CRD summary
This review evaluated interventions to improve pain management in nursing homes and concluded that pain continued to be a significant concern in nursing home residents, that high-quality studies in this area remained limited and scientific rigour in clinical research was needed. Despite some limitations the conclusions appear reliable given the results presented.

Authors' objectives
To evaluate interventions to improve pain management in nursing homes.

Searching
MEDLINE and CINAHL were searched from inception to June 2007 and EMBASE was searched. Only studies published in English were considered. Reference lists of selected articles were searched for further relevant articles. Search terms were reported.

Study selection
Studies were eligible for inclusion if they described clinical trials that evaluated an intervention to improve pain management in nursing homes and measured an endpoint relevant to the quality of pain management. Studies were excluded if they focused on pain scale validation or development, or reported pain prevalence data in the context of observational cohorts.

Study publication dates ranged from 1982 to 2007. Many studies were multicentre. Many patients had either dementia or chronic pain; some received palliative care. Included studies evaluated a wide range of educational, organisation and treatment interventions singly or in combination. Further study details that included which interventions were categorised in which category type were available in the paper.

One reviewer screened titles and abstracts which were then retrieved and screened full text.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors did not state how data were extracted for the review.

Methods of synthesis
Interventions were categorised into one of four types according according to a theoretical model described in Donabedian (2003). The four category types were: actor modification (education of health professionals, residents or families); decision support modification (introduction of algorithms or other guidelines for therapy); treatment modification (introduction of specific treatments); and systems modification (attempts to improve quality and feedback analysis).

The reviewers performed a narrative synthesis of papers grouped according to process modification category.

Results of the review
Twenty-one studies were included (n=over 5,000 participants, range four to 2,033 participants). Eleven studies involved actor modification. Two studies involved decision support modification. Eight studies involved treatment modifications. Nine studies involved systems modifications. Categories were not mutually exclusive.

Actor modification: Only two out of 11 studies were randomised; only two used an educational intervention alone and
these did not show improvements in outcomes related to the intervention.

**Decision support modification:** Patients within both studies were severely cognitively impaired and interventions were intended to reduce discomfort. One study reported a significant increase in scheduled analgesics and non-pharmacological comfort interventions and a decrease in the modified Discomfort Scale-Dementia of the Alzheimer’s Type (DS-DAT) scores. The other report had high attrition and reported a higher persistence to treat and decrease in DS-DAT in the intervention arm.

**Treatment modification:** Five studies used non-pharmacological treatment modifications; two reported less *pro re nata* (PRN) medication use and improved pain index measures, but differences were not assessed statistically. The authors stated that overall treatment modification studies were more rigorously designed than other interventions, and results were not encouraging.

**Systems modification:** Five of the nine studies examined process and resident endpoints; four reported decreased pain.

Further details of individual studies were provided in the review.

**Authors’ conclusions**

Pain continued to be a significant concern in nursing home residents. High-quality studies of nursing home pain management remained limited. Scientific rigour in clinical research was needed to advance pain management in the nursing home.

**CRD commentary**

This review addressed a clear research question and used broad but relevant study selection criteria. More than one database was searched and additional measures taken to identify relevant studies; only studies published in English were considered for inclusion, so the possibility of language bias could not be ruled out. The study selection was not conducted in duplicate, which increased risks of reviewer error and bias. No validity assessment was reported. Study design details were included. The number of reviewers involved in data extraction was not reported, which reduced review transparency and repeatability. The method of synthesis was clearly stated, and may have been appropriate given clinical heterogeneity between studies. The results were clearly reported and emphasis was given to findings from better-quality studies with more clinically relevant outcomes.

The review had some limitations but overall the conclusions appear reliable given the results presented.

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

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that further research should establish common agreed-upon resident endpoint measures, use controlled study designs and assess the effect of multiple process modifications on resident endpoints.

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Record Status
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.