

Multidisciplinary inpatient stroke unit care reduces death and dependency at discharge, with greatest benefits from care on a discrete stroke ward

**Commentary on:** - Langhorne P, Ramchandra S, Stroke Unit Trialists' Collaboration. Organised inpatient (stroke unit) care for stroke: network meta-analysis. *Cochrane Database Syst Rev.* 2020 Apr 23;4:CD000197. doi: 10.1002/14651858.CD000197.pub4

## **Commentary**

### ***Implications for practice and research***

- It is important that the benefits of stroke unit care are not diluted either by lack of appropriately skilled and experienced nurses, or by resource pressures.
- Effective ways of delivering stroke unit care need to be explored in under-resourced health care settings as well as in higher income countries.

### ***Context***

Inpatient stroke unit care, first introduced in the 1960s, is now the standard model in most developed countries. Since its introduction, however, there have been dramatic changes to stroke services, notably in hyperacute care. A number of different models of stroke unit care have also been developed and so it is important to compare these different models with each other as well as with standard inpatient care on a general ward. The aims of this review were to assess the effects of inpatient stroke unit care compared with an alternative service, and to use network meta-analysis (NMA) to assess different types of organised inpatient stroke unit care.

### ***Methods***

Relevant databases, including trial registries, were searched and citation tracking was performed, in order to identify both published and unpublished trials. Studies were eligible if they were randomised controlled clinical trials comparing organised inpatient stroke unit care with an alternative service (typically contemporary conventional care), including studies comparing different types of inpatient stroke unit care. Eligibility and trial quality were assessed by two reviewers, using GRADE. The primary outcome was poor outcome (death or dependency) at the end of scheduled follow-up. Secondary outcomes included death, institutional care, dependency, subjective health status, satisfaction, and length of stay. Direct pairwise comparisons were used, and NMA was used to confirm the relative effects of different types of service.

### ***Findings***

29 trials, with a total of 5902 participants, were included. Stroke unit care was associated with improved outcomes, without increasing length of hospital stay. Mobile stroke team care (2 trials) conferred little benefit, while care on a mixed rehabilitation ward (6 trials) conferred some benefit, but both these analyses were based on low-quality evidence. Care on a stroke ward (15 trials) showed reduction in odds of poor outcome, based on moderate quality evidence. The absolute benefit of stroke unit care equates to having two extra survivors, six more people returning to live at home, and another six living independently, for every 100 patients when compared to general ward care.

### ***Author's Commentary***

Despite decreases in mortality rates, the burden of stroke remains high globally<sup>1</sup>. Interventions span hyperacute, acute, rehabilitation and long term care, and entail multidisciplinary teamwork with many specialised roles undertaken by nurses<sup>2</sup>. The concept of the stroke unit has also evolved with models of stroke care delivery now including combined acute-rehabilitation settings, hyperacute stroke units, hub and spoke, and telemedicine-based services. However, all these models have at their core a concept of the stroke unit as a dedicated, co-ordinated multidisciplinary inpatient service.

As stroke services develop, it is important to evaluate variations on the dedicated stroke ward model, the main alternatives being to have a stroke unit nested within a mixed rehabilitation ward, or to have a peripatetic stroke team who do not have a fixed ward base. However, the 'nested' model appears to have fallen out of favour, with studies in this review<sup>3</sup> dating from 1962 to 1995. The rise of the 'dedicated stroke unit' model is more recent, represented by studies from 1980 to 2014. Some earlier studies were of stroke units with a focus only on rehabilitation, rather than the more recent emergence of combined acute-rehabilitation units, as the introduction of thrombolysis and latterly thrombectomy have brought hyperacute and acute care to the fore. Nurses now play key roles in the coordination and clinical delivery of these services, working peripatetically across all elements of the patient's journey from pre-admission and emergency care to post-discharge, whilst still being based on a dedicated unit.

All but six of the studies in the review were conducted in higher income countries. Stroke incidence is, however, rising in lower and middle income countries<sup>4</sup>. Future research should consider how effective multidisciplinary stroke care can also be delivered in under-resourced settings.

### **References**

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**Competing interests**

None.