

# Do implementation interventions improve evidence-based care in acute stroke settings? A Cochrane Review summary with commentary

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## Abstract.

**BACKGROUND:** Evidence on acute stroke management is continuously growing. Stroke units are often associated with better access to high-level evidence-based practices, but even there, recommendations can be inconsistently delivered to patients with stroke. Implementation interventions are strategies designed to improve the application of evidence-based care.

**OBJECTIVE:** To provide a commentary on the Cochrane Review by Lynch et al. on the effects of implementation interventions on adherence to evidence-based recommendations by health professionals working in acute stroke units.

**METHODS:** A systematic search was performed in CENTRAL, MEDLINE, Embase, and other databases. The search was also performed in grey literature databases, trial registries, systematic reviews and primary studies, as well as in the reference list of identified studies.

**RESULTS:** The review included seven cluster-randomized trials (with 42,489 participants). Studies compared the implementation of strategies composed of different parts (multifaceted) to no intervention, or a multifaceted strategy vs another intervention. These strategies were aimed at changing and improving the delivery of care in the hospital. It included health professional participants, such as nurses, physicians and allied health professionals. The authors concluded that there was uncertainty whether implementation strategies compared with no intervention have any effect on patients receiving evidence-based care during their stroke unit admission. Implementation interventions compared to no intervention probably have little or no effect on the risk of patients dying or being disabled or dependent, and probably do not change patients' hospital length of stay.

**CONCLUSION:** Due to the very low certainty of evidence, there is uncertainty whether a multifaceted implementation intervention, compared to no intervention, can improve adherence to evidence-based recommendations in acute stroke settings.

Keywords: Stroke, health personnel, hospital units, implementation science, systematic review

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The aim of this commentary is to discuss from a rehabilitation perspective the Cochrane Review “Interventions for the uptake of evidence-based recommendations in acute stroke settings” (Lynch, 2023) by Lynch EA, et al.,<sup>1</sup> published by Cochrane Elective Practice and Organisation of Care Group. This Cochrane Corner is produced in agreement with NeuroRehabilitation with views\* of the review summary authors in the “implications for practice” section.

## 1. Background

Scientific evidence in acute stroke management is continuously increasing, but the implementation of evidence into clinical practice is not growing at the same speed. This is concerning, considering the dose-response association in providing evidence-based treatments and the effect on the survival rate as well as health-related quality of life (QoL) (Cadilhac, 2016). Acute stroke units, recognized as specialized multidisciplinary care, offer a unique environment for the rapid and high-quality management of these patients. However, care provision within stroke units can differ enormously (Melnychuk, 2019), so efforts to optimize the delivery of evidence-based care within these settings is of fundamental importance. Interventions to enhance the use of evidence-based practices showed positive results in acute cardiac care or post-acute stroke settings, but they may not be transferable to acute stroke units, given their highly specialized nature.

### Interventions for the uptake of evidence-based recommendations in acute stroke settings

(Lynch EA, Bulto LN, Cheng H, Craig L, Luker JA, Bagot KL, Thayabaranathan T, Janssen H, McInnes E, Middleton S, Cadilhac DA, 2023)

<sup>1</sup> This summary is based on a Cochrane Review previously published in the Cochrane Database of Systematic Reviews 2023, Issue 8. Art. No.: CD012520. doi: 10.1002/14651858.CD012520.pub2 (see [www.cochranelibrary.com](http://www.cochranelibrary.com) for information). Cochrane Reviews are regularly updated as new evidence emerges and in response to feedback, and Cochrane Database of Systematic Reviews should be consulted for the most recent version of the review.

\*The views expressed in the summary with commentary are those of the Cochrane Corner authors (different than the original Cochrane Review authors) and do not represent the Cochrane Library or Wiley.

## 2. Objectives

The aims of this Cochrane Review were: i) to assess the effects of implementation interventions for increasing adherence to evidence-based recommendations by health professionals working in acute stroke units; ii) to assess factors that may modify the effect of these interventions, and, iii) to determine if single or multifaceted strategies are more effective in increasing adherence to evidence-based recommendations by healthcare professionals working in acute stroke units.

## 3. What was studied and methods

The review authors conducted a literature search across 23 databases and registries to find randomized controlled trials (RCTs) and cluster-randomized trials published up to 13 April 2022. The population addressed was health professionals working within acute stroke units with patients within the first seven days of ischemic or hemorrhagic stroke. Authors included trials investigating implementation interventions (i.e. strategies to improve delivery of evidence-based care), compared to no intervention or another implementation intervention. To address the review aim, studies were included only if they reported on the review’s primary outcome (quality of care), as measured by adherence to evidence-based recommendations.

## 4. Results

The review included 7 cluster-randomized trials with 42,489 patients from 129 hospitals in Australia, China, the Netherlands and the UK.

The authors found that multifaceted intervention to improve uptake of evidence-based recommendations, compared to no intervention:

- Has uncertain effects on change in adherence to evidence-based recommendations, with very low certainty of evidence (risk ratio [RR] 1.73, 95% confidence interval [CI] 0.83 to 3.61; four trials).
- Leads to little or no difference in the proportion of patients with ischemic stroke who receive thrombolysis, with moderate certainty of evidence (RR 1.14, 95% CI 0.94 to 1.37; two trials).

- Probably increases the proportion of patients who receive a swallowing screen, with moderate certainty of evidence (RR 6.76, 95% CI 4.44 to 10.76; one trial).
- Probably leads to little or no difference in reducing the risk of poor patient outcomes (death, disability or dependency) at 90 days, with moderate certainty of evidence (RR 0.93, 95% CI 0.85 to 1.02; three trials).
- Probably leads to little or no difference in hospital length of stay, with moderate certainty of evidence (difference in absolute change 1.5 days, 95% CI -0.5 to 3.5; one trial).

There are no studies that reported about resource use or economic outcomes during hospital stays, health professional knowledge at 90 days and compared between a multifaceted to a single implementation intervention. Evidence from studies comparing multifaceted implementation interventions to other multifaceted implementation interventions did not allow the authors to draw definite conclusions about possible beneficial effects.

## 5. Conclusions

The authors concluded that it is uncertain whether a multifaceted implementation intervention compared to no intervention improves adherence to evidence-based recommendations in acute stroke settings because the certainty of evidence is very low.

### 5.1. Implications for practice in neurorehabilitation

Considering the evidence provided by Lynch and colleagues, promising effects of implementation interventions could exist for the number of patients treated with thrombolysis, the number of patients who receive a swallowing screen, the risk of patient dying or being disabled or dependent, and length of hospital stay. However, the low number of studies makes it very difficult to discern whether a multifaceted implementation intervention compared to no intervention really improves adherence to evidence-based recommendations in acute stroke settings. Moreover, the certainty of the evidence is further downgraded by the heterogeneous terminology, description of the intervention and outcome measures used in the available primary studies. Despite these uncertainties, the review sheds light on the importance of implementing

scientific evidence into clinical settings and the difficulty of bringing guidelines and recommendations to real-world practice.

These implications also affect the neurorehabilitation interventions. There is evidence that early rehabilitation in people with stroke play a key role in increasing the recovery, also reducing the length of hospitalization. For these reasons, great effort should be made to bring evidence-based recommendations from guidelines to bedside in stroke units.

In addition to these aspects, a relevant economic issue has to be considered in the generalizability of the current findings. In fact, this evidence is only applicable to acute stroke unit settings. Given the huge economic burden linked to the maintenance of such a complex unit, the evidence in this review is limited to well-funded healthcare facilities that are not so widely spread in low- and middle-income countries.

Key points, like the best methodologies to promote the uptake of evidence-based recommendations and the appropriate timing for use, are still unclear. As suggested by the review authors, until more research and good-quality evidence are available, it is fundamentally important that every healthcare professional, together with researchers, collaborate with each other to plan, measure, evaluate and share their findings about service improvements in acute stroke settings (Lynch, 2023). Moreover, as previously suggested by Cochrane Rehabilitation's "evidence relevant to" approach (Negrini, 2022), clinicians could adapt similar and valuable interventions already available in other acute contexts to partially fill the knowledge gap in acute stroke management.

## Conflict of interest

The authors declare no conflicts of interest.

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