The appropriateness review

FOR HOSPITAL MEDICATION ORDERS IN FINLAND

Authors: Kvarnström Kirsi, M.Sc.Pharm., PhD Student, (kirsi.kvarnstrom@hus.fi); Leiniö Sari, B.Sc.Pharm.; Kallio Miia, M.Sc.Pharm. PhD. Student; Linden-Lahti Carita, M.Sc.Pharm., PhD Student. HUS Pharmacy, Helsinki University Hospital, 00290 Helsinki, Finland.

Background and Importance

Prescribing errors are one of the most common types of medication errors in the medication management process[1]. In 2019, 15% (n = 1117) of all medication errors in Helsinki University Hospital (HUS) were related to prescribing. The appropriateness review of prescriptions and orders makes it possible to ensure the appropriateness and safety of prescribing[2, 3]. In Finland, this pharmacist intervention model is new and since 2019, HUS Pharmacy has started the appropriateness review in the hospital wards.

Aim and Objectives

The aim of the study was to investigate whether the appropriateness review may reduce prescribing errors that reach the patient in hospital setting. In addition, the aim was to develop an operation model for this clinical pharmacist intervention.

Material and Methods

The study was conducted at HUS in Department of Pulmonary Diseases after the implementation of a new electronic health record system (Epic) in March 2019-March 2020 in collaboration with the physicians and nurses.

A clinical pharmacist reviewed the critical prescriptions for appropriateness (Figure 1.).

The clinical pharmacist reviewed 2579 hospital medication orders

Interventions were made to 5% of all reviewed hospital medication orders (n=126).

The physicians accepted 85% of all interventions made by the clinical pharmacist.

The critical prescriptions were defined as orders that were perceived to pose specific medication safety risks and met the criteria defined for the study. The clinical pharmacist verified orders after a clinical round conducted by a physician. During the time when the clinical pharmacist was not available, for example evenings, nights and weekends, the appropriateness review was made the following working day.

Results

The clinical pharmacist verified approximately 30-40 prescriptions per day, taking about 30 minutes per day. Errors were observed regularly but not daily.

The findings were often related to interactions and renal failure, but also the unintentional duplication of medications, overdoses, and disregard for CDSS warnings (e.g., geriatric warnings). The clinical pharmacist reported to the physician the clinically significant prescribing errors and the physician either modified the prescription, terminated the prescription, or deliberately left the prescription unchanged.

Conclusion Physicians have welcomed the new inter-professional approach and it seems to increase medication safety in prescribing as well as support the work of the physicians.

Acknowledgements We would like to thank HUS medication safety officer Lotta Schepel for introducing this intervention model. We would also thank the hospital staff at HUS Peijas hospital for participating in this study.

The authors have no conflict of interest

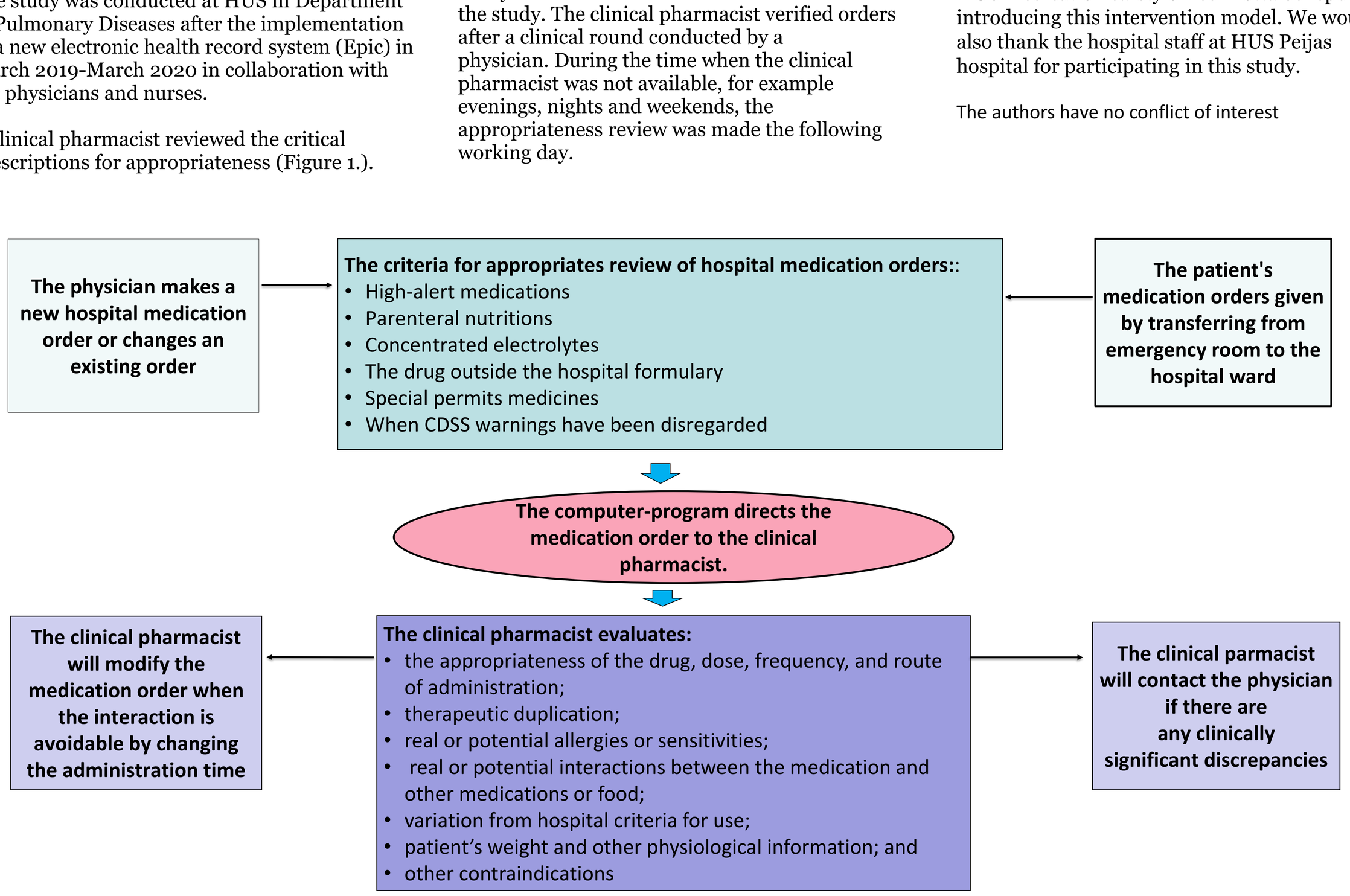

Figure 1 **The process of the appropriateness review for hospital medication orders.**

References

1.Institute of Medicine: Preventing medication errors. The National Academies Press, Washington D.C., 2007

2.Joint Commission International Accreditation Standards for Hospitals (JCI). 6th Edition, 2017

3.Ikäheimo R, Uusitalo M, Kallio M, Vuokko R, Palojoki S. Closed-loop medication management. Working group memorandum on practices used in hospitals. Reports and Memorandums of the Ministry of Social Affairs and Health 2020:23. https://julkaisut.valtioneuvosto.fi/handle/10024/162300

Keywords medication safety, appropriateness review, clinical pharmacist, medication order, hospital pharmacist