

# Initiative to introduce database of compounded pharmacy preparations at the University Hospital Centre Zagreb

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## What was done?

- Existing computer system does not have the ability to provide information on the compounded pharmacy preparations made from raw material or commercially available medicines.
- Database keeping up-to-date records of pharmacy preparations with added details of each compounded pharmacy preparation was introduced.
- Pharmacy preparations data compounded by pharmacists from the hospital pharmacy for special needs of pediatric population in the University Hospital Centre Zagreb was collected in the 6 months period.



## Why was it done?

- Minimizing quality and safety differences between commercially available medicines and compounded pharmacy preparations depends on the pharmacist's professional education and skills in preparing compounded pharmacy preparations.
- The purpose of this initiative was to specify the most common pharmacist's adjustments of the commercially available medicines and to determine the level of quality assurance and safety measures which should be applied to the new hospital pharmacy throughout planning the procurement of installations and equipment.
- The additional intention is to provide a plan for creating standard operating procedures (SOPs) for quality assurance in daily practice of the hospital pharmacy department.

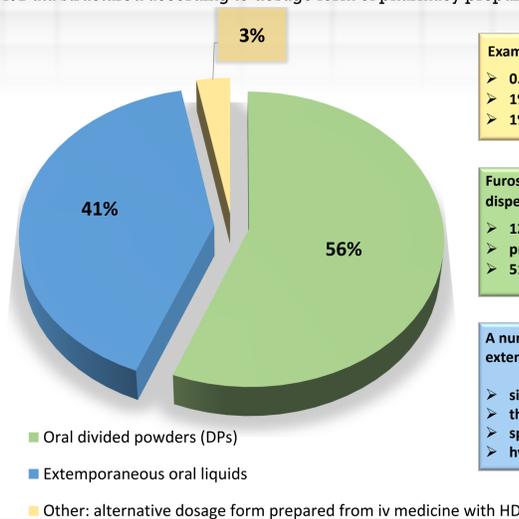
## How was it done?

- The following information on pharmacy preparations made in the hospital pharmacy were added to the new database: dosage form, dosage strength, serial number and shelf life of the registered commercially available medicine or raw material that was used; patient data: name and hospital department unit; and verification of the pharmacist (Table 1.).
- During period of 6 months the total number of collected data on compounded pharmacy preparation reached 1101 (Chart 1.).
- Data was structured according to dosage form, complexity of compounding process and identification of toxic properties of active substance (hazardous or non-hazardous drug [HD, non-HD]) (Table 2.).

Table 1. part Database of collected records on date 27-Sep-22

Pharmacy preparation data					Patient data		Starting material			Verification
Prep. number	Date	Dosage form and strength	Generic name	Number of units/Quantity (ml)	Name	Department/Unit	Registered available medicine/Raw material	Serial number	Expiry date	Pharmacist
1068	27-Sep-22	Bosentan oral divided powders 8mg	Bosentan	23	M.G.	Department of Pediatrics/ Clinical Unit of Cardiology	Bosentan tablets 62,5mg Makpharm	1446338	31-Jan-23	Ljubičić
1069	27-Sep-22	Theophyllin oral suspension 5mg/ml	Theophylline	200ml	M.M.	Department of Pediatrics/ Pediatric Intensive Care Unit	Theophyllin API powder Caesar and Loretz GmbH	22001229001	31-Jan-25	Bukovec
1070	27-Sep-22	Proglieem oral divided powders 3mg	Diazoxide	33	N.L.	Department of Pediatrics/Division of Metabolic Diseases	Proglieem capsules 25 mg MSD	1307A	31-Aug-23	Ganza
1071	27-Sep-22	Entresto oral suspension 4mg/ml	Sacubitril and Valsartan	100ml	K.J.	Department of Pediatrics/ Clinical Unit of Cardiology	Entresto tablets 49/51 mg Novartis	LUS138	30-Sep-24	Sadiković Tvorčić
1072	27-Sep-22	Furosemid oral divided powders 10mg	Furosemide	32	D.P.	Department of Otolaryngology, Head and Neck Surgery/ Division of Pediatric Otorhinolaryngology	Furosemid tablets 40mg Belupo	29146012	31-Dec-24	Bukovec

Chart 1. Data structured according to dosage form of pharmacy preparations compounded in the 6 months period



### Examples of the most common pharmacy preparations:

- 0.05% cyclosporine eye drops
- 1% fluorouracil eye drops
- 1% voriconazole ear drops

### Furosemide oral divided powder was the most common prepared and dispensed pharmacy preparation:

- 123 was a total number of dispensed DPs of furosemide
- prepared in 10 different dosage strengths
- 517 single doses of furosemide per month

### A number of dispensed oral suspensions of the most common prepared extemporaneous oral liquids:

- sildenafil 2,5mg/ml 47
- theophylline 5mg/ml 42
- spironolactone 5mg/ml 39
- hydrochlorothiazide 5mg/ml 35

Table 2. Data structured according to complexity of compounding process

Pharmacy preparation	Aseptic processing	Containment	Complexity of the process
0.05% Cyclosporine eye drops	+	+	2
1% 5-FU eye drops	+	+	2
1% Voriconazole ear drops	-	+	1
Vemurafenib DPs	-	+	1
Imatinib DPs	-	+	1
Capecitabine DPs	-	+	1
Hydroxycarbamide oral suspension	-	+	1
Tretinoin oral solution	-	+	1

1= Aseptic processing - Containment +  
1= Aseptic processing + Containment -  
2= Aseptic processing + Containment +

## What has been achieved?

- Keeping up-to-date records improved the traceability in patient care and reduced the incidence of adverse events during the process of prescription, preparation, and administration of pharmacy preparations.
- The overview and evaluation of pharmacy preparations enabled prioritization of procedures which should be defined through SOPs.
- Specific requirements for procurement of equipment for aseptic processing and containment of hazardous drug were successfully recognized.

## What next?

- Harmonization of standards of pharmacy preparations throughout the country could be enabled by creating a national portfolio of preparations from all hospital pharmacies.
- This initiative of creating an overview of the pharmacy preparation practice should be considered in other hospitals to guide the pharmacy departments in the developing, writing, and implementing SOPs as part of a good quality assurance program.



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