The Use of Clinical Pharmacists and Pharmaconomist Services

In regards to resource consumption and medication safety in a Danish hospital setting

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BACKGROUND

Drug-Related Problems (DRPs) are factors for increased morbidity, mortality and costs in the health-care system. Preventing, identifying and solving DRPs are therefore essential for the medication safety in hospital settings. Two approaches for this are the use of clinical pharmacists (MSc in pharmaceuticals and post graduate courses) and pharmaconomists (3-year education in pharmaceuticals).

AIM

To **investigate the number, type and severity of DRPs** identified by Pharmaconomist Medication Management (**PMM**) and Clinical Pharmacist Service (**CPS**), respectively.

To **assess the resource consumption** per patient for the PMM and the CPS, respectively.

Baseline
- Hospital Drug Formulary
- Regional Drug and Therapeutics Committee Database

PMM
- Hospital Drug Formulary
- Regional Drug and Therapeutics Committee Database
- Prescription review

CPS
- Local Guidelines
- Regional Drug and Therapeutics Committee Database
- Medication review

Prescription review: *a technical review of the list of a patient's medicines. Addresses issues relating to the prescription or medicines.*

Medication review: *a systematic review. Addresses issues relating to the patient's use of medicines in the context of their clinical condition.*

Room for Review: A guide to medication review: the agenda for patients, practitioners and managers. Task Force on Medicines Partnership and The National Collaborative medicines Management Services Programme. 2002.

METHODS

Design: A non-randomized controlled intervention study with two intervention groups, PMM and CPS and one baseline group.

Setting: Eight bed-units (5 medical, 2 surgical and 1 oncology) on Næstved hospital.

Participants: Newly adult admitted patients were screened every morning on weekdays.

Intervention: All groups used the Regional Drugs and Therapeutics Committee recommendations and the Hospital Drug Formulary for the review. Moreover, CPS consisted of a clinical pharmacist medication review. PMM consisted of a prescription review conducted by the pharmaconomists during their Medicine Management Service.

Outcome: DRPs were classified into number and types. The severity of the DRPs was classified using a scale ranging from S.1 to S.5 by *Dutton et al. (Clinical Governance: An International Journal 8.2 (2003): 128-137).* Resources were evaluated in regards of time consumption and cost of service.

RESULTS

Over the course of three weeks, 157 patients were included.

Number of DRPs: In total, 515 DRPs were identified (bar chart). There was no significant statistic difference between the number of DRPs identified by PMM and CPS (Mann-Whitney, $p > 0.05$).

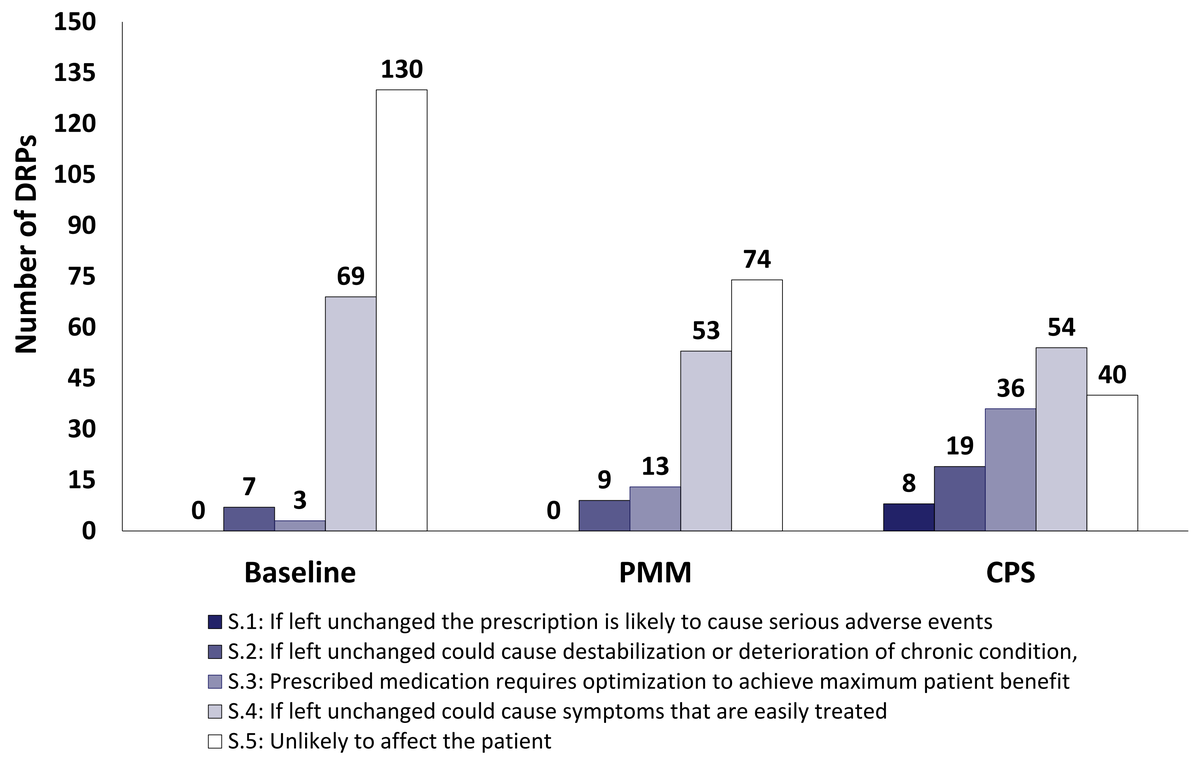
Type of DRPs: The most frequent problem in PMM and CPS were "costs-effectiveness" and "treatment effectiveness", respectively, accounting for more than half of all DRPs. The type of DRPs were statistically significant between across all groups (χ^2, $p<0.05$).

Severity: The distribution of the severity of the DRPs across the three groups are shown in the bar chart. The distribution of severity was significantly different across all groups (χ^2, $p<0.05$).

Resources:

	Baseline	PMM	CPS
Time/patient, min., median (range)	2 (15)	1 (11)	10 (53)
Time/patient, min., average (±std)	3.1 (±3.1)	1.7 (±1.9)	12.1 (±8.7)
Cost per patient, average DKK	-	11.1	105.7

Distribution of severity codes



CONCLUSION

PMM mainly identify DRPs related to costs effectiveness, whereas CPS mainly identify DRPs related to treatment effectiveness. Both services find significantly different and more severe DRPs compared to baseline.

A CP medication review costs almost 10 times more than a PMM prescription review; however, clinical pharmacists also identify 3 times more severe DRPs.

The differences between the two groups may be explained by the difference in the aims of the two conducted reviews as well as their educational background.

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Conflict of interest: None
Acknowledgements: Thank you to the participating wards, pharmaconomists and pharmacists at Næstved Hospital.

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