Meta-analysis: multidisciplinary fall prevention strategies in the acute care inpatient population
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CRD summary
The review concluded that fall prevention strategies had a small effect on fall rates in acute in-patient settings despite the use of complex multidisciplinary interventions. They added that further randomised trials were needed. Despite some review limitations, the authors' conclusions were suitably cautious in reflecting the limited evidence available and appear likely to be reliable.

Authors' objectives
To evaluate team-based multidisciplinary fall prevention strategies in the acute in-patient setting.

Searching
MEDLINE, CINAHL, EMBASE and The Cochrane Library were searched to December 2011 without language restrictions; search terms were reported. Bibliographies of relevant systematic reviews and meta-analyses were examined.

Study selection
Primary studies of multidisciplinary fall prevention interventions in acute care hospital patients were eligible. Studies in psychiatric wards, rehabilitation units, subacute facilities and long-term facilities were excluded.

Most of the included populations had a mean of over 65 years. Settings were mostly general medical or geriatric wards, or acute care hospitals. All studies used a fall risk-assessment process to risk-stratify participants and then modulate interventions accordingly. One study used an electronic fall prevention tool kit which triggered automatic ordered interventions. Where stated, all studies had nurse involvement.

The authors did not state how many reviewers selected studies.

Assessment of study quality
Study quality was evaluated by awarding studies a score out of 20 by assessing 10 criteria that covered areas such as randomisation, blinding and similarity of groups.

Two authors discussed the methodological quality of individual studies and reached consensus.

Data extraction
Data were extracted in order to calculate fall rate per 1,000 patient-days and then used to calculate odds ratios (OR) with 95% confidence intervals. Where necessary, sample size was converted to patient days using total number of patients and average length of stay.

Two reviewers extracted data.

Methods of synthesis
Meta-analyses were performed to calculate pooled odds ratios with 95% confidence intervals using a random effects model. Heterogeneity was assessed using the Q and I² statistics.

Results of the review
Six studies were included: one randomised trial, one quasi-experimental study and four pre-post studies. Sample sizes were not reported but the number of 1,000-patient days in treatment groups ranged from 4.3 to 160.3. Study quality scores ranged from 10 to 14 out of 20. All patients were included in individual study results. No blinding was used in any of the studies.

Active intervention was associated with a statistically significant reduction in fall rate compared to control group care.
(OR 0.90, 95% CI 0.83 to 0.99; six studies). No evidence of significant heterogeneity was found.

**Authors' conclusions**

Fall prevention strategies had a statistically significant but small effect on fall rates despite the use of complex, multidisciplinary interventions. Additional randomised trials were needed to examine the possible benefits of multidisciplinary fall prevention strategies in the acute in-patient setting.

**CRD commentary**

The review addressed a clear question and used broad eligibility criteria. Attempts to identify relevant studies were undertaken by searching electronic databases in any language but there was no specific search for unpublished studies so it was possible that some relevant studies were missed.

It was unclear whether or not the two reviewers worked independently during data extraction (working independently would have reduced the risks of reviewer error and bias); methods for study selection were not reported and the reviewers did not appear to assess study quality independently. The implications of the study quality assessment results were discussed and the authors stated a need for randomised studies. The likely limited clinical impact of the pooled result was discussed. Basic study details were provided but did not include sample sizes. Few details were provided about control treatments. Appropriate methods were used to pool data and assess heterogeneity.

Despite some review limitations, the authors' conclusions were suitably cautious in reflecting the limited evidence available and appear likely to be reliable.

**Implications of the review for practice and research**

**Practice:** The authors stated that it remained to be seen whether multidisciplinary fall prevention strategies were clinically effective.

**Research:** The authors stated a need for high quality randomised trials of multidisciplinary fall prevention strategies in the acute in-patient setting and for cost-effectiveness studies.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.