

ANALYSIS AND MONITORING OF THE WORKLOAD AND FINANCIAL BURDEN OF DISPENSING HIGH-COST MEDICINES WITH ITEM-BASED REIMBURSEMENT IN HUNGARIAN HOSPITAL PHARMACIES

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Background and importance:

The ever-expanding amount of certain high-cost, tendered hospital medicines, especially biologic drugs, special budget medicines of HCV and haemophilia are covered by item-based reimbursement, posing a financial and administrative burden on institutions, hospital pharmacies involved in the dispensing process in Hungary.

Aim and objectives:

The aim of our study is to determine the time and cost implications of providing a safe and efficient supply of these high-cost specialty medications, and to confirm the shortages in personnel, infrastructure and funding.

Materials and methods

We have defined the activities related to supply of high-cost item-based medications in our institution (including ordering medicines and requesting quotas, receiving goods, storing, preparing for administration, dispensing, reporting):

- a prospective workload and time analysis for each related subtask (who, when, what, for how long) was conducted in June 2021.,
- based on this data, we calculated the mean time (\pm standard deviation) spent on the process steps for the first quarter of 2021.,
- we calculated the related direct and indirect costs based on a national controlling manual.

Results

Definition of the activities related to supply of high-cost item-based medicines in the hospital pharmacy:

1. Ordering medicines
2. Requesting quotas
3. Receiving goods (receipt, serialization, online receipt of delivery note, account management in case of financial framework)
4. Storing (separate, professional storage, temperature control, stock control)
5. Preparing for administration– Institutional administration (order validation (CATO), preparation for administration: preparation of cytostatic mix infusion, delivery to site)
6. Dispensing for the patient (at-home use, in-clinic outpatient application) - Institute pharmacy (completed form signed and stamped by the treating physician, order validation, preparation for delivery, transfer of information to the patient)
7. Direct dispensing of medication into the medicine cabinet of an outpatient care unit
8. Reporting (for National Health Insurance Fund)
9. Other (correction of incorrect data sheets, management of decisions, quota allocation agreements, financial conciliation, "framework management" ...)

Calculation of the time spent on the process steps

Period	No. Of bills	No. Of active ingredients	Sum of ordered mgs	Working days	Sum of ordering time (min)	Done by
2021.01.	95	34	1 886 145	20	242	Pharmacist
2021.02.	75	29	1 741 129	20	163	Pharmacist
2021.03.	93	33	2 214 525	22	258	Pharmacist
Sum	263		5 841 799	62	663	
Average/day	4,2				11	
SD	0,5				2	

Period	No. Of boxes	Time of receiving (min)	Done by	Time of putting on the storage place (min)	Done by
2021.01.	1 118	210	assistant	97	assistant
2021.02.	985	158	assistant	76	assistant
2021.03.	1 265	206	assistant	99	assistant
Sum	3 368				
Average/day	54	9		4	
SD	4	1		1	

26,7 \pm 1,2 dispensing tasks/day
152 \pm 10,8 min/day, sum 3,23 (\pm 0,16) hours/day
552,3 \pm 53,7 dispensing tasks/month
Sum of 66,8 (\pm 7,0) hours/month
The time spent on the process steps (min)/task): 5,68 \pm 0,15 min

Calculation of the related costs

Type of the cost	Amount/month	Price of unit (EUR)	Value (EUR)/month		
			January	February	March
Direct					
Disposable professional materials (syringes, gloves...)	divided	1/3 of total	468,43	957,53	993,51
Disinfectants	divided	1/3 of total	55,54	55,54	55,54
Technical maintenance materials, parts	divided	1/10 of total	0,06	0,11	0,07
Stationery, printed matter, other office supplies	divided	1/10 of total	61,28	36,63	103,25
Other operating materials	divided	1/3 of total	2,78	2,78	2,78
Other materials and components	divided	1/10 of total	1,34	-	1,62
Maintenance and repair of other equipment	divided	1/10 of total	0,56	3,50	2,19
Pre-charged, non-deductible VAT for operational purposes	divided	1/3 of total	184,62	957,53	993,51
+ Human cost			717,03	715,65	873,23
Sum			1491,64	2068,47	2398,88

Type of the cost	Price of unit (EUR)	Amount/month	Unit	Value (EUR)/month		
				January	February	March
Indirect						
Maintenance costs	0,62	156,11	sm ²	96,81	156,11	96,86
Electricity supply	0,11	2000	KWh	222,05	2000	225,72
Water sewer charge	1,59	5	wm ³	7,95	5,6	0,02
District heating	16,64	10,14	GJ	129,83	8,19	136,26
IT operation	14,68	4	dbpc	63,41	4	58,73
IT fees	7,79	4	dbpc	29,84	4	31,17
Municipal waste management	0,17	10	lkh	4,46	10,9	1,90
Hazardous waste management	0,63	207	kgvh	134,81	154	97,95
Telephone exchange	6,86	1	No.	7,55	1	6,86
Purchased cleaning	1,26	139,4	mm ²	175,27	139,4	175,38
Logistics department costs	2,90	42	No.	109,33	32	90,75
Central sterile	0,12	250	l _{steril}	68,44	75	14,60
Occupational physician	0,64	10	person	3,95	10	6,38
Building maintenance costs	2,44	102	m ²	246,34	102	248,32
Sum				1 300,04		1 190,87
						1 246,72

The hospital pharmacy dispensed 50 high-cost item-based medications.

10 employees (3 pharmacists, 5 specialist pharmacy assistant, 1 administrator, 1 technical staff) were involved in the related workflow.

An average of 88 ordering, 1120 serialization, 552 dispensing events, 370 patients and 775.31 \pm (91.37) EUR monthly human cost was measured. Further, 1228.26 \pm 396.75 EUR/month direct non-human cost and 1256.7 \pm 55.06 EUR/month indirect non-human cost 5.68 (\pm 0.15) minutes and 5.84 (\pm 0.3) EUR per each dispensing task

Conclusion and relevance:

The administrative burden and the value of the tasks related to the affected product range are confirmed by this retrospective study 552.3 (\pm 53.7) hours / month, total 66.8 (\pm 7,0) hours / month, 3232.20 (\pm 0,42) EUR/ month. The number of benefits evaluated can be further expanded. Our findings provide valuable evidence on the workload burden and financial shortcomings of hospital pharmacies related to the dispensing and documentation of high-priced item-based reimbursed medicines in Hungary. A comprehensive, institution-wide protocol is needed to optimize the processes involved in the management of these medications.