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Standardization of clinical pharmacist's activities: Methodology

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ABSTRACT

Study objectives: Establishing standardized and controlled system of work at a clinical pharmacy department and establishing effective recording of activities of a group of four clinical pharmacist when providing clinical pharmaceutical care (CPC) in a hospital.
Methods: The duration of evaluated period is 5.5 years. The first part was defining the purpose, methods and activities of clinical pharmaceutical care, the next part was designing the software for recording patient's data and CPC activities. To verify the functionality of our system the third part was conducted (from January 1, 2015 to June 30, 2015).
Results: CPC activities were defined precisely. During the 6 months period, 3946 patients were reviewed (17% of patients admitted), in this group, 41% patients was labeled as risk (these patients had one or more risk factor). 1722 repeated reviews were performed, 884 drug therapy recommendations were recorded. The calculated average time necessary for one CPC activity is 28 min.
Conclusion: During the 5 year period, standardized system of work in clinical pharmacy department was established. This system is based on clearly defined activities and it enables external control. Our results supply data for negotiations with health insurance companies.

1. Introduction

In daily routine, the elementary activity of a clinical pharmacist does not focus on scientific work but on the review and optimization of patients' medication, i.e. clinical pharmaceutical care (CPC). This activity includes the identification and solution of drug related problems and risks connected to the administration and usage of drugs in a particular patient. The evaluation is run based on the knowledge of therapeutic use of drugs, healthcare records, the requests of attending physicians, and the needs of patients themselves. The goal is to achieve maximal therapeutic effect of medication while minimizing the risks related to the use of drugs.

The clinical importance of potential or existing drug related problem has to be evaluated and the solution should be presented to the attending physician in the form of drug therapy recommendation (DTR). Although Standards of Practice for Clinical Pharmacist published by ACCP give a general description of the activities required for therapy evaluation, we needed more rigorous methods in order to get valid results (American College of Clinical Pharmacy, 2014). Methods described in previously published studies are usually too general as well. Based on data published earlier, instead of reactive approach, pro-active approach is preferred, i.e. action without request by physician (Viktil and Blix, 2008). Although the number of evaluated patients is lower in this case, the acceptance rate of interventions and possible economic benefits are higher (Patel et al., 2010).

The importance of CPC has been confirmed repeatedly in other countries, both on the level of quality of care (plasma drug levels, achieving optimal effect, adherence) (Viktil and Blix, 2008; Talasaz, 2012) and on the pharmacoeconomic level (shortening hospital lenght of stay, decreased number of rehospitalizations) (Viktil and Blix, 2008; Patel et al., 2010; Schumock and et al., 2003; Gallagher et al., 2014; Nesbit and et al., 2001). In Czechia, CPC

Abbreviations: CPC, clinical pharmaceutical care; DTR, drug therapy recommendation; MRA, medication review on admission; RDH, risk drug history; RR, repeated medication review.

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was provided in non-systematic way for a long time, without sufficient records, standards, and control.

The Department of Clinical Pharmacy, Na Bulovce Hospital, was established in 2010 with the task to provide CPC in hospital with 967 acute care beds, 34 follow-up care beds, and the annual count of 45,000 admitted patients. Present staff of the department consists of 1.0 clinical pharmacist specialist and 3.0 clinical pharmacists. Furthermore, the hospital pharmacy provides standard pharmaceutical care for wards.

The aim of this study was to summarize establishment of the standardized and controlled system of work at a clinical pharmacy department and to summarize establishment of the effective recording of clinical pharmacist's activities when providing clinical pharmaceutical care in a hospital. Another aim of this study was the detailed description of all clinical pharmacist's activities, which enables to establish condition for providing CPC in different health care facilities. Furthermore the third aim was to show which results of clinical pharmacist's activities can be valuable for management of the facility and for health insurance provider.

2. Methods

2.1. Defining the purpose, methods and activities concerning CPC: Years 2010–2011

2.1.1. Purpose of CPC

The review of medication on the admission to the hospital is performed so as to eliminate any errors in chronic/admission medication and to identify risk factors that may cause extant drug related problems and/or problems during the hospitalization and/or on the release of the patient.

The review of medication during the hospitalization is focused on drug related complications during the hospitalization, e.g. changes in dosing in renal and liver insufficiency, identification and interpretation of side effects, medication review prior to a diagnostic or therapeutic intervention.

The review of medication on the release from hospital is focused on patients:

- who exhibited inconsistence in chronic medication on admission that did not require immediate solution;
- whose medication had to be changed during the hospitalization and this justified change has to be handed over to the general practitioner or a specialized physician.

2.1.2. Method of providing CPC

Experience so far has suggested that identification of drug related problems by hospital software (i.e. computerized physician order entry system with clinical decision support) (Zaal and et al., 2013) or by the attending physician is not always sufficient. Providing CPC cannot be based on mere direct request of the attending physician. CPC should be based on active systemic search for risks and drug related problems in patients (Viktil and Blix, 2008; Patel et al., 2010). The consent of the particular head physician is necessary and the physicians have to be informed how the system works. Systemic providing of CPC is not possible without regular attendance to ward rounds, without communication with physicians and other personnel, or without direct contact with the patient.

With respect to the limitations on staff, the **systemic review** was divided according to intensity to two levels – complex and selective.

Complex systemic CPC is focused on following tasks:

- the admission to the hospital includes medication review by a clinical pharmacist within defined time limit and the risk rate of drug history with respect to the actual state of the patient and planned interventions is evaluated;
- medication is reviewed regularly during the hospitalization with the intervals between evaluations being set with respect to expected risks; daily contact with attending physician, other personnel and the patient is suitable;
- if necessary, a DTR, which is purposed for the general practitioner or another specialist, is written on release.

Selective systemic CPC is focused on the fact that the medication is reviewed in preset intervals, based on predefined risk factors and/or risk drugs. Some mechanisms used for setting selective medication review can be used to increase the efficiency of complex medication review.

Counselling CPC is drug review following direct request by physician.

2.1.3. Activities of CPC

2.1.3.1. Medication review on admission (MRA). MRA is the first check of hospitalized patient by a clinical pharmacist. This may be a part of systemic or counselling CPC. If there is complex systemic CPC in the ward, the evaluation should be done as soon as possible. By this activity, the clinical pharmacist takes over the patient in his or her care. The review on admission is related to particular hospitalization, i.e. it is repeated on each admission of a particular patient.

This activity should include always:

- perusal of healthcare records;
- investigation of risk or unclear drug related information;
- evaluation of the relation between actual problems and the use or administration of drugs;
- medication evaluation targeted on the identification of factors and drugs that would cause risk in case of medication or health status change during the hospitalization.

It is necessary to discern between drug related problems that put the patient in immediate danger and those that do not. In the latter case, the clinical pharmacist just points out these problems and recommends their solution by the general practitioner or another specialist.

The outputs of MRA purposed for the attending physician:

(a) medication evaluated without comments;
(b) consultation with clinical pharmacist is recommended in case of health status change;
(c) evaluation resulting in suggesting a change in medication in the form of DTR.

The delivery of the output to the physician should be apparent. The urgency of the problem has to be evaluated and the form of delivery has to be chosen accordingly. It is important that the clinical pharmacist has the possibility of feedback, i.e. whether the physician has read and accepted the output of medication review.

The outputs from MRA recorded by clinical pharmacist (shown in Fig. 1):

(a) medication on admission was checked and no risk factor was identified – low risk patients; MRA is recorded;