

the BRIEFING

Exeter HS&DR Evidence Synthesis Centre Date 2019

The effectiveness and cost-effectiveness of multi-component strategies to reduce the length of planned inpatient hospital stays of older adults

The number of inpatient admissions of older adults for planned treatment are increasing within the UK.¹ The needs of these patients can differ significantly to those of younger adults² and they are at increased risk of adverse events during and after surgery, such as falls, sarcopenia, hospital-acquired infections and cognitive decline.³⁻⁶ These may result in worse patient outcomes and an increased demand for bed space, resources and increased cost of care. As a result, it is important to enable older adults to leave hospital as early as possible.



"We found the strongest evidence around colorectal and lower limb surgery, with programmes that involve a number of factors across the care pathway and those that focus on the pre-operative phase generally improving recovery and reducing length of stay. However, more research is needed to look at wider outcomes, such as patient satisfaction and their experience after being discharged."

John McGrath,
Consultant Urological Surgeon and Clinical Lead at the Royal Devon and Exeter NHS Trust

This is a summary of a 10 month project focusing on evaluating the effectiveness and cost-effectiveness of hospital-led multicomponent interventions to reduce hospital length of stay (LOS) for older adults undergoing planned procedures.

The review was commissioned by the NIHR Health Services & Delivery Research programme. The findings highlight:

- ◆ The high volume of research evaluating the effectiveness of Enhanced Recovery Pathways and Prehabilitation with older adults undergoing colorectal surgery or hip and/or knee arthroplasty.
- ◆ The organisational strategies implemented by hospitals were usually associated with reduced or similar LOS, compared with usual care, and were also associated with either an improvement or no change for other clinical outcomes, such as complications and readmissions.
- ◆ These findings were consistent across international and UK-based research.
- ◆ Evidence on the cost and cost-effectiveness of these strategies was generally low quality and less conclusive.
- ◆ Patient reported outcomes such as quality of life were infrequently reported, and were rarely measured beyond 30 days following surgery.



Please use the QR code to view the full project report

Why did we do this review?

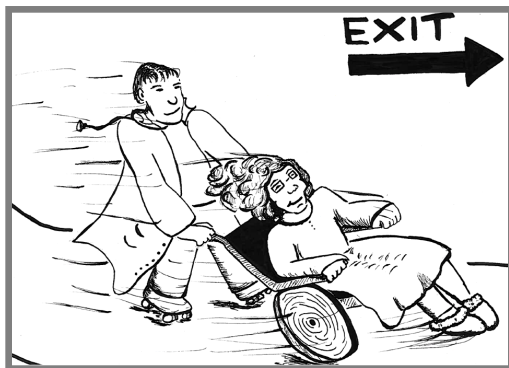
Globally, life expectancy is increasing and so is the population of older adults. Between 2006 and 2016, the mean age of hospital inpatients in the UK increased from 49 to 53; in the same period the number of 60-65 year olds admitted to hospital increased by 57% .

Older adults may present to hospital with multiple physical health problems, polypharmacy, cognitive impairment and social challenges, and are at increased risk of adverse events during and after surgery.

Such difficulties can significantly increase the length of hospital stay, which in turn is associated with increased risks to the patient and higher costs of care.

Hospital-led, multicomponent organisational strategies to accelerate recovery and reduce LOS after planned admissions have been evaluated in some surgical specialties in working age adults in particular, but:

It was not known whether these interventions are effective or cost-effective in older adults.



How did we do this review?

Finding the literature: We searched seven bibliographic databases. We also searched the references of included sources, citations of relevant reviews and websites. Two separate searches were conducted to find effectiveness and cost-effectiveness research.

Eligibility criteria: We sought comparative studies evaluating the effectiveness or cost-effectiveness of multi-component hospital-led, organisational interventions for patients aged 60 years or above admitted to hospital for planned treatment. Study design was restricted to Randomised Controlled Trials (RCTs) from any high-income country and studies of any comparative trial design from the UK, published in English from 2000 onwards.

Any studies meeting the above criteria which measured LOS were eligible for inclusion.

Study selection, data extraction and study quality: All stages were completed independently by two reviewers using the approach detailed in Figure 1.

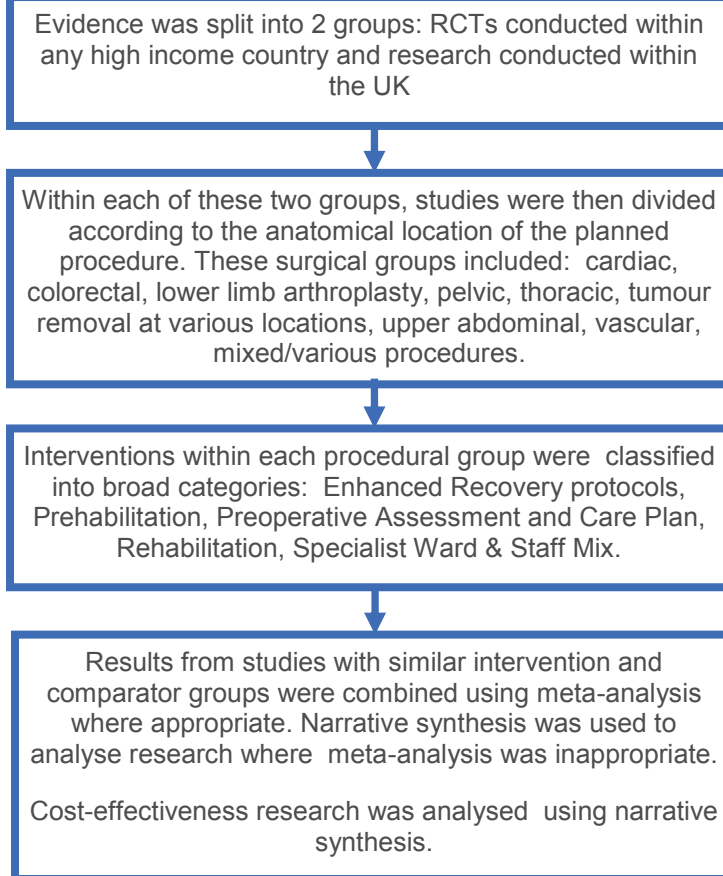


Figure 1: Main stages of data extraction and synthesis

Where was the evidence from?

73 effectiveness studies were included: 34 RCTs conducted outside of the UK and 39 studies, including 12 RCTs, from the UK. 15 articles evaluated the cost-effectiveness of interventions.

What did we find?

Key Findings from International RCTs: Effectiveness research

The majority of RCTs were evaluations of interventions to improve recovery from colorectal surgery (n=17 RCTs) or hip and/or knee replacement (n=13). Within the colorectal surgery evidence, the majority of trials (n=10) evaluated Enhanced Recovery (ERP) interventions, with pooled evidence indicating a beneficial reduction in LOS of around 1.5 days compared with usual care. There was evidence that various markers of physical recovery after colorectal surgery were achieved earlier in patients receiving ERP than those receiving usual care. All other outcomes were either improved with ERP or were similar between ERP and usual care.

For hip and knee arthroplasty, most evidence for strategies to improve recovery came from five RCTs evaluating ERP and five evaluating Prehabilitation interventions. Only two studies in each intervention category could be meta-analysed, but in each category, the intervention was associated with a reduction in LOS. This effect was large and associated with a decreased stay of 3.3 days with ERP, and of medium size and associated with a stay 2.5 days shorter with Prehabilitation. Evidence for other outcomes was scarce in ERP trials but usually indicated no difference between groups or improvements with ERP. Studies evaluating Prehab interventions collected more evidence about patient-reported outcomes, which were either similar compared to usual care, or improved with the intervention.

Five RCTs of ERP interventions in upper abdominal surgery were pooled in meta-analysis, indicating a reduction in LOS of around 5 days compared with usual care, also being associated with 60% fewer complications.

The quality of evidence was usually moderate or weak, with particular concerns over the methods used to collect data, lack of a definition of LOS, and usually unclear reporting of blinding of assessors and participants.

Key Findings from UK: Effectiveness research

There were 12 RCTs, three controlled trials and 24 uncontrolled before-and-after studies from the UK. The largest groups of evidence from the UK were concerned with recovery from lower limb arthroplasty (n=15 studies), and colorectal (n=7) or upper abdominal (n=6) surgery.

ERP interventions dominated the evidence for these procedural groups. As with the international evidence from RCTs, the evidence from the UK either favoured the intervention or showed no difference compared to usual care. Studies were usually rated as moderate or weak in quality. The large number of non-randomised studies automatically downgraded the quality rating of these studies.

Key Findings: Cost-effectiveness

There were only 15 studies which included cost data or cost-effectiveness evaluations. Costs were largely driven by LOS and thus cost-effectiveness evidence broadly reflected effectiveness findings; effective interventions being associated with reduced costs. However, the evidence was generally of low quality and highly heterogeneous. The best evidence came from four evaluations of ERP in lower limb arthroplasty patients, all of which suggested the intervention saved money compared to usual care.

What are the implications of this review?

Multicomponent interventions to reduce LOS and improve recovery in older adults undergoing elective surgery following an inpatient admission were often effective and/or did not adversely affect clinical or patient outcomes. There is clear evidence on the effectiveness of ERP interventions in colorectal surgery, lower limb arthroplasty and, to a lesser extent, upper abdominal surgery. The results of this review suggest that:

1. Future trials could move away from whether a protocol is effective compared to usual care, and focus on factors which may affect the implementation and uptake of interventions with consistency across institutions, and consider the longer-term implications of reduced LOS for patient recovery following their discharge from hospital and the broader impacts on the wider health and social care systems.
2. Further research should seek to incorporate the patient voice in evaluations of interventions aiming to reduce LOS for older adults admitted for planned treatment.
3. Robust evidence about the cost-effectiveness of interventions is required, particularly in the context of a financially-pressured NHS.
4. More evidence is needed about under-represented interventions, and how they may integrate with existing ERPs, as well as the effectiveness and transferability of interventions outside of the areas of colorectal surgery and lower limb arthroplasty.
5. Research quality can be improved with greater transparency of reporting, including clear definitions of outcomes and presentation of data in useable format.

Contact Us

Exeter HS&DR Evidence
Synthesis Centre
South Cloisters
St Lukes Campus
University of Exeter
EX1 2LU

M.P.Nunns@exeter.ac.uk

@ExEvidSC

Exeter HS&DR Evidence Synthesis Centre

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The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care.

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