TITLE: Fall Prevention Strategies for Adult Patients: Comparative Effectiveness, Cost-Effectiveness, and Guidelines

DATE: 15 January 2016

RESEARCH QUESTIONS

1. What is the comparative effectiveness of fall prevention strategies, versus fall risk assessments alone or fall risk assessments and fall prevention strategies for adult patients?

2. What is the cost-effectiveness of fall prevention strategies for adult patients?

3. What are the evidence-based guidelines regarding the use of fall prevention strategies, or fall risk assessment, or both, in adult patients?

KEY FINDINGS

Nine economic evaluations and two evidence-based guidelines were identified regarding fall prevention strategies for adult patients.

METHODS

A limited literature search was conducted on key resources including Ovid Medline, 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. To address question one, methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, and non-randomized studies. To address question two, methodological filters were applied to limit retrieval to economic studies. To address question three, methodological filters were applied to limit retrieval to guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2013 and January 5, 2016. Internet links were provided, where available.
The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

SELECTION CRITERIA

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

<table>
<thead>
<tr>
<th>Table 1: Selection Criteria</th>
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</thead>
<tbody>
<tr>
<td><strong>Population</strong></td>
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<tr>
<td><strong>Intervention</strong></td>
</tr>
</tbody>
</table>
| **Comparator**              | Q1: Fall risk assessments alone, or in combination with fall prevention strategies/interventions  
                              | Q2: Any fall prevention or fall risk assessment strategies  
                              | Q3: No comparator required |
| **Outcomes**                | Q1: Clinical effectiveness, harms, clinical benefit  
                              | Q2: Cost-effectiveness  
                              | Q3: Guidelines and recommendations regarding best practice (e.g., fall prevention strategies be done alone or in combination with fall risk assessments) |
| **Study Designs**           | Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, economic evaluations, and 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, economic evaluations, and evidence-based guidelines.

Nine economic evaluations and two evidence-based guidelines were identified regarding fall prevention strategies for adult patients. No relevant health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, or non-randomized studies were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

No relevant literature was identified on the comparative effectiveness of fall prevention strategies, versus fall risk assessments alone or fall risk assessments and fall prevention strategies for adult patients.

Nine economic evaluations\(^1-9\) were identified regarding the cost-effectiveness of fall prevention strategies for adult patients. The nine economic evaluations\(^1-9\) are summarized in Table 2. Most of the economic evaluations\(^1-6,8-9\) suggested the use of fall prevention programs to save costs.
Two evidence-based guidelines\textsuperscript{10-11} were identified regarding the use of fall prevention strategies, or fall risk assessment, or both, in adult patients. One of the evidence-based guidelines\textsuperscript{10} recommends the use of physical therapists to screen patients and manage the risk of falling in older adults. The second evidence-based guideline\textsuperscript{11} recommends nurses identify and provide interventions to patients who may be at higher risk of falling.

### Table 2: Summary of Included Economic Evaluations

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Type of Evaluation</th>
<th>Patient Population</th>
<th>Setting</th>
<th>Main Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carande-Kulis, 2015\textsuperscript{1}</td>
<td>Cost-benefit analysis</td>
<td>Patients aged 65 and older</td>
<td>NR</td>
<td>The fall prevention interventions in this study delivered positive net benefits—the benefits covered the implementation costs and surpassed direct program delivery costs.</td>
</tr>
<tr>
<td>Church, 2015\textsuperscript{2}</td>
<td>Markov model</td>
<td>Older patients (age not specified)</td>
<td>RACFs</td>
<td>This study found the use of vitamin D treatment in older adults living in RACFs was a cost-effective intervention that resulted in a reduction of falls and health care costs.</td>
</tr>
<tr>
<td>Farag, 2015\textsuperscript{3}</td>
<td>Markov model</td>
<td>Older patients (age not specified)</td>
<td>NR</td>
<td>This study found that a public health fall prevention program was a cost-effective option.</td>
</tr>
<tr>
<td>Howland, 2015\textsuperscript{4}</td>
<td>Cost-savings analysis</td>
<td>Older patients (age not specified)</td>
<td>NR</td>
<td>According to the study’s authors, if older adult patients who presented in emergency departments with a fall-related injury were treated with evidence-based fall prevention programs, successive falls and related treatment costs could be reduced.</td>
</tr>
<tr>
<td>Muller, 2015\textsuperscript{5}</td>
<td>Markov model</td>
<td>Elderly patients (age not specified)</td>
<td>Nursing homes</td>
<td>The study suggested a multifactorial fracture prevention program as a cost-effective way to prevent fractures in nursing home residents.</td>
</tr>
<tr>
<td>Poole, 2015\textsuperscript{6}</td>
<td>Markov model</td>
<td>Patients aged 60 and older</td>
<td>NR</td>
<td>According to the study’s authors, the use of vitamin D treatment to prevent falls in the elderly would result in significant cost-savings and reduced mortality.</td>
</tr>
<tr>
<td>Spetz, 2015\textsuperscript{7}</td>
<td>Cost-savings analysis</td>
<td>NR</td>
<td>Hospitals</td>
<td>The study concluded that fall prevention programs have the possibility of reducing treatment cost; however, there are many scenarios where the costs of these programs were higher than cost savings.</td>
</tr>
<tr>
<td>Haines, 2013\textsuperscript{8}</td>
<td>Cost-effectiveness analysis</td>
<td>Acute and rehabilitation inpatients</td>
<td>Hospitals</td>
<td>According to the study’s authors, the fall prevention program will prevent falls and reduce costs for a health service, as long as 4% or more of patients are cognitively intact under usual care.</td>
</tr>
<tr>
<td>Heinrich, 2013\textsuperscript{9}</td>
<td>Cost-effectiveness analysis</td>
<td>Patients aged 65 and older</td>
<td>Nursing homes</td>
<td>According to the study’s authors, the multifactorial fall prevention program may result in cost savings within the first year.</td>
</tr>
</tbody>
</table>

\textit{NR = Not Reported; RACFs = Residential Aged Care Facilities; ROI = Return on Investment}
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
No literature identified.

Economic Evaluations


Guidelines and Recommendations


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APPENDIX – FURTHER INFORMATION:

Review Articles


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