

# Evaluation of two medication safety-related interventions for cardiovascular inpatients in a German teaching hospital: standardized discharge education and simplification of complex therapies

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## PURPOSE

Clinical pharmacists are a valuable addition to the clinical team in hospital. However, in order to convince hospital administrations to employ clinical pharmacists, clinical pharmacy services and their benefit need to be defined and investigated in much more detail.

## METHODS

Two randomized controlled prospective studies were performed by clinical pharmacists in a German university hospital. **Study A** addressed effects of a pharmaceutical discharge education. Raw data were ANCOVA-adjusted for age, gender, level of education, comorbidity, and several clinical parameters. **Study B** investigated effects of a reduction of medication complexity. Details are listed in the following table:

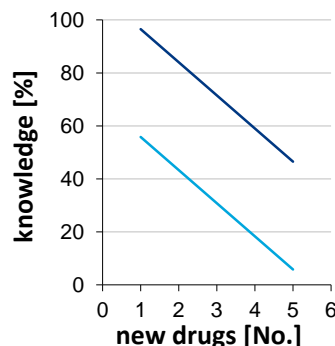
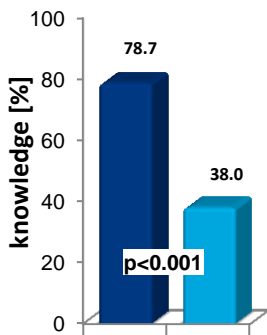
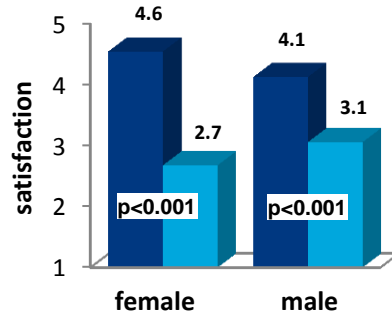
	study A	study B
patients	200 cardiovascular patients	240 patients of the internal and urologic wards
intervention	standardized pharmaceutical discharge education (duration limit 30min)	Pharmaceutical counselling of physicians to reduce medication complexity
endpoints	self-reported adherence (MARS), medication knowledge, patient satisfaction, quality of life (SF-12)	self-reported adherence (MARS), medication complexity (MRCI), patient satisfaction, quality of life (SF-12)

## STUDY A

FIG. 1: Pharmaceutical Discharge Education

Legend:

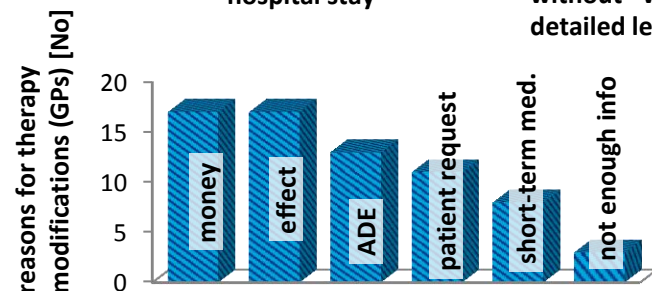
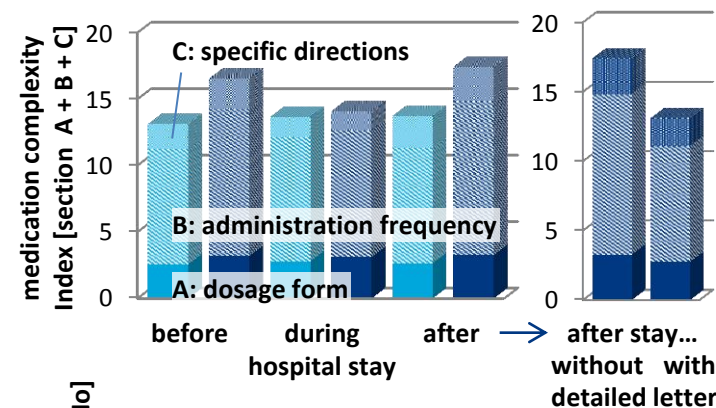
■ intervention group  
 ■ control group



Patient satisfaction and medication-related knowledge were significantly improved. While patients did not report to be more adherent after pharmaceutical discharge education, they rated their physical QoL as better compared to the control group (not shown). Knowledge was negatively correlated with the No. of medications, indicating that the discharge education should be focused on the most important drugs.

## STUDY B

FIG. 2: Medication Complexity



The complexity of discharge medications could be reduced by 15% after recommendation of combination or extended release drugs by the pharmacist. Part of this effect, however, was lost in subsequent ambulatory prescriptions, possibly due to financial reasons affecting prescription behaviour of general practitioners (GPs).

## CONCLUSIONS

Both clinical pharmacy services are practicable within the structure and organisation of a German teaching hospital. They have good potential to increase the safety of patients in pharmacotherapy across the interface between hospital and ambulatory care by enhancing patient knowledge and by decreasing medication complexity, respectively.