Interventions to optimise prescribing in care homes: systematic review
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CRD summary
The review found no conclusive evidence that any single intervention was effective in improving prescribing in care homes. Educational programmes with academic detailing appeared to be the most promising approach. In view of limitations in the review, in particular the heterogeneity of the primary studies, the authors’ conclusions should be regarded with caution.

Authors' objectives
To assess strategies to improve prescribing in care homes.

Searching
MEDLINE, EMBASE, IPA and The Cochrane Library were searched from 1990 to April 2010. Search terms were reported. Reference lists of eligible studies were checked. The search was limited to fully published studies in English.

Study selection
Randomised or non-randomised controlled trials of interventions that aimed to increase appropriate or reduce inappropriate prescribing in care homes with residents with a mean age of at least 65 years were eligible for inclusion. Inappropriate prescribing was defined as use of medicines with more risk than benefit, inappropriate dose or duration of drugs, presence of clinically significant drug-drug or drug-disease interactions, underuse of beneficial drugs and duplication of drugs.

The mean or median age of participants in the included studies ranged from 80 to 87 years, where reported. Studies were set in various types of residential and long-term care facilities; most were multi-centred and the number of centres ranged from one to 65. The most commonly used intervention was education: in most cases this comprised a complex educational programme for prescribers and/or care staff and included academic detailing (face-to-face education on clinical practice delivered by an external expert). Other interventions included multidisciplinary meetings (usually chaired by the prescribing physician), pharmacist medication reviews and computerised clinical decision support. In some studies there were overlaps between intervention components. Control conditions were not described. A wide range of outcomes was reported and included changes in the number, dose and/or type of drugs prescribed, use of physical restraint, proportion of prescriptions that met guideline recommendations, rate of falls and mortality. Mean follow-up ranged from three months to five years.

Two reviewers independently selected the studies. Disagreements were resolved by discussion or by a third reviewer.

Assessment of study quality
Study quality was assessed using a modification of the Downs and Black rating scale to assess the quality of reporting (maximum score 11 points), external validity (3 points), risk of bias (7 points) and confounding (6 points). The overall maximum score was 27 points.

Two reviewers independently assessed study validity. Disagreements were resolved by discussion or by a third reviewer.

Data extraction
Studies were classified by type of intervention. Where a study included more than one type of intervention it was grouped by its main intervention. Statistically significant findings were listed in a table of studies, with (in most cases) p values for the differences between groups.

The authors did not explicitly state how many reviewers performed data extraction.
Methods of synthesis
Studies could not be pooled statistically due to heterogeneity. A narrative synthesis was performed, organised by type of intervention.

Results of the review
Sixteen studies were included (n=11,534 participants, range 89 to 2,261): 13 RCTs (n=10,645, including 11 cluster RCTs) and three before-and-after studies (n=889). Study quality was generally high: 10 studies scored 24 to 25 points out of a maximum of 27, four scored 20 to 23 and two scored 13-14.

Six out of eight studies of staff education reported significant improvements in the intervention group. Improvements included fewer medications prescribed (one RCT), reduction in dose (one RCT), overall use (one RCT) or duration (one before-and-after study) of antipsychotics, reduced use of hypnotics before 9pm (one before-and-after study) and reduced use of non-steroidal anti-inflammatory drugs (one RCT). Two RCTs had no significant findings.

One out of three RCTs of pharmacist medication reviews reported a significant change in prescribing (number and type of medication), but no decrease in medication use. Two RCTs had no significant findings.

Two out of three studies of multidisciplinary team meetings reported significant reduction in psychoactive drugs prescribed (one RCT) and a significant improvement in appropriate prescribing (one RCT). One before-and-after study had no significant findings.

One of two RCTs of computerised clinical decision support reported a significant improvement in appropriate prescribing in the intervention group. The other RCT had no significant findings.

Authors’ conclusions
There was no conclusive evidence that any single intervention was effective for improved prescribing in care homes. Educational programmes with academic detailing appeared to be the most promising approach.

CRD commentary
The objectives and inclusion criteria of the review were clear. Relevant sources were searched for studies. The restriction to published studies in English meant that some studies may have been missed. Steps were taken to minimise the risk of reviewer bias and error by having more than one reviewer independently select studies and undertake validity assessment; it was unclear whether these precautions also applied to data extraction. Study quality was generally high, but the number of studies for each outcome was small.

The variety and complexity of the interventions and the wide range of outcomes made the review findings difficult to interpret. The authors acknowledged that interventions overlapped, studies could potentially be grouped in different ways and some studies focused on behavioural management more than on improved prescribing. The review only reported significant study findings and it was unclear how many outcomes were measured and what proportion of outcomes favoured the intervention. It was also unclear whether changes in prescribing were clinically important and even whether the direction of effect was positive: the authors noted that a decrease in prescriptions did not necessarily indicate improved practice.

In view of limitations in the review, in particular the heterogeneity of the primary studies, the authors’ conclusions should be regarded with caution.

Implications of the review for practice and research
Practice: The authors stated that educational interventions to improve prescribing in care homes should target all health professionals (and possibly family members too). The authors recommended combining two or more interventional strategies. They noted that evidence may not be generalisable from one country to another due to differences in definitions, staff training and supervision of drug therapy.

Research: The authors stated that standardised methods should be developed to measure inappropriate prescribing in care homes in order to facilitate benchmarking. They recommended exploration of combinations of interventional
strategies.

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