

Management of Prescription Medicines in Ukraine: Continuation of the Experimental Study on the Organization of Pharmaceutical Provision

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Received: April 07, 2024

Published: May 11, 2024

Abstract. Conducted the experimental study on the organization of pharmaceutical provision, complaints of patients from the position of management of prescription medicines in Ukraine. It has been proven that the level of organization of pharmaceutical supply affects patient complaints. 750 complaints from patients about unsatisfactory on the organization of the pharmaceutical provision were processed. Found that 77% of complaints of patients (women accounted for 70%; men – 30%) were related to late or incomplete on the organization of the pharmaceutical provision of prescription medicines. Violation of the rights of patients to receive medicines on discounted and free prescriptions of doctors was recorded in 88% of complaints. The matrix of complaints based on patient reports of unsatisfactory of prescription medicines of different clinical and pharmacological, classification and legal and nomenclature and legal groups was constructed. In accordance to the ATC classification, the clinical and pharmacological groups were distributed of medicines on 9 clinical and pharmacological groups. According to ATC code A, 5 INN medicines were not available to patients, and more complaints were received. According to ATC code B, 7 INN medicines were not available to patients, and more complaints were received. According to ATC code C, 25 INN medicines were not available to patients, and more complaints were received. According to ATC code D, 1 INN medicines were not available to patients, and more complaints were received. According to ATC code L, 2 INN medicines were not available to patients, and more complaints

were received. According to ATC code M, 1 INN medicines were not available to patients, and more complaints were received. According to ATC code N, 13 INN medicines were not available to patients, and more complaints were received. According to ATC code R, 5 INN medicines were not available to patients, and more complaints were received. According to ATC code S, 2 INN medicines were not available to patients, and more complaints were received. The organization of pharmaceutical provision of these drugs was at a low level. It is substantiated that the main feature of pharmaceutical provision of patients is social orientation. It is proved that it is necessary to actively develop the social potential of health care facilities in the format of transparency, completeness, reliability, and efficiency of information about the costs that form the cost of drugs. In the course of the study, a matrix of complaints based on patient reports of unsatisfactory pharmaceutical provision of drugs of different clinical and pharmacological, classification and legal, nomenclature and legal groups was constructed. On the basis of the matrix of complaints, three national lists of drugs were developed with the further development of organizational and legal measures to increase the level of pharmaceutical provision of patients. It is noted that the reference mechanism of drug pricing is aimed at establishing the level of reimbursement at the expense of the state and reducing costs to 50% for pharmaceutical provision of patients.

Keywords: prescription medicines, management, pharmaceutical provision, patients.

Introduction. The WHO and European Monitoring Center for Drugs and Drug Addiction pays special attention to health protection, the organization of affordable pharmaceutical supplies, and the availability of drugs for all contingents of patients [1, 2].

The UN also promotes international coordination of efforts between countries aimed at ensuring: equality of all before the law; the right to a fair trial and judicial decision; availability for patients of drugs of all clinical and pharmacological, classification and legal, nomenclature and legal groups, international standards for the treatment of health disorders [3].

The Ministry of Health of Ukraine informs that 90% of medicines are bought at the expense of patients [4].

Drug costs represent a serious burden on health care systems not only in Ukraine, but also in the leading countries of the world (USA, Great Britain, Germany, Poland, Finland, etc.) [5-18].

A comparative analysis of drug prices in high-income countries showed that the cost of drugs in different countries can differ several times. The largest price difference with the lowest and highest cost between countries can be from 28% to 50% for 10 drugs, from 50% to 100% for 16 drugs, from 100% to 200% for three drugs [19, 20].

Research has shown that the main thing in the management of prescription medicines is the organization of pharmaceutical provision, social orientation and an individual approach to patients. These guidelines depend on the economic potential of health care institutions, the implementation of innovative technologies, taking into account the leading world experience [21-23].

Today, it is important to conduct a multidisciplinary study of medical errors in the system of legal relations between "doctor-patient-pharmacist-advocate" during the circulation of prescription medicines [24].

Purpose of the research was to conduct an experimental study on the organization of pharmaceutical provision, complaints of patients from the position of management of prescription medicines in Ukraine.

Materials and methods. The current research was carried out using the system approach during January 2020 – January 2024. The materials were questionnaires of employees of health departments among a number of regional state administrations, 14 health care facilities that provide organization of circulation of drugs for patients.

The information base of the study consisted of scientific works of foreign and domestic scientists on issues related to the organization of pharmaceutical business, management, forensic pharmacy, pharmaceutical provision, pricing policy for drugs [25-32].

Modern research methods were used: normative and legal, documentary, retrospective, bibliographic, systemic, forensic and pharmaceutical, sociological (questionnaire survey), comparative, marketing, graphic, mathematical analysis. Mathematical processing and statistical evaluation of data was performed using Microsoft Excel.

The research of the article is a fragment of research works of Lviv Medical Institute on the topic of "Improving the system of circulation of drugs during pharmacotherapy on the basis of evidentiary and forensic pharmacy, organization, technology, biopharmacy and pharmaceutical law" (state registration number 0120U105348, implementation period 2021-2026); Kharkiv Medical Academy of Postgraduate Education on "Improving the organizational and legal procedure for providing patients with drugs from the standpoint of forensic pharmacy, organization and management of pharmacy" (state registration number 0116U003137, terms 2016-2020) and "Pharmaceutical and medical law: integrated approaches to the system of drug circulation from the standpoint of forensic pharmacy and organization of pharmaceutical business" (state registration number 0121U000031, terms 2021-2026); Luhansk State Medical University "Conceptual interdisciplinary approaches to pharmaceutical provision and availability of drugs, taking into account organizational and legal, technological, analytical, pharmacognostic, forensic and pharmaceutical, clinical and pharmacological, pharmaco-economic, marketing, social and economic competencies" (state registration number 0123U101632, terms 2023-2027); Petro Mohyla Black Sea National University on the topic "Conceptual interdisciplinary approaches to the drug circulation system, taking into account organizational and legal, technological, biopharmaceutical, analytical, pharmacognostic, forensic and pharmaceutical, clinical and pharmacological, pharmaco-economic, pharmacotherapeutic aspects" (state registration number 0123U100468, implementation period 2023-2028); Private Scientific Institution "Scientific and Research University of Medical and Pharmaceutical Law" on the topic "Multidisciplinary research of post-traumatic stress disorders during war among patients (primarily combatants)" (state registration number 0124U002540, implementation period 2024-2029).

Results and discussion. 750 complaints from patients about unsatisfactory on the organization of the pharmaceutical provision were processed. Found that 77% of complaints of patients (women accounted for 70%; men – 30%) were related to late or incomplete on the

organization of the pharmaceutical provision of prescription medicines. Violation of the rights of patients to receive medicines on discounted and free prescriptions of doctors was recorded in 88% of complaints.

The matrix of complaints based on patient reports of unsatisfactory of prescription medicines of different clinical and pharmacological, classification and legal and nomenclature and legal groups was constructed (Fig. 1).

When developing the matrix, previous studies of the Department of Medical and Pharmaceutical Law, General and Clinical Pharmacy of the Kharkiv Medical Academy of Postgraduate Education were used [33-40].

Based on the matrix of complaints, appropriate lists of drugs were developed with the further development of organizational and legal measures to increase the level of the organization of the pharmaceutical provision for patients.

Hotline (Government, Ministry of Health of Ukraine, Regional state administration)		Contingents of patients		
		Drugs consumer data	Name, age, marital status	Place of residence, place of work (city, region)
Health care facilities data	Health care facilities (hospitals, clinics)	Health care facilities (pharmacies, drugstores)	Levels of interaction in the system of legal relations "doctor-patient-pharmacist"	
Complaint plot (appeal)	Doctor, factors of unsatisfactory pharmaceutical provision (no prescription for drugs, etc.)	Pharmacist, factors of unsatisfactory pharmaceutical provision (absence, no preferential release, low-quality, etc.)	List of bodies involved in resolving of the complaint	
Drug control regime	Clinical and pharmacological group	Classification and legal group	Nomenclature and legal group	
Issue resolving	Creating a working group Conducting official investigations and meetings	Departure to the health care facility Preparing an answer	Adoption of organizational and legal measures	

Fig. 1. Matrix of complaints of patients regarding unsatisfactory on the organization of the pharmaceutical provision of the prescription medicines.

In accordance to the ATC classification [41], the clinical and pharmacological groups were distributed of medicines on 9 clinical and pharmacological groups (Table 1). These the clinical and pharmacological groups appeared in the complaints of patients on the organization of the pharmaceutical provision of prescription medicines.

Table 1. The clinical and pharmacological groups of prescription medicines on complaints of patients.

No.	ATC code	Clinical and pharmacological group
1	A	Drugs affecting the digestive system and metabolism
2	B	Agents affecting the blood system and hematopoiesis.
3	C	Drugs affecting the cardiovascular system
4	D	Dermatological products
5	L	Antineoplastic and immunomodulating agents.
6	M	Medications for musculoskeletal system
7	N	Drugs acting on the nervous system
8	R	Agents acting on the respiratory system.
9	S	Agents acting on the sensory organs.

The clinical and pharmacological groups of prescription medicines on the complaints of patients on the organization of the pharmaceutical provision (Table 1) were distributed for ATC code A (Table 2). According to ATC code A, 5 INN medicines were not available to patients, and more complaints were received. The organization of pharmaceutical provision of these drugs was at a low level.

Table 2. The clinical and pharmacological groups of prescription medicines on complaints of patients for ATC code A.

No.	Trade name	INN	ATC code	Clinical and pharmacological group
1	2	3	4	5
1	Siofor	Metformin	A10BA02	Agents affecting the digestive system and metabolism. Antidiabetic agents. Hypoglycemic agents excluding insulins. Biguanides. Metformin.
2	Diabeton MR	Gliclazide	A10BB09	Oral hypoglycemic agents. Sulfonylurea derivatives. Gliclazide.
3	Amaryl	Glimepiride	A10BB12	Hypoglycemic agents excluding insulins. Sulfonylureas, urea derivatives.
4	Neurorubin	Comb.	A11DB	Vitamin B1 in combination with vitamin B6 and/or vitamin B12.

The clinical and pharmacological groups of prescription medicines on the complaints of patients on the organization of the pharmaceutical provision (Table 1) were distributed for ATC code B (Table 3). According to ATC code B, 7 INN medicines were not available to patients, and more complaints were received. The organization of pharmaceutical provision of these drugs was at a low level.

Table 3. The clinical and pharmacological groups of prescription medicines on complaints of patients for ATC code B.

No.	Trade name	INN	ATC code B	Clinical and pharmacological group
1	2	3	4	5
1.	Warfarin-FS	Warfarin	B01AA03	Antithrombotic agents.
2.	Atorcard	Clopidogrel	B01AC04	Antithrombotic agents. Antiplatelets.
3.	Plavix	Clopidogrel	B01AC04	Antithrombotic agents. Antiplatelets.
4.	Trombonet	Clopidogrel	B01AC04	Antithrombotic agents.

5.	Cardiomagnil	Acetylsalicylic acid	B01AC06	Antithrombotic agents.
6.	Gordox	Aprotinin	B02AB01	Fibrinolysis inhibitors. Aprotinin.
7.	Infesol	Comb.	B05BA10	Parenteral nutrition agents.

The clinical and pharmacological groups of prescription medicines on the complaints of patients (Table 1) were distributed for ATC code C (Table 4) on the organization of the pharmaceutical provision. According to ATC code C, 25 INN medicines were not available to patients, and more complaints were received. The organization of pharmaceutical provision of these drugs was at a low level.

Table 4. Clinical and pharmacological group prescription medicines on complaints of patients for ATC code C.

No.	Trade name	INN	ATC code C	Clinical and pharmacological group
1	2	3	4	5
1.	Rythmonorm	Propafenone	C01BC03	Drugs for the treatment of heart diseases. Antiarrhythmic agents class IC.
2.	ATF-Long	Adenosine	C01EB10	Cardiological drugs. Adenosine.
3.	Preductal MR	Trimetazidine	C01EB15	Cardiological agents.
4.	Mildronate	Meldonium	C01EB22	Cardiological agents.
5.	Arifon	Indapamide	C03BA11	Non-thiazide diuretics with moderate activity. Sulfonamides, plain.
6.	Indopres	Indapamide	C03BA11	Agents affecting the cardiovascular system. Non-thiazide diuretics with moderate activity. Sulfonamides, plain. Indapamide.
7.	Veroshpiron	Spironolactone	C03DA01	Potassium-sparing diuretics.
8.	Oxybral	Vinpocetine	C04AX07	Agent improving cerebral circulation.
9.	Betaloc	Metoprolol	C07AB02	Selective beta-adrenoreceptor blockers.
10.	Lokren	Betaxolol	C07AB05	Selective beta-adrenoreceptor blockers.
11.	Bisoprolol-KV	Bisoprolol	C07AB07	Selective beta-adrenoreceptor blockers.
12.	Concor	Bisoprolol	C07AB07	Selective beta-adrenoreceptor blockers.
13.	Nebivol	Nebivolol	C07AB12	Selective beta-adrenoreceptor blockers.
14.	Stamlo	Amlodipine	C08CA01	Selective calcium antagonists with predominant effect on vessels. Dihydropyridine derivatives.
15.	Lacipil	Lacidipine	C08CA09	Calcium channel blockers. Selective calcium channel blockers with predominant action on vessels.
16.	Berlipril	Enalapril	C09AA02	Angiotensin-converting enzyme inhibitors.
17.	Enap	Enalapril	C09AA02	Angiotensin-converting enzyme inhibitors.
18.	Enapril	Enalapril	C09AA02	Angiotensin-converting enzyme inhibitors.

19.	Lisinopril	Lisinopril	C09AA03	Angiotensin-converting enzyme inhibitors.
20.	Lipril	Lisinopril	C09AA03	Angiotensin-converting enzyme inhibitors.
21.	Captopres-Darnitsa	Comb.	C09BA01	Combined preparations of ACE inhibitors. Captopril and diuretics.
22.	Enap-N	Comb.	C09BA02	Combined preparations of ACE inhibitors. Captopril and diuretics.
23.	Hipril-A	Comb.	C09BB03	Combined preparations of ACE inhibitors.
24.	Lorista	Losartan	C09CA01	Agents acting on the renin-angiotensin system. Plain angiotensin II antagonists.
25.	Atorvacor	Atorvastatin	C10AA05	Drugs lowering the level of cholesterol and triglycerides in serum. HMG-CoA reductase inhibitors.

The clinical and pharmacological groups of prescription medicines on the complaints of patients (Table 1) were distributed for ATC code D01AC08 (Table 5) on the organization of the pharmaceutical provision. According to ATC code D, 1 INN medicines were not available to patients, and more complaints were received. The organization of pharmaceutical provision of these drugs was at a low level.

Table 5. Clinical and pharmacological group prescription medicines on complaints of patients for ATC code D01AC08.

No.	Trade name	INN	ATC code D	Clinical and pharmacological group
1	2	3	4	5
1.	Nizoral	Ketoconazole	D01AC08	Antifungal agents for topical use. Imidazole and triazole derivatives.

The clinical and pharmacological groups of prescription medicines on the complaints of patients (Table 1) were distributed for ATC code L (Table 6) on the organization of the pharmaceutical provision. According to ATC code L, 2 INN medicines were not available to patients, and more complaints were received. The organization of pharmaceutical provision of these drugs was at a low level.

Table 6. Clinical and pharmacological group prescription medicines on complaints of patients for ATC code L.

No.	Trade name	INN	ATC code	Clinical and pharmacological group
1	2	3	4	5
1.	Leukeran	Chlorambucil	L01AA02	Antineoplastic agents. Alkylating compounds.
2.	Cycloferon	Acridonoacetic acid	L03AX	Immunostimulants.

The clinical and pharmacological groups of prescription medicines on the complaints of patients (Table 1) were distributed for ATC code M01AC06 (Table 7) on the organization of the pharmaceutical provision. According to ATC code M, 1 INN medicines were not available to

patients, and more complaints were received. The organization of pharmaceutical provision of these drugs was at a low level.

Table 7. Clinical and pharmacological group prescription medicines on complaints of patients for ATC code M01AC06.

No.	Trade name	INN	ATC code	Clinical and pharmacological group
1	2	3	4	5
1.	Revmoxikam	Meloxicam	M01AC06	Nonsteroidal anti-inflammatory and antirheumatic agents.

The clinical and pharmacological groups of prescription medicines on the complaints of patients on the organization of the pharmaceutical provision (Table 1) were distributed for ATC code N (Table 8). According to ATC code N, 13 INN medicines were not available to patients, and more complaints were received. The organization of pharmaceutical provision of these drugs was at a low level.

Table 8. Clinical and pharmacological group prescription medicines on complaints of patients for ATC code N.

No.	Trade name	INN	ATC code	Clinical and pharmacological group
1	2	3	4	5
1.	Carbamazepine	Carbamazepine	N03AF01	Antiepileptic drugs
2.	Depakine-Chrono 300	Combination	N03AG01	Antiepileptic drugs
3.	Lamotrin 100	Lamotrigine	N03AX09	Antiepileptic drugs
4.	Topamax	Topiramate	N03AX11	Antiepileptic drugs
5.	Gabantin 300	Gabapentin	N03AX12	Antiepileptic drugs
6.	Neuralgin	Gabapentin	N03AX12	Antiepileptic drugs
7.	Amantin	Amantadine	N04BB01	Antiparkinsonian agents. Dopaminergic drugs
8.	Yumex	Selegiline	N04BD01	Antiparkinsonian agents. Monoamine oxidase type B inhibitors
9.	Moditen Depot	Fluphenazine	N05AB02	Antipsychotic agents
10.	Fezam	Combination	N06BX	Psychostimulants and nootropic agents
11.	Cerebrolysin	Cerebrolysin	N06BX	Psychostimulants and nootropic agents
12.	Lucetam	Piracetam	N06BX03	Psychostimulants and nootropic agents
13.	Cavinton	Vinpocetine	N06BX18	Psychostimulants and nootropic agents. Vinpocetine

The clinical and pharmacological groups of prescription medicines on the complaints of patients on the organization of the pharmaceutical provision (Table 1) were distributed for ATC code R (Table 9). According to ATC code R, 5 INN medicines were not available to patients, and more complaints were received. The organization of pharmaceutical provision of these drugs was at a low level.

Table 9. Clinical and pharmacological group prescription medicines on complaints of patients for ATC code R.

No.	Trade name	INN	ATC code	Clinical and pharmacological group
1	2	3	4	5
1.	Salbutamol	Salbutamol	R03AC02	Agents for the treatment of obstructive airway diseases. Selective beta-2-adrenoreceptor agonists
2.	Berotec N	Fenoterol	R03AC04	Agents used in obstructive airway diseases. Selective beta-2-adrenoreceptor agonists
3.	Berodual-N	Combination	R03AL01	Agents for the treatment of obstructive airway diseases. Adrenergic agents in combination with anticholinergic agents. Fenoterol and ipratropium bromide
4.	Eufillin	Theophylline	R03DA04	Agents for systemic use in obstructive airway diseases. Xanthines. Theophylline
5.	Dimedrol	Diphenhydramine	R06AA02	Systemic antihistamines

The clinical and pharmacological groups of prescription medicines on the complaints of patients (Table 1) were distributed on the organization of the pharmaceutical provision for ATC code S01XA (Table 10). According to ATC code S, 2 INN medicines were not available to patients, and more complaints were received. The organization of pharmaceutical provision of these drugs was at a low level.

Table 10. Clinical and pharmacological group prescription medicines on complaints of patients for ATC code S01XA.

No.	Trade name	INN	ATC code S	Clinical and pharmacological group
1	2	3	4	5
1.	Kvinaks	Azapentacene	S01XA	Ophthalmological agents
2.	Solcoseryl	Deproteinized calf blood hemoderivate	S01XA	Agents affecting the cardiovascular system. Peripheral vasodilators

Conclusion. The research explored the organization of pharmaceutical provision and patient complaints regarding the management of prescription medicines in Ukraine. It was established that the effectiveness of pharmaceutical supply impacts the frequency of patient complaints. Analysis of 750 patient complaints revealed that 77% (with women comprising 70% and men 30%) pertained to delays or deficiencies in the provision of prescription medications. Moreover, 88% of these complaints documented violations of patients' rights to access medicines under discounted or free prescriptions.

A matrix was developed to categorize complaints based on reports of inadequate prescription medicine provision across various clinical and pharmacological, classification and legal, nomenclature and legal groups. According to the ATC classification, the complaints were segmented into nine clinical-pharmacological groups. For ATC codes A through S, the availability of INN medicines varied, leading to numerous complaints: five INN medicines under code A, seven under B, 25 under C, and so forth, with corresponding increases in patient complaints for each category. The organization of pharmaceutical services for these drugs was notably poor.

The study underscored the social orientation as a fundamental aspect of pharmaceutical provision. It highlighted the necessity for healthcare facilities to enhance their social engagement

through transparent, complete, reliable, and efficient information dissemination about drug pricing. Additionally, a matrix of complaints led to the creation of three national drug lists and the development of organizational and legal measures to improve the pharmaceutical services. The study noted that the reference mechanism for drug pricing aims to set reimbursement levels funded by the state and reduce patient costs by 50%.

Conflict of interest. The authors confirm that they are the authors of this work and approve it for publication. The authors also certify that the obtained data and research were conducted in compliance with the requirements of moral and ethical principles based on medical and pharmaceutical law, respectively, and in the absence of any relationships that could be interpreted as conflict and/or potential conflict of interest.

Funding. This research was partially funded by the non-for-profit organization Private Scientific Institution “Scientific and Research University of Medical and Pharmaceutical Law” (<https://srumpl.org>, e-mail: office@srumpl.org, 04210, Ukraine, Kyiv, Ivasiuka Volodymyra ave., 10A, section 2, office 3).

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