Background The Ministry of Health in Norway has requested an expanded contribution from clinical pharmacy in healthcare delivery because of serious medication-related issues. Examples of this are participation in treatment teams in hospital wards and review of the patient’s total use of medicine in cooperation with a medical practitioner. The concept of integrated medicines management (IMM) has been approved as a model to enhance medication effectiveness and safety.

**Purpose** The objective of this study was to evaluate the clinical significance of recommendations made by pharmacists in drug-related problems (DRP).

**Materials and Methods** The study was conducted on a respiratory ward and a rheumatology ward at the University Hospital of St. Olav, Trondheim, Norway. Patients admitted to hospital in the period of June to October 2011 were included. All patients using one or more drugs at admission, having DRPs identified by the pharmacist according to the IMM (Integrated Medicine Management) model, were included. DRPs were identified through medicines reconciliation and medication reviews. All recommendations made by the pharmacists were independently assessed and scored by a physician with a special interest in pulmonary diseases, or respectively rheumatologist, a clinical pharmacologist and a clinical pharmacist. A Hatoum six-point scoring system [1] for assessing the quality of pharmacists’ interventions was used, with rankings between 1 and 6. Adverse significance – (the recommendation supplied by the pharmacist may lead to adverse outcome and 6. Extremely significant – information qualified by life and death situation.).

**Results** A total of 112 recommendations in 46 patients (average age 66 years), were assessed. On average 4 DRPs per patient were found. 85% of the recommendations were assessed as somewhat significant or more (≥ rank 3). The physicians accepted 71% of the pharmacists’ recommendations.

**Conclusions** Recommendations made by pharmacists were assessed as clinically significant to a large extent. The fact that the physicians followed the pharmacists’ recommendations in most cases, demonstrates the effectiveness and value of the IMM model in improving patient drug treatment.

**Reference**


No conflict of interest.

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**Purpose** Guided pharmaceutical interviews were conducted (i) to invite patients to provide feedback on the ADRs, to follow known DDIs, (ii) to encourage patients to communicate potential problems and to adapt pharmaceutical advice.

**Materials and Methods** The study was conducted between January and April 2012. Patient interviews on ADRs and DDIs were performed every month, during drug dispensing for outpatients by hospital pharmacists. They collected data based on questionnaires which included the documented adverse effects [1, 2] and co-medications [3].

**Results** 56 questionnaires were completed with TVR patients and 65 with BOC patients. A total of 41 TVR and 62 BOC patients were examined for ADRs (data from the first month were excluded). All patients had ADRs like those reported in the SPC (1, 2). The most common ADRs were anaemia (52%) and cutaneous manifestations (65%), especially dry skin (44%). Anaemia was more frequent in patients on BOC (56% BOC/45% TVR) but could be more severe with TVR. 55% of BOC patients and 29% of TVR patients were given erythropoietin and no BOC, but 3 TVR patients were transfused. Fatigue, rash, and pruritus were more frequent with TVR patients. Some ADRs were reported only by BOC patients: dryness, alopecia and weight and appetite loss. Since DAAAs are CYP 3A4 substrates and inhibitors, 58 potential interactions were identified and sometimes required close monitoring.

**Conclusions** Interviews enabled patients to talk about their ADRs and to express feelings on difficulties faced during their treatment. Hospital pharmacists gave them, in response, moral support and modified the advice they gave. They put patients’ mind at rest about ADRs and raised patients’ awareness of potential DDIs. Finally, the results on ADRs were reported to the health authorities in order to contribute to monitoring the risks related to these new drugs.

**References**


No conflict of interest.
an Excel® spreadsheet which logs a range of criteria, such as the patient’s sociodemographic background, the drug(s) involved, the type of error, the associated pharmaceutical intervention and many others.

Results 60 errors for 1000 patient days, that is 0.5 error per stay and 90 errors per 1000 prescriptions were detected for short stays. 1393 errors of all types were detected over 5 months, which is 0.9 error per month and per bed. The errors were spread over 3 categories: errors defined by the French Clinical Pharmacy Society criteria (67.3%), errors linked to the computerised tool (14.3%) and other types of error (18.4%). 5 drug classes were heavily involved. 59% of patients were affected by an error despite a prior pharmaceutical intervention. Errors rarely have drastic consequences on the patient: 4% of prescriptions. Weaknesses in knowledge and malpractice represent nearly 85% of the total of errors. Errors due to computer parameters represent an increasing risk (14%).

Conclusions Most prescribing errors are avoidable. Although computerised physician order entry is a way of making the medication process safer, it also generates comments and has limitations. The prescription tool determines the type and frequency of errors. All these errors justify the analysis of all the prescriptions by a pharmacist, as s/he has a rounded knowledge of the patient beyond the medical prescription. The booming certification of various software packages dedicated to helping hospital prescription writing in a way acceptable to the High Authority for Health contributes to this step of making care safer and will hopefully lead to a decrease in errors.

No conflict of interest.

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**Background** Benzodiazepines are the most commonly-used anxiolytics and hypnotics. Concern has been expressed regarding their potential over-prescription. Different benzodiazepines have fundamentally the same mechanism of action and differ from each other mainly by differences in pharmacokinetics. There is no pharmacological basis for using more than one benzodiazepine in the same patient.

**Purpose** The purpose of this study was to study the prevalence of concurrent use of different benzodiazepines in different healthcare levels in the same area: primary care, tertiary level hospital discharge and ambulatory mental health centre.

**Materials and Methods** Data were obtained from the pharmacy claims database between 1st and 31st January 2012.

Patients who had been dispensed at least one benzodiazepine during January 2012 were included (n = 1707 in primary care, n = 273 at tertiary level hospital discharge and n = 128 in an ambulatory mental health centre). The proportion of benzodiazepine users was calculated and broken down by gender and age.

**Results** The number of patients who were dispensed two or more different benzodiazepines simultaneously was 124 (7.3%) in primary care, 11 (4.0%) in hospital discharge and 1 (0.8%) in the ambulatory mental health centre. Most patients who were prescribed benzodiazepines were women (between 60% and 70% depending on the health care setting). Women benzodiazepines users were younger in the ambulatory mental health centre (mean age 51 years) than at hospital discharge (mean age 64 years) or in primary care (mean age 65 years).

**Conclusions** There was more detrimental prescribing of different benzodiazepines simultaneously in primary care than at hospital discharge or in an ambulatory mental health centre. In patients who used benzodiazepines simultaneously, they were mainly prescribed by the same physician.

No conflict of interest.

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**Background** Around 3000 batches of medicinal products are prepared each year in Lapeyronie Hospital.

For each batch, a batch file (BF) is created. This contains the prescription, a manufacturing and labelling sheet (MLS) and a control and batch release sheet (CBRS). The absence of checking the sheet before preparation was the major NC factor (79%) regarding the MLS. The volume of raw materials was not checked during preparation in 6.6% of MLS. NC regarding CBRS was due to incomplete checking of the preparation before it was released (56%).

Results in these 2 studies showed that the MLS was not checked before preparation in 28% of BF in 2011 against 71% in 2010. The volume cheque before preparation was not performed in 41% of BF in 2011 against 85% in 2010.

**Conclusions** Following this audit, corrective actions were instituted: pharmacists were trained on the importance of the pharmaceutical validation of prescriptions, and the assistants were reminded of the importance of getting their work checked before and during preparation.

Nevertheless, there has been progress in the conformity rate between these two audits, pointing out the impact of corrective actions.

No conflict of interest.

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**Background** The growing use of supplementary products (herbal remedies, food supplements, etc.) poses an unignorable and poorly explored risk to hospital patients. The results of our previous study [1] show that 55.5% of hospital patients took at least one supplementary product; and with one patient out of four we have identified potential interactions. However, several questions arise about their clinical relevance: (1) Might the interaction harm the patient?...