



Medication reviews by clinical pharmacists at hospitals lead to improved patient outcomes: a systematic review

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Background

Suboptimal medication use may lead to morbidity, mortality and increased costs. In order to reduce unnecessary patient harm, medicines management including medication reviews can be provided by clinical pharmacists.

Some recent studies have indicated a positive effect of this service, but the quality and outcomes vary among studies. Hence, there is a need for compiling the evidence within this area.

Objectives

The objectives of this study were to identify, assess and summarise the literature investigating the effect of pharmacist-led medication review in hospitalised patients.

Methods

Five databases (MEDLINE, EMBASE, CINAHL, Web of Science and the Cochrane Library) were searched from their inception to 2011 in addition to citation tracking and hand-search. Only original research papers published in English describing pharmacist-led medication reviews in a hospital setting including minimum 100 patients or 100 interventions were included in the final assessment.

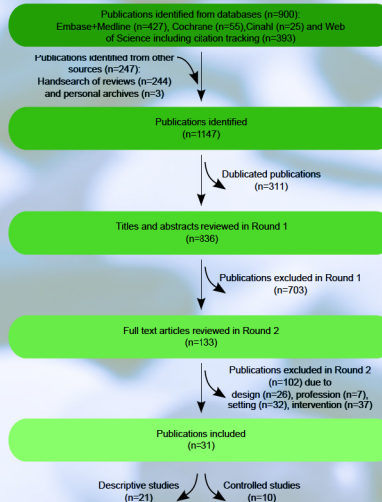


Figure 1: Flow chart of study selection



Figure 2: Summary of outcomes of controlled studies (n=10)

Empty field: Not applicable. ns: non-significant difference. +: positive, significant outcome. -: negative, significant outcome. XY: X=overall and Y=subgroup analysis

Reference	Medication use	Humanistic outcomes			Health service use				Economics	Mortality	
	Quality of prescribing	Health related quality of life	Satisfaction among patients	Satisfaction among personnel	Visits to emergency department	Drug related readmissions	Re-admissions of all causes	Length of in-hospital stay	Time to readmission	Cost savings	Overall survival
Bladh et al. BMJ Qual Saf 2011;20:738-46.	+	ns/+		+							
Fertleman et al. Qual Saf Health Care 2005;14:207-11.	+									+	
Gillespie et al. Arch Intern Med 2009;169(9):894-900.					+	+	ns			+	ns
Hellstrom et al. Eur J Clin Pharmacol 2011;67(7):741-52.	+/ns						+				
Lipton et al. Medical Care 1992;30(7):646-58.	+										
Lisby et al. BCPT 2010;106(5):422-7.		ns			ns		ns	ns	ns		ns
Mortimer et al. J Eval Clin Pract 2011;17:478-85.	+		+	+	ns				-		
O'Dell et al. Ann Pharmacother 2005;39:1423-7.	ns						ns/+	ns			
Scullin et al. J Eval Clin Pract 2007;13:781-8.				+			+	+	+	+	ns
Spinewine et al. JAGS 2007;55:658-65.	+/ns		ns		ns		ns				ns

Conclusions

Only a few papers describing pharmacist-led medication reviews in the hospital setting were designed as randomised controlled trials and were evaluated using hard endpoints. Future research within this area should be designed using rigorous methodology and include outcome measures for patient health outcomes. This will ensure better evidence of the area.

Results

A total of 836 research papers were identified, and 31 publications were included in the study; 21 descriptive studies and 10 controlled studies, of which 6 were randomised, controlled trials. The pharmacist interventions were well implemented with acceptance rates from 39-100%.

The 10 controlled studies generally show a positive effect on medication use and costs, satisfaction with the service, and positive as well as insignificant effects on health service use. Several outcomes were statistically insignificant, but these were predominantly associated with low sample sizes or low acceptance rates.

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