

CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Falls Prevention Mats for Patients in Health Care Settings: Clinical Effectiveness and Guidelines

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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.

Research Questions

1. What is the clinical effectiveness of falls prevention mats to reduce injuries in healthcare settings?
2. What are the evidence-based guidelines regarding the use of falls prevention mats in health care settings?

Key Findings

One non-randomized study was identified regarding the clinical effectiveness of falls prevention mats to reduce injuries in healthcare settings. No evidence-based guidelines regarding the use of falls prevention mats in health care settings was identified.

Methods

A limited literature search was conducted on key resources including PubMed, 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. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2013 and March 12, 2018. 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 1: Selection Criteria

Population	Patients of any age in inpatient or long term health care settings
Intervention	Falls prevention mats (e.g., Arrowhead flat mats, Guardian Bedside Fall Mats, Beveled Edge Fall Mats)
Comparator	No falls prevention mats or regular flooring
Outcomes	Q1: Clinical effectiveness (e.g., number of injuries, fractures, concussions), safety, harms; Q2: Evidence based guidelines
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines

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.

One non-randomized study was identified regarding the clinical effectiveness of falls prevention mats to reduce injuries in healthcare settings. No relevant health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, or evidence-based guidelines were identified.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

One non-randomized study (NRS)¹ was identified regarding the clinical effectiveness of falls prevention mats to reduce injuries in healthcare settings.

The authors reported a positive cross-sectional association between mats or carpets and risk of falls among hospitalized adult patients (N=612).¹

References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Bittencourt VLL, Graube SL, Stumm EMF, Battisti IDE, Loro MM, Winkelmann ER. Factors associated with the risk of falls in hospitalized adult patients. Rev Esc Enferm USP. 2017 Jul 20;51:e03237.
[PubMed: PM28746559](https://pubmed.ncbi.nlm.nih.gov/28746559/)

Guidelines and Recommendations

No literature identified.

Appendix — Further Information

Non-Randomized Studies – Mats Not Specified

- Hanger HC. Low-impact flooring: Does it reduce fall-related injuries? *J Am Med Dir Assoc*. 2017 Jul 1;18(7):588-91.
[PubMed: PM28279604](#)

Review Articles

- Lachance CC, Jurkowski MP, Dymarz AC, Robinovitch SN, Feldman F, Laing AC, et al. Compliant flooring to prevent fall-related injuries in older adults: A scoping review of biomechanical efficacy, clinical effectiveness, cost-effectiveness, and workplace safety. *PLoS ONE* [Internet]. 2017 [cited 2018 Mar 19];12(2):e0171652. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5293217>
[PubMed: PM28166265](#)

Additional References

Risk Mitigation

- Glinka MN, Karakolis T, Callaghan JP, Laing AC. Characterization of the protective capacity of flooring systems using force-deflection profiling. *Med Eng Phys*. 2013 Jan;35(1):108-15.
[PubMed: PM22647837](#)

Implementation Tools and Resources

- Clinical best practice guidelines: Preventing falls and reducing injury from falls [Internet]. 4th ed. Toronto (ON): Register Nurses' Association of Ontario; 2017 Sep [cited 2018 Mar 19]. Available from: http://rmao.ca/sites/rmao-ca/files/bpg/FALL_PREVENTION_WEB_1207-17.pdf
- Staying on your feet [Internet]. Winnipeg (MB): Winnipeg Regional Health Authority. Safety equipment: Falls mats or flooring [cited 2018 Mar 19]. Available from: <http://preventfalls.ca/older-adults/safety-equipment/#2>
- Reducing falls and injuries from falls: Getting started kit [Internet]. Ottawa (ON): Canadian Patient Safety Institute; 2013 Jun [revised 2015 Apr; cited 2018 Mar 19]. Available from: <http://www.patientsafetyinstitute.ca/en/toolsResources/Documents/Interventions/Reducing%20Falls%20and%20Injury%20from%20Falls/Falls%20Getting%20Started%20Kit.pdf>
- Preventing patient falls: A systematic approach from the Joint Commission Center for Transforming Healthcare Project [Internet]. Chicago (IL): Health Research & Educational Trust; 2016 Oct [cited 2018 Mar 19]. Available from: <http://www.hpoe.org/Reports-HPOE/2016/preventing-patient-falls.pdf>
- Quigley P. Best practice approach: Fall risk and injury reduction: Focus on clinical practice and patient engagement (session 3) [slide deck on the Internet]. Sacramento (CA): Health Quality Institute; 2015 [cited 2018 Mar 19]. Available from:

https://www.hqinstitute.org/sites/main/files/file-attachments/3_cal_hen_session_3_and_4_-_quigley_-_040516_dsg_edits.pdf

10. VA National Center for Patient Safety. Implementation guide for fall injury reduction [Internet]. Washington (DC): U.S. Department of Veteran's Affairs; 2015 [cited 2018 Mar 19]. Available from:

https://www.patientsafety.va.gov/docs/fallstoolkit14/falls_implementation_%20guide%20_02_2015.pdf

11. VA National Center for Patient Safety. Falls toolkit [Internet]. Washington (DC): U.S. Department of Veteran's Affairs; 2014 [cited 2018 Mar 19]. Available from:

<https://www.patientsafety.va.gov/professionals/onthejob/falls.asp>

See: *Falls Notebook - Floor Mats Guide*