Reminder packaging for improving adherence to self-administered long-term medications
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Authors' objectives
Background: Current methods of improving medication adherence for health problems are mostly complex, labour-intensive, and not reliably effective. Medication 'reminder packaging', which incorporates a date or time for a medication to be taken in the packaging, can act as a reminder to improve adherence. This review of reminder packaging is an update of our 2006 Cochrane review.Objectives: The objective of this review was to determine the effects of reminder packaging aids for self-administered medication/s taken for at least one month, on adherence and other outcomes.

Search methods: We updated searches of the Cochrane Central Register of Controlled Trials (CENTRAL) and the Database of Abstracts of Reviews of Effects (DARE) (The Cochrane Library Issue 9, 2010), MEDLINE, EMBASE, CINAHL and PsycINFO from the database start dates to September 2010. We searched Current Controlled Trials to identify trials in progress. We performed a cited reference search on the Science Citation Index to identify papers that had cited the original systematic review. We also searched the Internet, contacted packaging manufacturers, and checked abstracts from the Pharm-line database and reference lists from relevant articles. We did not apply any language restrictions.

Selection criteria: We selected randomised controlled trials with at least 80% follow up. We intended to do a sensitivity analysis of those studies that analysed their data on an intention-to-treat basis. Included studies compared a reminder packaging device with no device, for participants taking self-administered medications for at least one month.

Data collection and analysis: Three review authors independently assessed studies for inclusion, assessed quality, and extracted data from included studies. Where considered appropriate, data were combined for meta-analysis, or were reported and discussed in a narrative. Main results: We included twelve studies containing data on 2196 participants; four of these studies were newly included in this 2011 update of our 2006 Cochrane review.

Six intervention groups in four trials provided data on the percentage of pills taken. Reminder packaging increased the percentage of pills taken (mean difference (MD) 11% (95% confidence interval (CI) 6% to 17%)). Notable heterogeneity occurred among these trials (I² = 96.3%). Two trials provided data for the proportion of self-reported adherent patients, reporting a reduction in the intervention group which was not statistically significant (odds ratio = 0.89 (95% CI 0.56 to 1.40)). We conducted meta-analysis on data from two trials assessing the effect of reminder packaging on blood pressure measurements. We found that reminder packaging significantly decreased diastolic blood pressure (MD = -5.89 mmHg (95% CI -6.70 to -5.09; P < 0.00001; I² = 0%)). No effect was seen on systolic blood pressure (mean change -1.01, 95% CI -2.22 to 0.20; P = 0.1, I² = 0%). We also conducted meta-analysis on extracted data from two trials that looked at change in glycated haemoglobin. We found that reminder packaging significantly reduced glycated haemoglobin levels (MD -0.72; 95% CI -0.83 to -0.60; P < 0.00001; I² = 92%), although there was considerable heterogeneity. No appropriate data were available for meta-analysis of remaining clinical outcomes, which included serum vitamin C and E levels, and self-reported psychological symptoms (one trial each). We reported remaining data narratively. In one study the presence of a reminder packaging aid was found to be preferred by patients with low literacy levels. Authors' conclusions: Reminder packing may represent a simple method for improving adherence for patients with selected conditions. Further research is warranted to improve the design and targeting of these devices. US: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005025.pub3/abstract

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