

# Communicating with patients the second time they present their prescription at the pharmacy

*Discovering patients' drug-related problems*

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## Key words

Community pharmacy  
Drug-related problem  
Ineffectiveness  
Patient counselling  
Repeat prescription  
Second prescription  
Side effect  
The Netherlands

## Abstract

**Objective:** To assess the effect of a short inquiry the second time that the prescription was presented at the pharmacy (SP) counter on the detection of drug related-problems as perceived by patients in a community pharmacy. The implementation of the SP procedure is also described.

**Method:** At SP patients were asked to give a short description of their experience with their newly prescribed drug. Patients' drug-related problems were recorded on a SP form and were categorised into three groups: side effects, inefficacy, and problems with use or instruction. Data were also matched with drug categories. The ATC classification was used. A comparison with a control pharmacy was made.

**Main outcome measures:** Drug experience, patients' drug-related problems, side effects, inefficacy, problems with the use or instruction.

**Results:** Data from 700 SP forms showed that in 78% of cases patients did not have problems with the use of their new drugs. In the remainder of cases (22%), drug-related problems mainly concerned side effects (49%; 76 out of 156) and complaints about the drugs not being as effective as expected (inefficacy: 49%; 77 out of 156). In the control pharmacy no drug-related problems were detected in 30 SP contacts. Patients using gastrointestinal drugs reported fewer side effects than patients using cardiovascular drugs. Patients using respiratory drugs reported more often that the drug was not effective than patients using cardiovascular drugs.

**Conclusion:** It was concluded that the SP procedure encourages patients to report their drug problems at the counter in the pharmacy.

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## Introduction

As part of the implementation of the pharmaceutical-care concept in the Netherlands and other north-western European countries, community pharmacies are increasingly emphasizing activities aimed at improving the quality of drug therapy<sup>1–5</sup>. Advanced electronic pharmacy administration and information systems (PAIS) have become essential tools in supporting these activities. The PAIS not only maintains patient records and creates drug labels but is also capable of assessing newly prescribed drug therapies on their compatibility with current drug therapy and personal conditions of patients, such as a disease, drug allergy or pregnancy<sup>6</sup>. PAIS-generated signals allow commu-

nity pharmacists to make a variety of clinical interventions, thus substantially improving the efficacy and safety of drug therapy<sup>7–9</sup>.

Patient counselling is an integral part of the pharmaceutical-care concept<sup>10</sup>. Educational activities support patients in their drug therapy and decisions on drug use, which may considerably improve patient's compliance with drug therapy<sup>11</sup>. The community pharmacist is often the last professional a patient meets before he or she starts or continues drug therapy. Community pharmacists are therefore challenged to answer any remaining drug questions and resolve drug-related problems.

In the Netherlands the majority of community pharmacists provide written and oral drug information with newly prescribed drugs, in addition to the obligatory patient package insert. However, less attention seems to be paid to second prescriptions (SP)<sup>5</sup>. In SP contacts, pharmacists communicate with patients who have used and experienced the drug concerned for a period of two weeks. SP contacts are therefore an excellent opportunity for the early discovery of drug-related problems, such as side effects and lack of efficacy. If such problems remain unaddressed, they often lead to non-compliance with drug therapy. In this respect a recent Dutch study on drug use following a start with chronic medication has shown that a large number of patients discontinue drug treatment at an early stage<sup>12</sup>. The consequences of non-compliance are different but vary from patient discomfort and increased health risks to side effects and an unnecessary increase of healthcare costs<sup>13</sup>.

Drug-related problems as perceived by patients may be detected in SP contacts by means of a short inquiry using a simple questionnaire. The present paper describes the effects of a SP procedure on detecting drug-related problems in a community pharmacy. The implementation of the SP procedure is also described.

## Aim of the present study

To assess the effect of a short inquiry at SP contacts at the counter on the detection of drug-related problems as perceived by patients.

## Method

### General information

#### Pharmacy characteristics

The community pharmacy studied (Westwijk Pharmacy) is located in the Amsterdam suburban area. Pharmaceutical care is provided for about 12000 inhabitants of whom about 25% are younger than 20 years. At the time of the study the pharmacy was staffed by dispensing pharmacy assistants (DPAs, techni-

cians) (3.5 full-time units [ftu] by 5 DPAs), non-DPAs (1 ftu by 2 non-DPAs), and pharmacists (1.5 ftu by 2 pharmacists). Between 1999 and 2001 about 200 prescriptions were handled each day on average.

#### First prescription procedure

In the Netherlands newly prescribed drugs are generally dispensed for a period not exceeding 15 days, with a few exceptions (e.g., antibiotics and contraceptives). In addition to the label and patient leaflet, patients are given a drug information letter printed by the PAIS. Information on the drug's action and side effects is explained verbally. If required, specific instruction on the use of a specific drug (e.g., inhaled drugs) is also given.

#### The effect of the SP intervention on the detection of drug-related problems

##### Study design

The effect was studied of a short interview at SP contacts (the SP procedure, see Box 1) on the detection of drug-related problems as perceived by patients. This study was performed in one pharmacy (Westwijk Pharmacy). The frequency of detected drug problems was compared with those obtained in a control pharmacy not having a SP procedure.

##### Implementation of the second prescription procedure

The procedure should be applied to at least 55% of all possible SP prescriptions. If the SP procedure was underused, a set of measures including two or three cycles of re-education and evaluation would be applied in order to increase to application rate up to the required level.

##### Analysis of collected SP forms

Patients' drug-related problems were categorised on the SP forms into three groups: side effects, inefficacy, and problems with use or instruction (e.g., problems with swallowing tablets, problems with applying eye-drops, problems with inhalation of drugs). Data on the SP forms were also matched with SP drug categories using the ATC classification.

##### Comparison with control pharmacy

A comparison was made with the number of drug-related problems detected in a sample of 30 randomly selected SP contacts in a pharmacy located elsewhere in the city not using SP procedures (control pharmacy). SP forms in the control pharmacy were completed by the observer (the investigator) after listening to a SP contact. The percentage of drug-related problems calculated on the basis of SP forms collected in the Westwijk Pharmacy were compared with those noted during SP contacts in the control pharmacy.

#### Box 1 The intervention – SP procedure

The first repeat prescription of a newly prescribed drug within six months is considered a SP. In the case of an identified SP, the patient is encouraged to describe his or her experience with the drug. Patient's answers are listed on a specific SP form (A6) that must be attached to the prescription form by pharmacy staff members who dispensed drugs to patients at the counter.

#### Data analysis

Drug-related problems, categorised as side effects, inefficacy, and problems with the instruction as well as the ATC classification of the SP drug were collected in SPSS 9.0. The percentage of drug-related problems was calculated. The relation between drug-related problems and the drug category was analysed using the calculated odds ratios (OR).

## Results

#### Implementation of the SP procedure

The average daily number of SPs amounted to 16 (7%). SPs mainly concerned drugs used in the prevention and treatment of chronic diseases. The SP procedure was followed in only 10% of cases.

Revision of the SP procedure included measures to make a SP more noticeable. In order to increase staff awareness the requirement to mark the prescription form with the character S was added to the procedure and attention notes were attached to the pharmacy administration terminals.

Evaluation of the first re-education period showed that the rate of correctly handled SPs per day was increased to 20%. This prompted another 14-day refresher round during which the procedure was further refined.

In addition, the requirement was added not only to routinely mark the control label with the character S in the case of a SP, but also with the characters F or R in the case of a first prescription and a repeat prescription. The second refresher course resulted in an increase of the average daily percentage of correctly handled SPs to 61%.

#### Effect of the SP procedure on the detection of drug-related problems as perceived by patients

Between April 1999 and January 2001 a total of 700 SP forms were collected and evaluated. Since it was calculated that there must have been about 6000 SP contacts in this period, the SP procedure was clearly underused.

The mean age  $\pm$  SE of the 700 patients interviewed amounted to  $56.4 \pm 18.3$  years. Thirty-eight percent of these patients were male.

Data extracted from the SP forms showed that in 78% (544 out of 700) of cases patients did not have problems with the use of their new drugs. In the remainder, 22% (156 out of 700) of use-related problems mainly concerned side effects (10.9%; 76 out of

**Table 1** Reported drug-related problems during SP contacts (n = 700)

	N	Percentage (%) of SP forms
Side effects	76	10.9
Ineffectiveness	77	11.0
Problems with instruction	3	0.4
Total	156	22.3

700) and drug-related problems about the drugs not being as effective as expected (inefficacy: 11%; 77 out of 700) (Table 1). The remaining three reports concerned a need for additional instruction for using the drug in a correct manner.

The analysis of the observed SP contacts in the control pharmacy revealed that patients were never asked about how they experienced their new medication. Patients themselves did not report drug-related problems about their drugs in the observed SP contacts.

#### **Relationship between SP contacts, drug categories and drug-related problems**

Table 2 lists the number of SPs per ATC drug category. The largest fraction of SPs is related to cardiovascular (C), CNS (N) and gastro-intestinal drugs (A), followed by respiratory (R), haematological (B), musculo-skeletal (M) and dermatological (D) drugs.

The number of SP drug-related problems per drug category is also shown in Table 2. The largest number of drug-related problems concerned cardiovascular (C) drugs, followed by CNS (N) and gastro-intestinal (A) drugs.

Table 3 shows the number of reports on side effects and inefficacy of the drugs as well as the number of problems with the use of the drug as reported by patients. A large number of side effects were detected in SP contacts related to cardiovascular (C) and CNS (N) drugs. A large number of inefficacy reports were observed in SP contacts related to cardiovascular (C), gastrointestinal (A), CNS (N) and respiratory (R) drugs.

The largest group comprised patients using cardiovascular (C) drugs, so this group was chosen for comparison. As compared to cardiovascular (C) drugs the use of dermatological (D) drugs resulted in significantly fewer drug-related problems at SP (OR = 0.17; CI = 0.026–0.712). There was a tendency to fewer

**Table 2** Number of SPs per ATC category (n = 700) as well as the number of drug-related problems per ATC category (n = 156)

Drug category	Number of SPs (% of the number of prescriptions)	Number of drug-related problems (% of the number of SPs in the category)
A (gastro-intestinal)	113 (16)	19 (16.8)
B (haematological)	52 (7.3)	7 (9.6)
C (cardiovascular)	232 (33.0)	54 (23.3)
D (dermatological)	43 (6.1)	2 (4.7)*
G (urogenital)	11 (1.5)	5 (45.5)
H (hormone)	7 (1.0)	4 (57.1)
J (antibacterial)	15 (2.1)	2 (13.3)
L (oncolytics)	1 (1.0)	1 (100)
M (muscles)	50 (7.0)	10 (20)
N (central nervous system)	121 (17.2)	36 (29.8)
R (respiratory)	53 (7.5)	15 (28.3)
V (other)	2 (0.3)	1 (50)
Total	700 (100)	156 (22.3)

\* Significantly lower than C (cardiovascular) drugs (OR = 0.16; CI = 0.026–0.712).

**Table 3** Number of drug-related problems per ATC category and drug-related problem as percentage of the number of SPs in the ATC category (n = 156)

Drug category	Side effects n (%)	Ineffectiveness n (%)	Problems n (%)
A (gastrointestinal)	4 (3.5)*	15 (13.3)	0
B (haematological)	6 (11.5)	0 (0)	1 (1.9)
C (cardiovascular)	34 (14.7)	19 (8.2)	1 (0.4)
D (dermatological)	0	2 (4.7)	0
G (urogenital)	3 (27.3)	2 (18.2)	0
H (hormone)	1 (14.3)	3 (42.9)	0 (0)
J (antimicrobial)	1 (6.7)	1 (6.7)	0 (0)
L (oncolytics)	0	1 (100)	0 (0)
M (muscles)	2 (4)	8 (16)	0 (0)
N (central nervous system)	22 (18.2)	13 (10.7)	1 (0.8)
R (respiratory)	3 (5.7)	12 (22.6)**	0 (0)
V (other)	0	1 (50)	0 (0)

\* Significantly lower than C (cardiovascular) drugs (OR = 0.21; CI = 0.063–0.065).

\*\* Significantly higher than C (cardiovascular) drugs (OR = 3.3; CI = 1.37–7.78).

drug-related problems for gastro-intestinal (A), haematology (B) and antimicrobial (J) drugs. The difference was not statistically significant.

With respect to side effects, patients using gastro-intestinal (A) drugs reported significantly fewer side effects than patients using cardiovascular drugs (OR = 0.21; CI = 0.063–0.065). Patients using dermatological (D) drugs did not report drug side effects. Fewer side effects were reported by patients using musculo-skeletal (M), hormonal (H) and respiratory (R) drugs. The differences, however, were not statistically significant.

As compared to patients using cardiovascular (C) drugs, patients using respiratory (R) drugs more frequently reported that the drug was not effective (OR = 3.3; CI = 1.37–7.78). There was a tendency that patients using gastro-intestinal (A), urogenital (G) and musculo-skeletal (M) drugs also reported inefficacy of the drug more frequently. The differences, however, were not statistically significant. There was a tendency that patients using dermatological (D) drugs less often reported that the drug was not effective, the difference being not statistically significant.

## Discussion

### *Outcome of the study*

In total 700 second prescription contacts with interventions were recorded. Patients reported drug-related problems in 22% ( $n = 156$ ) of these contacts. The problems reported mainly concerned drug side effects (10.9%) and inefficacy (11%). In the control pharmacy we observed 30 SP contacts at random and found that patients reported drug problems or drug questions in none of these contacts. We therefore conclude that the SP procedure studied encourages patients to report their drug problems at the counter in the pharmacy.

Patients using gastrointestinal drugs reported side effects less frequently than patients using cardiovascular drugs. Patients using musculo-skeletal, hormonal and respiratory drugs tended to report fewer side effects. Patients using respiratory drugs reported inefficacy of their drug more often than patients using cardiovascular drugs. There was a tendency that patients using gastro-intestinal, urogenital and musculo-skeletal drugs reported inefficacy of the drug less frequently than patients using cardiovascular drugs. The number of patients in each drug category is often not large enough to amount to a statistically significant difference. A larger study should be performed in order to gain more certainty about differences between drug categories with respect to the occurrence of drug-related problems as perceived by patients.

### *Limitations of the study – design*

In interpreting the results of our study, we have to recall the limitations of our study design and methods of data collection and their possible influence on the outcome of the study. A first remark concerning the design should be made. Since the intervention was performed and evaluated in only one pharmacy, the outcomes of the study may be influenced by the quality of drug prescribing of the local physicians and the quality of their communication in patient contacts. A high quality of both kinds of behaviour may result in

fewer reported drug-related problems in the pharmacy. As the data of the control group were collected in a pharmacy that is located in the same area, there are no differences to be expected in the quality of drug prescribing of physicians and patient interactions. In this respect both pharmacies are comparable.

The pharmacy staffs' communication skills at the counter may also be different in both pharmacies. Of course, a planned difference existed in their verbal behaviour – due to the intervention in second prescription contacts – but the non-verbal behaviour of the pharmacy staff may also influence patients' willingness to report drug problems. Since we do not know the extent to which differences between staff members of both pharmacies may exist in this respect, differences in communication skills may have influenced the outcomes of our study.

### *Limitations of the study – data-collection method*

The results of the study are based on pharmacy staff reports on the contacts at the counter and patients' reports about drug-related problems in these contacts. On the basis of the daily number of prescriptions, a much larger number of SP contacts was expected in the experimental pharmacy than the 700 contacts reported by pharmacy staff. Apparently not all SP contacts are detected and reported by technicians. One may expect a positive influence on the frequency of the reported drug-related problems, in case technicians just forgot to complete the form about a SP contact. If the patient reported no drug problem, a SP form may be more easily forgotten.

In addition, it is possible that in some periods the procedure was used more frequently in the months in which it was introduced, as well as in periods of lower work pressure. It is also not unlikely that some pharmacy staff members applied the procedure more frequently than others. Moreover, some SP drugs may have been recognised as such more easily than others.

In the control pharmacy data were collected by observation in the private area of the pharmacy. In order to avoid an influence of the observer on behaviour of pharmacy staff at the counter, the observations that were collected on the first day were not used in the analysis, since one may expect an influence mainly at the beginning of the data collection period.

Bond and co-workers also discovered a high rate of drug-related problems when community pharmacists control and monitor repeat prescriptions<sup>14</sup>. Drug problems including compliance problems, side effects, adverse drug reactions, or drug interactions were identified by pharmacists among 12.4% of patients. These results, however, are not completely comparable with ours, since ineffectiveness, representing almost 50% of the drug-related problems detected in our study, was not scored in the study by Bond and co-workers. The difference in study design largely explains this difference: the intervention of our study concerns the first repeat prescription, the very moment that drug ineffectiveness may become apparent. Bond included in her study all patients on repeat prescriptions. Here, ineffectiveness may have resulted in discontinuation of the drug at an earlier stage and will thus no longer be present. Other problems including compliance problems and drug interactions were not considered in our study. Interactions are generally handled at first pre-

scriptions and compliance problems become more apparent after a longer period of drug use.

Westerlund and co-workers studied the frequency of drug-related problems notified by pharmacist and pharmacy employees in a study including 12 pharmacies in Sweden<sup>15,16</sup>. In this study, patients were not actively asked about their drug experience and all prescription contacts during the period of one week were analysed. In total 39,143 prescription contacts were analysed and one or more problems were identified in 2.5%. One third of these problems were presented by patients to pharmacy staff at the counter. So here the proportion of patients reporting problems was found to be less than 1% of the prescription contacts, which is much lower than the 22% we have found. This difference may largely be explained by differences in study design. However, it is important to note that Westerlund also reported that patients presented problems in the pharmacy, such as ineffectiveness of drugs, side effects and difficulties swallowing drug capsules<sup>14,15</sup>. The results of these studies emphasise the possibilities that community pharmacists can monitor and guide patients in their drug use. In addition, although the SP procedure has not been evaluated among patients, the technicians reported patients' satisfaction with their educational efforts and support in resolving patients' drug problems. One may expect that these activities strengthen the relationship between the pharmacy and its clients. Another aspect to be studied concerns the outcomes of interventions of pharmacists and technicians addressed to the patients as well as their doctors. Patients' reports about drug questions and drug problems is a first step, which has to be followed by responding to these drug problems and supporting patients to resolve their drug problem. The evaluation of these interventions may reveal the extent to which pharmacists may contribute to patients' compliance with drug therapy.

#### **Implementation and use of the SP procedure**

With respect to the implementation of the SP procedure the results of the present evaluation confirmed our notion that the application rate of the SP procedures was lower than required. We therefore decided to concentrate on measures that would specifically increase the technicians' awareness of the SP procedure, and facilitate its re-introduction into the working routine at the counter. Awareness was increased by a series of brief reminder talks on the value, use and execution of the SP procedure.

In spite of our initial estimate that a single reminder course would be sufficient to bring the application rate of the SP procedure up to the required level, it took two courses to achieve this goal. It could, however, be concluded that it is important not only to explain procedures in pharmacies but also to evaluate their use. In addition, the measures taken did indeed improve the use of the SP procedure.

#### **Conclusion**

It can be concluded that patient counselling at SP contacts encourages patients to report their drug problems at the counter in the pharmacy.

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