

DRUG SHORTAGES IN HOSPITAL PHARMACY: THE CAUSES AND THE CONSEQUENCES

Anne-Grete Märtson¹, Malle Määrmann¹, Marika Saar¹

¹Pharmacy, Tartu University Hospital, Estonia

INTRODUCTION

Background

Drug shortages have become an increasing problem worldwide. Pharmacists are devoting more and more time on this issue and all classes of medicines are affected. Drug shortages can have a serious effect on patient care and medication costs.

Purpose

Conducting such study we are able to see how much of the pharmacists' time is spent on dealing with drug shortage questions and what are the outcomes for patients. Having a good system for documenting drug shortages would ensure an easy way for pharmacists to track and record shortfall. Furthermore, it enables to report back to the hospital and health care authorities.

MATERIAL AND METHODS

Drug shortages were recorded and analysed from April 2013 to September 2014 in a 900 beds hospital pharmacy in Estonia. To examine detailed information about the distribution, storage statuses and shortage duration of the drugs a statistics program AptStat, the State Agency of Medicines web page and the hospital pharmacy program were used. An approximate working time spent on dealing with shortage issues and effects on treatment outcomes were recorded.

RESULTS

During the documenting period 34 drug shortages were registered in the pharmacy.

The drug shortages were grouped with Anatomical Therapeutic Chemical (ATC) Classification System into 12 groups (Table 1). The most affected medication group was anti-infectives for systemic use.

The shortages were caused by delivery problems (30%), production problems (32%) and other reasons like rarely used and not registered medications having longer delivery periods (38%) (Figure 1).

Following solutions were used to overcome drug shortages: the drug was substituted with a different concentration (12%), substituted with another medication (29%) and 59% had no substitute (Figure 2).

12% of the shortages reached patient level and had effect on treatment outcome. Pharmacists spent totally 21 extra working hours on shortages. The period of one drug shortage varied from a week to over a year. On average the drug shortage length was 3 months.

All medications in hospital pharmacy are not registered in Estonia and information about shortages of these medications is not available on the webpage of State Agency of Medicines (Figure 3). About 30% of the drug shortages were shortages of medications that were not registered in Estonia.

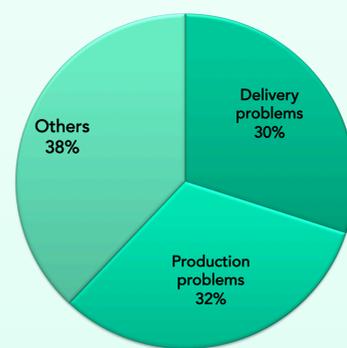


Figure 1. Causes of drug shortages.

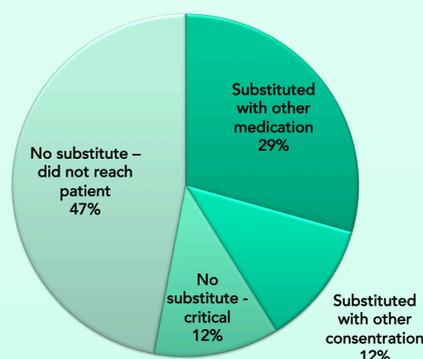


Figure 2. Solutions to overcome drug shortages.

Table 1. Medication groups by ATC system.

Medication groups	Amount
Anti-infectives for systemic use	8
Antineoplastic and immunomodulating agents	4
Blood and blood forming organs	4
Cardiovascular system	3
Nervous system	3
Alimentary tract and metabolism	2
Genito-urinary system and sex hormones	2
Respiratory system	2
Sensory organs	2
Systemic hormonal preparations	2
Dermatologicals	1
Various	1
Total	34

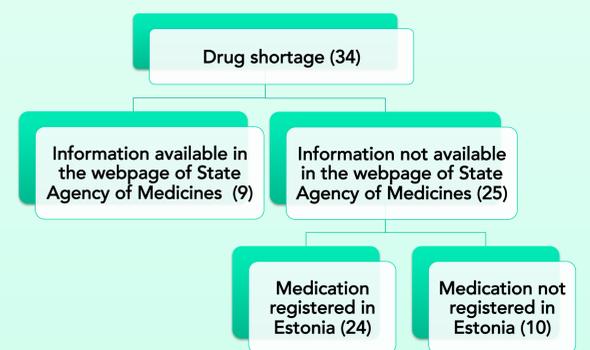


Figure 3. Availability of information about drug shortages.

DISCUSSION

Drug shortages have been studied in Europe and globally. Similarly to a recent study anti-infectives are the most affected medication group in Estonia.¹ In Estonia hospitals use quite many not registered drugs and these medications might have different problems as the State Agency of Medicines does not control the availability. Drug shortages of these medications remain a problem because Estonia is a small market for medical companies and registering medications is not attractive for them.

CONCLUSION

Drug shortages are still a problem in hospital pharmacies. According to this study the most affected drug group is anti-infectives for systemic use. This study confirmed that drug shortages cause problems for pharmacists and patients. Constant recording of causes and consequences of shortages is necessary for finding better solutions.