Study of Pharmaceutical Provision Under the Program of Medical Guarantees in Ukraine

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Abstract. Ukraine has implemented a comprehensive Medical Guarantees Program, which encompasses both medical and pharmaceutical services. One of the key components within the pharmaceutical services is the provision of pharmaceutical supplies. For the first time, an in-depth study was conducted into patient referrals for both medical services and pharmaceutical support under this program. The research involved an analysis of patient appeals, considering seven key indicators: financial resources, electronic medical records, patient declarations, the provision of medical services, the timeliness of pharmaceutical delivery, adherence to ethical standards in patient treatment, and other aspects of medical and pharmaceutical service delivery. Furthermore, a clinical and pharmacological analysis of drug-related complaints was performed using the ATC classification system, with 19 specific ATC codes being examined. This research highlights the crucial role that patient feedback plays in enhancing Ukraine's healthcare system, ultimately leading to improved quality in the provision of medical and pharmaceutical services. The analysis of patient appeals and the identification of specific areas for improvement demonstrate a commitment to addressing the needs of the population. Moreover, by incorporating the ATC classification system into the analysis, the research provides a structured approach to understanding and resolving pharmaceutical issues, which is vital for maintaining the safety and efficacy of treatments provided to patients. This ongoing research is expected to contribute valuable insights that will support the continuous development of Ukraine's healthcare system, aligning it with international standards and best practices.

Keywords: pharmaceutical provision, patients, medicines, program of medical guarantees.

Introduction. The Medical Guarantee Program has been operating in Ukraine for almost four years. Patients have the right to receive high-quality free medical care in medical institutions that have appropriate contracts with the National Health Service. In medical institutions, medical and pharmaceutical personnel try to comply with their obligations. Patients are not always informed about the details of their own packages. For example, which medical and pharmaceutical services are free. In four years, patients turned to medical institutions of the Lviv region for clarifications 362 times. Mostly (43% of patient referrals) – regarding the payment of medicines and medical services [1].

The National Health Service of Ukraine orders and pays for medical services from medical institutions in the interests of patients. The medical service also includes pharmaceutical provision. Therefore, patient referrals are important for monitoring the quality of medical and pharmaceutical care. Patient referrals are one of the elements of a risk-oriented medical and pharmaceutical system.

The authors continue research on applications for pharmaceutical support. Previously, patient referrals were studied for the availability of prescription drugs [2-11].

The purpose of the study was to research pharmaceutical provision under the program of medical guarantees in Ukraine.

Materials and methods. The current research was carried out using the system approach during January 2021-May 2024. The materials were anonymized questionnaires of employees of health departments among a number of regional state administrations, seven health care facilities that provide organization of circulation of drugs for patients, departments of pharmacy, pharmaceutical and medical law of five institutions of higher education and private scientific institution "Research University of Medical and Pharmaceutical Law".

The information base of the study consisted of scientific works of foreign and domestic scientists on issues related to the organization of pharmaceutical provision various clinical and

pharmacological, classification and legal, nomenclature and legal groups of medicines, medical and pharmaceutical services under the program of medical guarantees in Ukraine [12-26].

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); 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); 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, pharmacoeconomic, 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, pharmacoeconomic, pharmacotherapeutic aspects" (state registration number 0123U100468, implementation period 2023-2028).

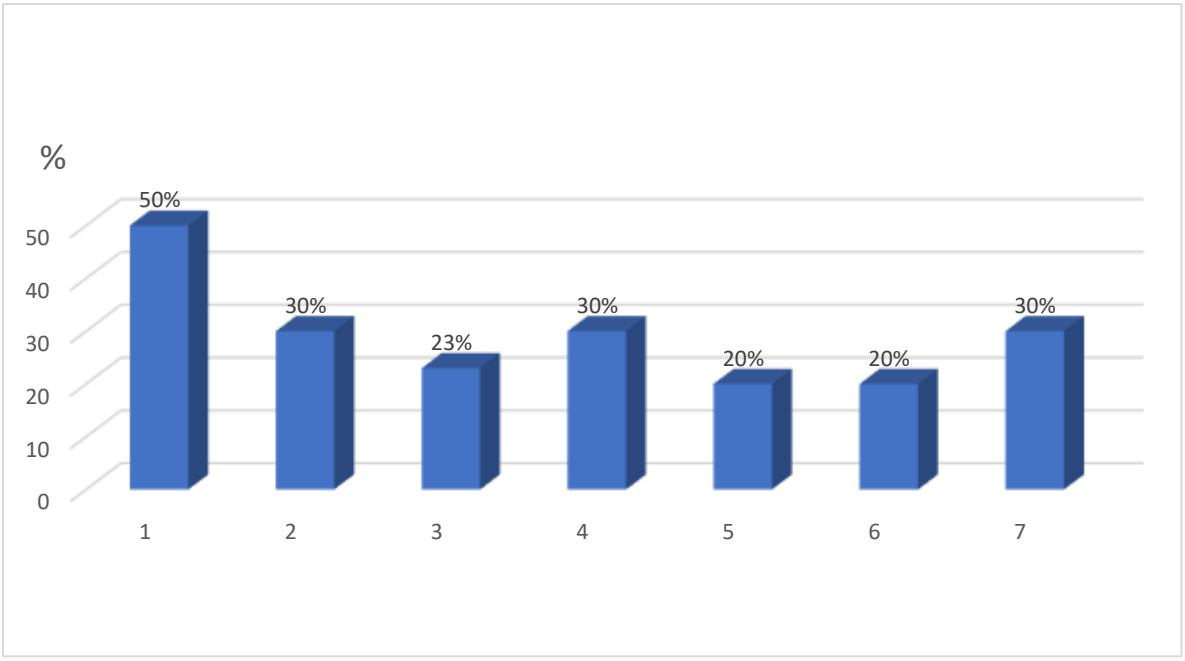
Results and discussion. 200 patient referrals on the organization of the pharmaceutical provision were processed. Found that 77% of patient referrals (women accounted for 90%; men – 10%) were related to late or incomplete organization of the pharmaceutical provision of prescription medicines. Violation of the rights of patients to receive medicines on discounted and free prescriptions of doctors was recorded in 93% of referrals. According to the results of the authors' research, the majority of patient referrals relate to free (80%), paid services (79%), and the conditions for their receipt (67%).

Based on the analysis of statistical data, from the beginning of 2024, the National Health Service of Ukraine received 31 patient referrals. Patients asked for clarifications regarding payment for medical services, pharmaceutical supplies, consumables (40%), written consents in the provision of medical care (35%), ethical norms in the system of legal relations "doctor-patient-pharmacist" (19%) [27].

In comparison with 2023 in Ukraine, among the total number, 24% – about the financing of medical and pharmaceutical services by patients personally. The average processing time of each request did not exceed 5 working days. More than 12% of appeals informed about the protection of patients' rights. For comparison: in 2022, there was a 3% renewal of patients' rights [28].

Each case of informing patients' rights has its own characteristics. It is important that patients do not remain silent when they need medical and pharmaceutical assistance for medical services and pharmaceutical support that have already been paid for by the state [29, 30].

The list of patient appeals under the medical guarantee program is shown in Fig. 1.



1 – Necessity of personal financing by patients;
2 - Creation of electronic medical records, declarations with patients;
3 – Lack of information on the provision of medical services and pharmaceutical support;
4 – Timeliness and quality of medical and pharmaceutical services;
5 – Ethical principles of treating patients;
6 - Provision of medical services and pharmaceutical support in an incomplete amount;
7 - Other appeals in the provision of medical and pharmaceutical services.

Fig. 1. List of patient appeals under the medical guarantee program.

At the next stage, the authors conducted a clinical and pharmacological analysis of over-the-counter and prescription drugs that were received from patients.

The clinical and pharmacological groups of medicines were distributed according to the ATC classification [31]. Of the prescription medicines, this study examined potent, poisonous classification and legal groups. The classification and legal groups into potent and toxic drugs comply with the regulatory framework of Ukraine. These clinical and pharmacological groups appeared in the complaints of patients on the organization of the pharmaceutical provision.

The clinical and pharmacological groups of over-the-counter medicines included three ATC codes. The ATC code A includes three sub-codes: A12AA03; A07FA01; A12CX (Table 1).

Table 1. The clinical and pharmacological groups of over-the-counter medicines on complaints of patients.

No.	ATC code	Clinical and pharmacological group
1	2	3
1	A12AA03	Calcium preparations
2	A07FA01	Antidiarrheal microbial drugs
3	A12CX	Mineral substances. Magnesium preparations
4	N05CM	Sedatives
5	G04CX02	Means for the treatment of benign prostatic hypertrophy
6	G04BX	Means used in urology

According to ATC code A, three INN of the over-the-counter medicines were not available to patients. And more complaints were received. The organization of pharmaceutical provision of these medicines was at a low level (Table 2).

Table 2. The clinical and pharmacological groups of the over-the-counter 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	Calcium gluconate	Calcium gluconate	A12AA03	Calcium preparations
2	Linex	Lactic acid producing organisms	A07FA01	Antidiarrheal microbial drugs
3	Panangin	Magnesium (different salts in combination)	A12CX	Mineral substances. Magnesium preparations

According to ATC code N, one INN medicine was not available to patients (Table 3). And more complaints were received. The organization of pharmaceutical provision of this medicament was at a low level.

Table 3. The clinical and pharmacological groups of over-the-counter 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	Person	Comb drug	N05CM	Sedatives

According to ATC code G, two INN medicines were not available to patients (Table 4). The ATC code G includes two under-codes: G04CX02; G04BX. And more complaints were received. The organization of pharmaceutical provision of these medicines was at a low level.

Table 4. The clinical and pharmacological groups of over-the-counter medicines on complaints of patients for ATC code G.

No.	Trade name	INN	ATC code	Clinical and pharmacological group
1	2	3	4	5
1	Prostamol Uno	Sabalis serrulatae fructus	G04CX02	Means for the treatment of benign prostatic hypertrophy
2	Urolesan	Comb drug	G04BX	Means used in urology

The largest number of over-the-counter medicines refers to code A (50.0%) of the ATC classification (Fig. 2). Patients continued to receive complaints about the insufficiency of drugs affecting the digestive system and metabolism (Table 5).

Table 5. The clinical and pharmacological groups affecting the digestive system and metabolism.

No.	ATC code	Clinical and pharmacological group
1	2	3
1	A10BB12	Hypoglycemic agents, with the exception of insulin. Sulfonamides, urea derivatives
2	A10BB09	Oral hypoglycemic agents. Derivatives of sulfonylureas. Gliclazide
3	A11DB	Vitamin B1 in combination with vitamin B6 and/or vitamin B12
4	A10BA02	Agents affecting the digestive system and metabolism. Antidiabetic drugs. Hypoglycemic drugs with the exception of insulin. Biguanides. Metformin

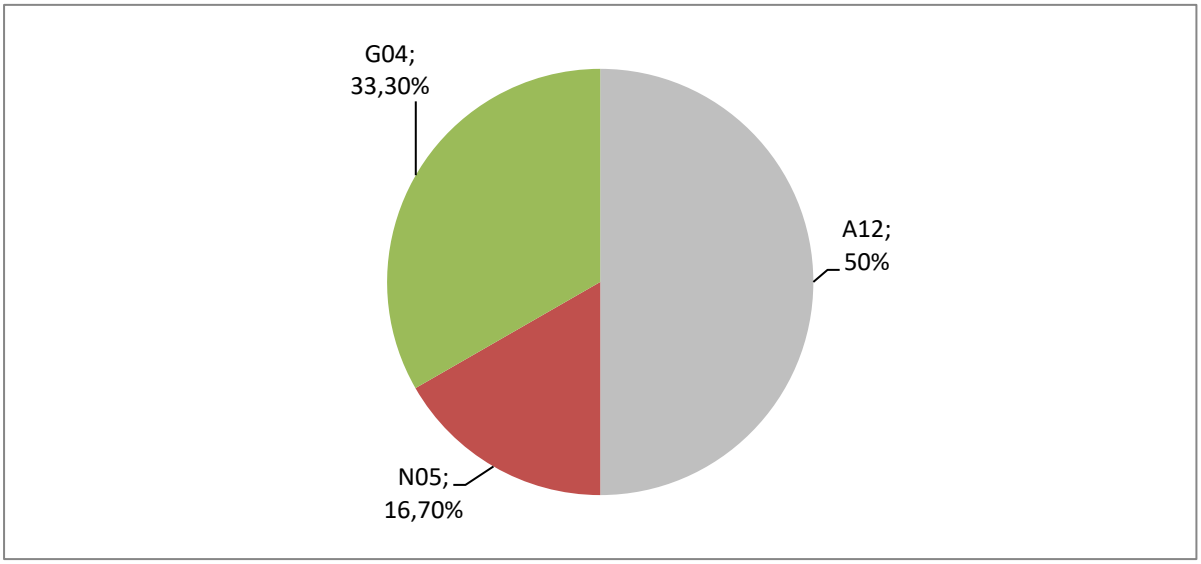


Fig. 2. Distribution of over-the-counter medicines by ATC codes.

The authors conducted a clinical and pharmacological analysis of the medicines affecting the digestive system and metabolism (Table 6).

Table 6. The clinical and pharmacological characteristic of the medicines, affecting the digestive system and metabolism.

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

Applications from patients about the insufficiency of drugs acting on the respiratory system continued to arrive (Table 7).

Table 7. Clinical and pharmacological groups of the medicines acting on the respiratory system.

No.	ATC code	Clinical and pharmacological group
1	2	3
1	R03AL01	Drugs for the treatment of obstructive diseases of the respiratory tract. Adrenergic agents in combination with anticholinergic agents. Fenoterol and ipratropium bromide
2	R03AC04	Means used in obstructive diseases of the respiratory tract. Selective agonists of beta-2-adrenergic receptors

3	R06AA02	Antihistamines for systemic use
4	R03DA04	Means for systemic use in obstructive diseases of the respiratory tract. Xanthines. Theophylline
5	R03AC02	Means for the treatment of obstructive diseases of the respiratory tract. Selective agonists of beta-2-adrenergic receptors

The authors conducted a clinical and pharmacological analysis of the medicines acting on the respiratory system (Table 8).

Table 8. The clinical and pharmacological characteristic of the medicines acting on the respiratory system.

No.	Trade name	INN	ATC code	Clinical and pharmacological group
1	2	3	4	5
1	Berodual-N	Fenoterol and ipratropium bromide	R03AL01	Drugs for the treatment of obstructive diseases of the respiratory tract. Adrenergic agents in combination with anticholinergic agents. Fenoterol and ipratropium bromide
2	Berotek N	Fenoterol	R03AC04	Means used in obstructive diseases of the respiratory tract. Selective agonists of beta-2-adrenergic receptors
3	Diphenhydramine	Diphenhydramine	R06AA02	Antihistamines for systemic use
4	Euphilinus	Theophylline	R03DA04	Means for systemic use in obstructive diseases of the respiratory tract. Xanthines. Theophylline
5	Salbutamol	Salbutamol	R03AC02	Means for the treatment of obstructive diseases of the respiratory tract. Selective agonists of beta-2-adrenergic receptors

The patients' complaints included prescription drugs [32, 33]. According to the regulatory framework of Ukraine, the drugs are assigned to the potent classification and legal group (Tables 9, 10) and to the poisonous classification and legal group (Tables 11, 12). Clinical and pharmacological groups of the potent medicines by ATC code are given in Table. 9.

Table 9. Clinical and pharmacological groups of the potent medicines.

No.	ATC code	Clinical and pharmacological group
1	2	3
1	N02AF01	Analgesics, opioids
2	N05CF01	Sleeping pills
3	C02AC01	Hypotensive agents. Antiadrenergic drugs with a central mechanism of action. Agonists of imidazoline receptors

Clinical and pharmacological analysis of the potent medicines by trade names, INN is given in Table. 10.

Table 10. The clinical and pharmacological characteristic of the potent medicines

No.	Trade name	INN	ATC code	Clinical and pharmacological group
1	2	3	4	5

1	Butorphanol tartrate	Butorphanol	N02AF01	Analgesics, opioids
2	Imovan	Zopiclone	N05CF01	Sleeping pills
3	Clophelin	Clonidine	C02AC01	Hypotensive agents. Antiadrenergic drugs with a central mechanism of action. Agonists of imidazoline receptors

Later, the list of poisonous medicines was compiled (Table 11).

Table 11. Poisonous medicines according to citizens' appeals.

No.	ATC code	Clinical and pharmacological group
1	2	3
1	N04AA01	Antiparkinsonian drugs

Clinical and pharmacological analysis of the poisonous medicines by trade names, INN is given in Table. 12.

Table 12. The clinical and pharmacological characteristic of the poisonous medicines.

No.	Trade name	INN	ATC code	Clinical and pharmacological group
1	2	3	4	5
1	Cyclodol	Trihexyphenidyl	N04AA01	Antiparkinsonian drugs

The classification and legal distribution of over-the-counter and prescription medicines by patient appeals is shown in Fig. 3.

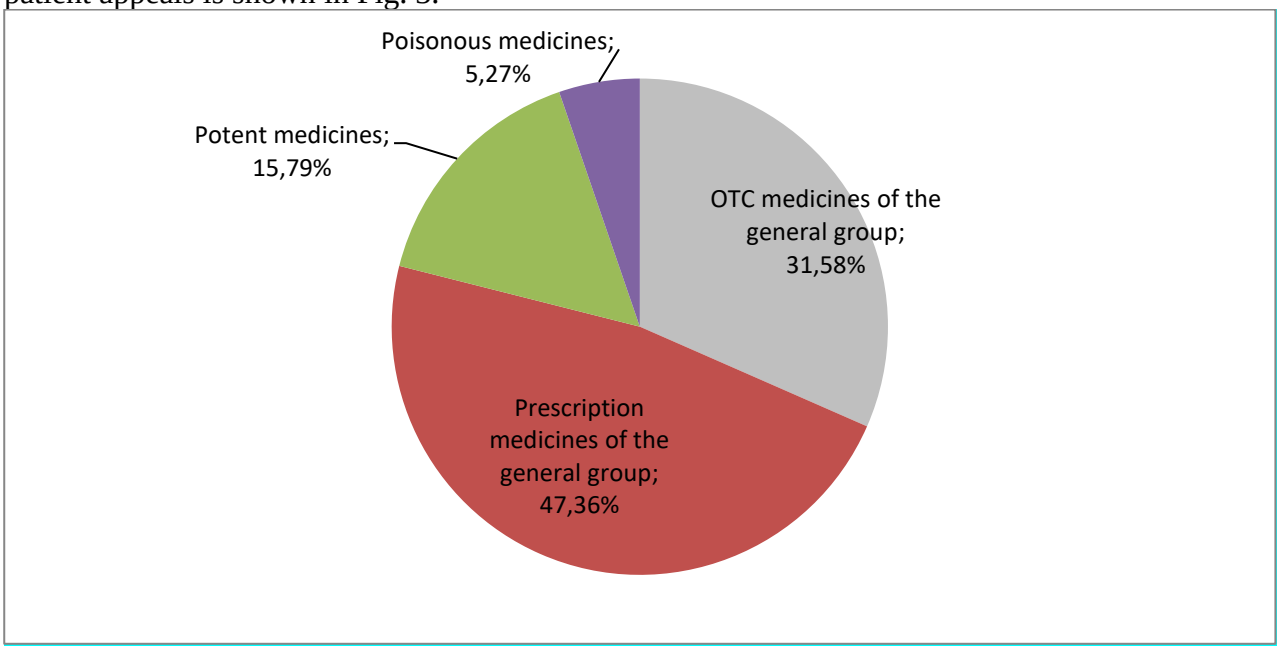


Fig. 3. Classification and legal distribution of over-the-counter and prescription medicines according to patient requests

A refund for a free service is the simplest, but not the only, outcome of informing the patient. Appeals to medical institutions in general help to improve the medical and pharmaceutical system of Ukraine and increase the quality of medical and pharmaceutical services.

Health care institutions build their activities under the program of medical guarantors free of charge. For example, for each discovered fact that the patient has paid for the service, the hospital returns to the National Health Service of Ukraine 0.1% of the contract amount for the relevant

package. And the medical institution understands that it is still more profitable to provide a medical and pharmaceutical service free of charge than to lose funding under the medical guarantee program.

Conclusion. There is a program of medical guarantees in Ukraine. The medical guarantee program includes medical and pharmaceutical services. Among the pharmaceutical services is pharmaceutical supply. For the first time, patients' requests for medical services and pharmaceutical support under the medical guarantee program were investigated. The list of appeals, which includes seven indicators, was analyzed. A clinical-pharmacological analysis of appeals on the availability of drugs for patients based on the ATS system was carried out. The following codes of the ATC system were studied: A12AA03; A07FA01; A12CX; A10BB12; A10BB09; A11DB; A10BA02; N05CM; N02AF01; N05CF01; N04AA01; C02AC01; G04CX02; G04BX; R03AL01; R03AC04; R06AA02; R03DA04; R03AC02. Emphasis is placed on the opinion that patient appeals help improve the medical system of Ukraine and increase the quality of providing medical and pharmaceutical services in the "doctor-patient-pharmacist" legal relationship system. Further research is ongoing.

Declaration of conflict interest. The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article

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Ethical approval. Ethical clearance was obtained from the ethical commission of the Scientific and Research University of Medical and Pharmaceutical Law. Permission statement for conducting the experiments was received from the administration of the Scientific and Research University of Medical and Pharmaceutical Law. Before any data collection, the main purpose of the study was clearly explained to each department (concerned personnel).

Data availability statement. The datasets analyzed during the current study are available from the corresponding author on reasonable request.

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