Physical Restraints for the Prevention of Self-Extubation or Line or Tube Removal in Critically Ill Patients: Clinical Effectiveness and Guidelines
SUMMARY OF ABSTRACTS

Physical Restraints for the Prevention of Self-Extubation or Line or Tube Removal in Critically Ill Patients

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About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada’s health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

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Research Questions
1. What is the clinical effectiveness and safety of using physical restraints for critically ill patients to prevent self-extubation, line, or tube removal?
2. What are the evidence-based guidelines regarding the use of physical restraints for critically ill patients to prevent self-extubation, line, or tube removal?

Key Findings
Two systematic reviews and one non-randomized study were identified regarding physical restraints for the prevention of self-extubation, line, or tube removal in critically ill patients.

Methods
A limited literature search was conducted on key resources including OVID Medline, CINAHL, the Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. The search was also limited to English language documents published between January 1, 2014 and April 17, 2019. Internet links were provided, where available.

Selection Criteria
One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

<table>
<thead>
<tr>
<th>Population</th>
<th>Critically ill patients (i.e., patients in an intensive care or critical care unit)</th>
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<tbody>
<tr>
<td>Intervention</td>
<td>Physical restraints</td>
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<tr>
<td>Comparator</td>
<td>Q1: No restraints</td>
</tr>
<tr>
<td></td>
<td>No comparator</td>
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<tr>
<td></td>
<td>Q2: Not applicable</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Q1: Accidental or intentional extubation or removal of lines or tubes; hospital length of stay; harms related to restraints (e.g., agitation, emotional problems, PTSD, pressure injury)</td>
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<td></td>
<td>Q2: Evidence-based guidelines</td>
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<tr>
<td>Study Designs</td>
<td>Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines</td>
</tr>
</tbody>
</table>
Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

Two systematic reviews and one non-randomized study were identified regarding physical restraints for the prevention of self-extubation, line, or tube removal in critically ill patients. No relevant health technology assessments, randomized controlled trials, or evidence-based guidelines were identified.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

Two systematic reviews and one non-randomized study were identified regarding physical restraints for the prevention of self-extubation, line, or tube removal in critically ill patients. The authors of the first systematic review found that the effectiveness of physical restraints in preventing self-extubation in the intensive care unit was questionable, and that there are many flaws in the administration of physical restraints with inconsistencies in protocol and lack of training provided to nurses. Authors of a second systematic review found that unplanned extubations in intensive care units were significantly associated with the use of physical restraints among other factors. In addition, authors of a non-randomized studies found that physical restraint was significantly associated with higher likelihood of unplanned extubations.

References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses


Randomized Controlled Trials

No literature identified.
Non-Randomized Studies


Guidelines and Recommendations

No literature identified.
Appendix — Further Information

Previous CADTH Reports


See: Table 10: Summary of Recommendations in Included Guidelines


Non-Randomized Studies – Predictors of Physical Restraint Use


Qualitative Studies


Review Articles


See: Prevention of unplanned premature extubation begins with securement, page 4

Additional References