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Citation

Kwint, H. F., Faber, A., Gussekloo, J., & Bouvy, M. L. (2011). Pharmacists'ability to identify drug-related problems and the contribution of patient home consultation to medication review. *International Journal Of Clinical Pharmacy*, 33(2), 417-418.
Retrieved from <https://hdl.handle.net/1887/118110>

Version: Not Applicable (or Unknown)
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Note: To cite this publication please use the final published version (if applicable).



Pharmacists' ability to identify drug-related problems and the contribution of patient home consultation to medication review

[Faculty of Science
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Introduction

Several studies have shown that medication review improves the quality of pharmacotherapy. There is no gold standard for the most effective type of medication review. We currently perform a randomised controlled clinical trial to investigate the effects of a clinical medication review that incorporates a patient home consultation (Home Medicines Review= HMR[1]). We now present baseline data aiming to investigate the number and types of drug-related problems (DRPs) identified by study pharmacists and independent pharmacist reviewers. Moreover we examine to which extent the patient home consultation contributes to the identification of DRPs.

Material&Methods

Design and Setting

Cross sectional study within a randomised controlled trial in a primary care setting.

Patients

Patients were recruited from ten Dutch community pharmacies. Patients were eligible if they were home-dwelling, aged 65 years and over and used five or more different drugs, including at least one cardiovascular or anti-diabetic drug. Consenting patients were visited at home as part of the intervention.

Intervention

The patient's community pharmacist (=study pharmacist) visited the patient at home for an interview about the patient's medicines and to identify possible drug related problems. A clinical medication review was performed by the study pharmacist. Medication reviews were evaluated, if necessary adjusted, and completed by an independent pharmacist reviewers panel. Potential drug related problems were discussed by the study pharmacist and patients' general practitioner (GP).

Main outcome measures

The primary outcome measures were: 1. the number of DRPs and recommendations identified by the study pharmacists and by the pharmacist reviewers 2. The number of DRPs identified by home consultations, pharmacy medication records, GP clinical records or combination of medication and clinical records.

Potential DRPs were classified using the D.O.C.U.M.E.N.T. classification[1].

Recommendations were divided in two main categories: involving a drug change and not involving a drug change (e.g. monitoring and patient education items).

Results

Data were collected for 147 intervention patients. The mean number of DRPs was 9.9 per patient (see Table 1). The most common subtypes of DRPs were "Condition not adequately treated" and "Lack of indication or unclear indication".

5.4 recommendations per patient involved a drug change (see Table 2): most common recommendations were "Addition of a drug" and "Cessation of a drug".

Study pharmacists identified 3.3 DRPs per patient (34%, see Table 1). Study pharmacists identified relatively more items for DRP types "Compliance" and "Education and instruction". 2.4 of the total number of 9.9 recommendations per patient (24%) were made by study pharmacists.

26% of DRPs were identified during home consultations against 31% from medication records, 7% from clinical records and 35% from the combination of these two sources (see Table 3). Study pharmacists identified 1.1 DRPs per patient during home consultations. Pharmacist reviewers added 1.5 DRP per patient from the home consultation reports to be discussed with the GP.

Conclusion

This study shows that the identification of DRPs in clinical medication reviews by study pharmacists in primary care can be improved. Patient home consultations have a major contribution in the identification of DRPs. Pharmacist reviewers identified more DRPs from the home consultation reports than study pharmacists.

Table 1: Frequency and type of drug-related problems (DRPs) identified by study pharmacists and pharmacist reviewers (classified with the D.O.C.U.M.E.N.T system).

DRP type and subtype	Number of DRPs identified			Percent of total by study pharmacists
	Study pharmacists	Additionally by reviewers	Total	
D(rug Selection)	126	236	362	35%
Duplication	3	3	6	
Drug interaction	6	9	15	
Wrong dosage form	3	7	10	
Lack of indication or unclear indication	76	144	220	
Lack of effectiveness	24	37	61	
Contra-indication/ intolerance	14	36	50	
O(ver or underdose)	45	85	130	35%
Dosage too high	12	15	27	
Dosage too low	12	27	39	
Dose frequency/schedule	21	43	64	
C(ompliance)	38	31	69	55%
Taking too little	22	19	41	
Taking too much	5	3	8	
Difficulty using dosage form	11	9	20	
U(ntreated conditions)	158	234	392	40%
Condition not adequately treated	142	207	349	
Preventive therapy required	16	27	43	
M(onitoring required)	61	275	336	18%
Laboratory monitoring	47	192	239	
Non laboratory monitoring	14	83	97	
E(ducation) or information	15	21	36	42%
Patient drug information request	1	2	3	
Confusion about therapy	2	2	4	
Demonstration of device	2	6	8	
Disease management or advice	3	7	10	
Other education or information problem	7	4	11	
T(oxicity)	43	80	123	35%
Toxicity evident	29	34	63	
Risk on adverse effects	9	34	43	
Possible drug treatment in response to adverse effect	5	12	17	
Total (mean per patient)	486 (3.3)	962 (6.6)	1448 (9.9)	34%

Table 2: Frequency and type of recommendations identified by study pharmacists and pharmacist reviewers.

Type of recommendation	Number of recommendations			Percent of total by study pharmacists
	Study pharmacists	Additionally by reviewers	Total	
Involving a drug change				
Cessation of drug	47	127	174	27%
Dose change	41	107	148	28%
Addition of drug	76	168	244	31%
Replacement of drug	38	98	136	28%
Dose frequency/schedule change	19	50	69	28%
Drug formulation change	9	12	21	43%
Total (mean per patient)	230 (1.6)	562 (3.8)	792 (5.4)	29%
Not involving a drug change				
Monitoring	58	278	336	17%
Education	6	36	42	14%
Other	53	225	278	19%
Total (mean per patient)	117 (0.8)	539 (3.7)	656 (4.5)	18%
Total (mean per patient)	347 (2.4)	1101 (7.5)	1448 (9.9)	24%

Table 3: Contribution of the source of data to the identification of drug-related problems (DRPs) by study pharmacists and pharmacist reviewers

Source of data	Number of DRPs identified (mean per patient)			Percent contribution of source to total
	Study pharmacists	Additionally by reviewers	Total	
Medication records	130 (0.9)	318 (2.2)	448 (3.0)	31%
Clinical records	34 (0.3)	63 (0.4)	97 (0.7)	7%
Medication and clinical records	160 (1.1)	353 (2.4)	513 (3.6)	35%
Home Consultation	162 (1.1)	221 (1.5)	383 (2.6)	26%
Total	486 (3.3)	962 (6.6)	1448 (9.9)	100%

References

[1] Rasmussen M, Stafford AC, Tenni PC, Peterson GM, Jackson SL, Hejlesen A, et al. Drug-related problems identified in medication reviews by Australian pharmacists. *Pharm World Sci* 2009;31:216-23.

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