the numbers of patients who received thrombolysis or in neurological outcome."

They conclude: "Although the effect on clinical outcome needs further study in larger (eg, multicentre) trials, the results of this first randomised trial of the MSU strategy of bringing the hospital to the patient with stroke show that guideline-adherent diagnosis and therapy can be reliably delivered within the first 35 min after alarm, thus speeding up acute stroke management."

In an accompanying Comment, Peter Rothwell and Alastair Buchan from Oxford University, UK, say: "The generalisability of the trial findings to potential MSU services elsewhere will depend very much on the setting. This trial was set in an urban area with a median distance from the patient to the hospital of 7km and median alarm to arrival times of 8 minutes for the standard [ambulance](#) versus 12 minutes for the MSU. The MSU would potentially work less well in rural areas in which locally based ambulances might be able to get [patients](#) to hospital about as quickly as a hospital-situated MSU could get out to the patient. Nevertheless, this trial has shown convincingly that in at least some

settings an MSU-based service is feasible and can substantially reduce delays to treatment.

**More information:** \*The trial was stopped early after a planned interim analysis at 100 of 200 planned patients because prespecified criteria for study termination had been met.

Provided by Lancet

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