Interventions to improve medication reconciliation in primary care

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CRD summary
This well-conducted review concluded that there was no good-quality evidence to demonstrate the effectiveness of medication reconciliation in the primary care setting; further research was needed. This conclusion is likely to be reliable.

Authors' objectives
To assess the impact of primary care interventions designed to implement medication reconciliation on medication discrepancies, clinical outcomes and patient knowledge of their medications.

Searching
MEDLINE, HealthSTAR, CINAHL, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials (CENTRAL), DARE, Cochrane Methodology Register and HTA were searched without language restrictions for dates from 1966 to March 2008. Search terms were reported. Eleven registries of clinical trials, theses and dissertations and proceedings of relevant societies were searched for unpublished material. Reference lists of identified studies were checked for further studies.

Study selection
Randomised controlled trials (RCTs), quasi-RCTs and before-and-after studies that assessed interventions to improve medication reconciliation in community-dwelling adults in primary care, ambulatory settings or transition into or out of hospital were eligible for inclusion. Studies of patients who were living in or being transferred to long-term care or retirement homes were excluded from the review. The primary outcome was the number of discrepancies in name, dose and frequency between medications reported in the medical record and patient-reported medications. Secondary outcomes were clinical relevance of medication discrepancies and change in level of patient knowledge of their medication. Studies were required to report complete results.

Included studies took place in ambulatory settings or post hospital discharge situations. Half of the studies assessed multi-faceted interventions and half assessed interventions described as pharmacist-mediated but using multiple data-sources. All studies included only adult patients; characteristics of patients varied considerably between studies. There were differences in methods and timing of outcome evaluation.

One reviewer assessed abstracts and subsequently two reviewers independently assessed identified full papers for inclusion. Disagreements were resolved through consensus.

Assessment of study quality
Two reviewers independently assessed validity using criteria of randomisation, allocation concealment, blinding, number of withdrawals, adequacy of outcome reporting and identification of other sources of bias.

Data extraction
Two reviewers performed data extraction. Authors were contacted to obtain missing data. Data were extracted to permit the calculation of odds ratios (OR) or mean differences, in each case with 95% confidence intervals (CI). Methods used to evaluate clinical relevance of discrepancies and levels of patient knowledge were extracted.

Methods of synthesis
Heterogeneity was considered too great to permit statistical pooling and so a narrative synthesis was presented, grouped by the setting in which the studies were conducted. Qualitative assessment of clinical heterogeneity assessed factors that included population, intervention, outcome measures and study design.

Results of the review
Four studies (n=387) were included in the review: one RCT (n = 162) and three before-and-after studies (n=225). All included studies showed significant methodological flaws.

**Ambulatory care (two before-and-after studies, n=165):** One study showed a statistically significant difference in the proportion of medication discrepancies (OR 0.13, 95% CI 0.07 to 0.21) and the other study showed no benefit.

**Post hospital discharge (one RCT and one before-and-after study, n=222):** Both studies showed no evidence of benefit from the intervention.

**Authors' conclusions**
There was no good-quality evidence to demonstrate the effectiveness of medication reconciliation in the primary care setting. Further research was needed.

**CRD commentary**
The review question and inclusion criteria were clear. The search was extensive, had no language restrictions and included substantive efforts to locate unpublished studies, which made it unlikely that relevant studies were omitted or that publication and language biases were introduced. The authors reported that they used rigorous methodology at all stages of the review process, which reduced risks of reviewer error and bias. The validity assessment used relevant criteria and was used to inform the synthesis. The decision to adopt a narrative synthesis was based on an assessment of clinical heterogeneity and was appropriate.

The authors’ conclusions reflected the evidence of the review and appear likely to be reliable.

**Implications of the review for practice and research**
**Practice:** The authors stated that further research should be undertaken before substantial resources were committed to medication reconciliation as a sole strategy for reduction of drug adverse events.

**Research:** The authors stated that high-quality research was needed to establish the efficacy of medication reconciliation and other strategies for the reduction of drug-related morbidity.

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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.