Effectiveness of multifaceted fall-prevention programs for the elderly in residential care

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CRD summary
This review found limited evidence that multifaceted intervention programmes can prevent falls in elderly residents in residential care. The authors’ conclusions were appropriate, but flaws in the review process meant that the reliability of the conclusions is unclear.

Authors' objectives
To evaluate the effectiveness of multifaceted intervention programmes in fall reduction among older people who live in residential care facilities.

Searching
MEDLINE, EMBASE and CINAHL were searched without language restriction from inception to July 2007; search terms were reported. A number of internet search engines and reference lists of retrieved articles were searched. Only peer-reviewed articles were included in the review.

Study selection
Randomised controlled trials (RCTs) (with a concurrent comparison group) of multifaceted programmes to prevent falls in participants aged 60 years or more who lived in a residential setting were eligible. Eligible outcomes included the number of residents who sustained a fall, number of falls, number of injuries that resulted from falls and number of recurrent fallers. Follow up had to be at least six months after the intervention programme.

In the included studies, the multifaceted programmes included environmental modification, exercise programmes, medication adjustments, hip protectors and resident and staff educational programmes; not all studies included all of these types of intervention. Control groups received usual care, no intervention or programme or social interaction programmes. Programme delivery ranged from 11 weeks to one year. In some studies, participants were excluded if they were bed bound, had evidence of poor cognitive function, had no previous falls or were temporary residents. Main outcomes included proportion of residents who had falls, number of falls, proportion of injurious falls and proportion of recurrent falls (defined as two or more or three or more falls during follow up).

It appeared that at least two reviewers selected papers for inclusion in the review and any disagreements were resolved through consensus.

Assessment of study quality
Studies were assessed for validity with the Downs and Black checklist, which included measures to evaluate quality of reporting, likelihood of bias and confounding, external validity and power. The response criteria for the checklist were yes (criterion met), unclear or no (criterion not met).

The authors stated neither how many reviewers performed the validity assessment or how disagreements were resolved.

Data extraction
Two authors independently extracted relevant data. The authors did not state how disagreements were resolved.

Methods of synthesis
Results from the studies were described in a narrative synthesis in text and tabular format. Incidence of fall outcomes in one study was expressed in terms of incidence density rate of falls per 1,000 resident years.

Results of the review
Five cluster randomised trials were included (n=2,194). Sample sizes ranging from 133 to 981 participants. Studies were performed in either Europe or United States. Follow-up ranged from 34 weeks to one year. Reporting was
adequate. Participants were not blinded to the intervention in any of the studies. Study authors claimed no contamination of the control group; evidence of how this was ensured was not reported. Drop outs were less than 20% in four of the studies and a rate of 36% in the remaining study. Losses to follow-up were taken into account in all studies, but lack of intention to treat analysis in one study may have caused confounding. Analyses were adjusted for clustering in four of the five studies.

Two of four studies that measured number of fallers and number of falls reported a significant reduction in both outcomes with the implementation of the intervention programme. Three out of five studies reported significant reductions in the number of recurrent fallers and one out of five reported a reduction in the number of injurious falls in those who received the multifaceted prevention programme compared to the control group.

Authors’ conclusions
Multifaceted programmes with a range of intervention strategies showed some evidence of efficacy in the prevention of falls.

CRD commentary
The review addressed a clear research question and inclusion criteria appeared appropriate. Several relevant sources were searched to identify relevant studies without language or publication status restriction. There was potential for bias and error in some parts of the review process, as full details on appropriate methods for selection and data extraction were not reported. Study validity was comprehensively assessed and the scores suggested the small number of included studies were of reasonable quality, but it was unclear whether this was done independently by more than one reviewer. The decision not to pool the studies was appropriate as no single prevention programme used exactly the same combination of prevention strategies. The authors’ conclusions reflected the evidence presented and were appropriate. As relevant studies may have been missed and methods in the review process were not fully described, the reliability of the conclusions is not clear.

Implications of the review for practice and research
Practice: The authors stated that multifaceted prevention programs (including environmental modification, education on falls prevention, medication reviews and the provision of hip protectors) may be best targeted to high-risk groups of elderly residents, such as recurrent fallers.

Research: The authors stated that there was insufficient evidence on adverse outcomes, costs, cost-effectiveness and sustainability of programmes. Future studies should assess the value of these interventions outside of higher income countries in North America and Europe. Other outcomes, such as effects on residents’ quality of life, social interactions and impacts on caregivers and family and friends, should also be assessed.

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