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Analysis of factors influencing on use of generic drugs

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Content

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Abbreviations

AP MHI	Additional Program of Mandatory Health Insurance Fund on Drug Provision at Out-Patient Care
DDP&ME	Department of Drug Provision and Medical Equipment, MoH KR
HD	Hypertensive Disease
MoH KR	Ministry of Health of the Kyrgyz Republic
EDL	Essential Drug List
ND	Normative Documents
INN	International Nonproprietary Name
PP	Pharmaceutical Products
CG/CP	Clinical Guidelines/Clinical Protocols
MHIF	Mandatory Health Insurance Fund
COPD	Chronic Obstructive Pulmonary Disease
FMC	Family Medicine Center
GU	Gastric Ulcer

1. Introduction

Generic Drug Policy promotes the concept of rational use of medicines, adopted in Kyrgyzstan back in 1996 and aimed at cost containment for drugs and improvement of their delivery, efficiency, relevance and rationalization of medical treatment.

From this period the Republic have implemented activities under major strategic directions in the field of the use of generic drugs (implementation and regular updating of Essential Drug List, development and implementation of clinical guidelines/protocols on the ground of evidence-based medicine, the development of Formulary of Essential Drug List). With the expansion of Additional Program of MHI "Drug provision for insured persons at outpatient level", there have been introduced dispensing and prescription-based delivery of drugs under generic names.

The study[1] conducted in 2007 in the sphere of control of hypertensive disease indicated a strong preference by patients for brand-name drugs that cost much higher price than generic drugs, sold out under the International Nonproprietary Name (INN). Accordingly, patients often have no means to purchase and administer them regularly, which is a major factor, leading to the spread of hypertension. Analysis of the database of AP MHI on drugs issued and sold out in 2003-2006 for the treatment of HD has shown that 95% of the prescriptions were issued under INN, but only 45% of drugs sold according to prescriptions were generics under INN. For example, physicians have issued 85,138 prescriptions for generic Enalapril, but in fact the patients had purchased only 28,176. As a result, it turned out that 30% of MHIF funds allocated to reimburse patients through AP MHI were used to reimburse purchase of generics under INN, and 70% of those funds were disbursed to reimburse more expensive original drugs and drugs under brand names.

Data obtained from conducted studies indicate that currently there are still some problems associated with how physicians prescribe drugs and how these prescriptions are used by the population. This happens probably due to lack of adequate information about drugs and their generic analogues and due to low trust in them both on part of doctors and patients, or due to the practice of pharmacists to offer well-promoted trade names to get more profit. Clearly, this situation implies serious financial difficulties for patients, who are forced to purchase medicines for their own funds.

2. Research goal and objectives

The goal of the research: to examine factors that impact on use of generic drugs among physicians, population and pharmacists.

[1] Policy research document №44 «Effectiveness of health care system in the sphere of control of hypertensive disease in Kyrgyzstan» Melitta Jakab (WHO), Elizabeth Lundin (Swiss Red Cross), Bakhtygul Akkazieva (WHO), November, 2007

Research objectives:

1. To review of the structure of the drug market and the share of generic drugs at the drug market:
   - Volume of drugs imported under INN and generic drugs under brand names
   - Comparative analysis of prices of generic drugs under INN and under brand names in selected regions and for selected groups of diseases.
2. To study role of **primary health care physicians** in use of generic drugs:
   - To study sources of information about drugs that are used by physicians;
   - To study practices used by physicians to prescribe and order drugs in relation to selected diseases (based on survey and analysis of out-patient medical cards)
3. To examine opinion and awareness of **FMC/FGP patients** about the use of generic drugs.
4. To review role of **pharmacists** in dispensing of drugs at pharmacy chain:
   - awareness and practices to replace generic drugs;
5. To study how the existing health care system promotes generic drugs based on analysis of normative documents.

3. Research materials and methods

The research was conducted with the use of cross-over design. To get understanding about factors that impact the use of generic drugs in different regions of the country there were selected Bishkek City, Osh City, Osh oblast, Chui oblast and Issyk-Kul oblast. The analysis was conducted with the use of both quantitative and qualitative data.

Research objects:

1. Selected diseases:[2]

- Pneumonia
- Chronic obstructive pulmonary disease (COPD)
- Hypertensive disease (HD)
- Gastric ulcer and duodenal ulcer
- Epilepsy

2. Drugs[3], available at the market in Kyrgyzstan, divided to 3 groups[4]:

[2] Review of practices used by physicians to order drugs and of awareness level of patients, as well as of drug prices was made in relation to selected diseases, which were the most widespread and caused high morbidity and mortality rates

[3] Excluding biologically active supplement (BAS). According to the Kyrgyz legislation BAS are referred to drugs as well.

1 group: drugs under international nonproprietary names
2 group: generic drugs under brand names
3 group: innovator drugs

In order to understand general factors, related to the situation at the drug market and to the context of the policy existing in the Kyrgyz health care system, effectual normative documents and drug databases were examined:

- Existing normative base of the Kyrgyz Republic was reviewed with respect to the use of generic drugs.
- The volume of the market of generic drugs was analyzed on the basis of two databases – the database of DDP&ME on imported drugs for 2008 and the database of AP MHI.

Since the medical treatment process creates daily chain interaction «physician-pharmacist-patient», the key task of the research is to reveal how this type of traditional interaction is maintained and what is the role of each of them upon prescription, dispensing and use of drugs. For this purpose three target groups were surveyed.

First group - FMC/FGP physicians. This group is selected as these are family physicians who are involved into prescription of pharmaceutical treatment. This group was surveyed with the use of two instruments: 1) survey with the use of semi-structured questionnaires and 2) examination of out-patient medical cards of patients with selected diseases maintained by physicians at selected FMC/FGP. Questionnaires used to survey FGP physicians contained questions designed to get understanding of sources of information about drugs, practices used to order drugs for each of 5 groups of diseases, as well as of awareness level about drugs under INN, generics under brand names and innovator drugs. Questionnaires contained both open questions and multiple choice questions. Selection of medical cards was done by random sampling with the use of quotes for the specific disease: medical cards with prescriptions to treat HD, GU and COPD – by 10 cards per each institution, cards with prescriptions to treat pneumonia and epilepsy – by 5 cards (in total there were examined 565 medical cards). Diseases were selected due to their high prevalence rate and high morbidity and mortality factors in Kyrgyzstan.

Second group – patients maintained at selected FGPs. As patients shall take part in selection of drugs to treat their disease and they should be aware of drugs they take, questions designed to survey patients were focused on study of sources for recommendations about taken drugs and awareness on existence of similar drugs for different prices, as well as on their behavior and preferences upon purchase of drugs.

[4] Initially it has been planned to study factors that impact on use of generic drugs in contrast to their innovator drugs. However, in the process of research development it has been revealed that innovator drugs were imported to the country in a very small quantity. Many drugs of generic line used in the country did not have innovator drugs at the market. At the same time generic drugs are put on sale at the Kyrgyz market both as INN drugs and under brand names. The difference in prices for two groups of generic drugs is considered to be a major factor for patients, medical workers and pharmacists upon decision-making process in relation to choice between specific drugs.

Third group – pharmacists that dispense drugs to patients at pharmacy chain. Survey questionnaire was also designed to examine their sources of information about drugs dispensed in pharmacy chain. Key issues of the questionnaire were focused to study practices of generic substitution in pharmacies. Pharmacies selected for the survey were located on the territories surrounding to FGPs. The survey was conducted in pharmacies in two ways: 1) direct survey of pharmacists, and 2) collecting data on drug prices according to the selected list of medicines.

As a result, in each region there were investigated 5 health care organizations of the primary level (FGP / FMC) and 3 pharmacies, located in the immediate vicinity to FGP/ FMC. There were condudcted 90 interviews with doctors (30 in each region), 300 interviews with patients (100 in each region) and 60 interviews with pharmacists.

For purposes of this study and to compare the prices for three groups of drugs (innovator drugs, generic drugs under brand names and INN drugs) there was compiles a list of INN drugs, used for treatment of selected diseases in accordance with the CG/ CP, including some groups of antimicrobial agents widely used in medical practice (30 names in total). To study the prices the data was collected on prices of innovator drugs and generic drug available under INN and under the trade names. The prices was examined in terms of 1 tablet per unit dose.

4. Terms and definitions used in the present report

Generic drug is a reproduced drug that contains the same active substance in the same dose and drug formulation as innovator drug and which should have the same effect as innovator drug and which is issued after the date of patent protection for active substance is expired.
(Law of the KR «On pharmaceutical products», from April 30, 2003, N 91, Article 4)

Generic name - international non-proprietary name (INN), assigned by WHO's to active substance intended for use as public property without any limitation as no one can own the right to use it.
(The Law of KR "On pharmaceutical products" from April 30, 2003 N 91, Article 4)

Generic substitution is when generic drug, which is identical to the innovator drug by its chemical composition and dosage, is dispensed based on to the prescription issued by the physician for innovator drug.
(The Decree of the Government of the KR from January 12, 2007, N 11 «State Drug Policy of the KR for 2007-2010»)

International Non-proprietary Name (INN) – the name of the drug given by active raw material and recommended by WHO.

5. The market of generic drugs in some countries of European Union (EU)

The market of generic drugs has grown recently in the number of EU countries and keeps growing, thus, promoting price competition.

As the table below indicates the market of generic drugs in Germany, Denmark, Netherlands and UK is sufficiently developed if to make this assessment based on the general volume of prescriptions. In other EU countries, for example in France and Spain, the market of generic drugs is at the relatively early stages of its development. Differences between the volume and the cost of generic drugs reflect the number of factors: the degree of penetration of generic drugs to the market, differences in prices for innovator drugs and their generic equivalents, their price regulation and impact of the price on selection of drugs.

Table 1

The share of generic drugs at the drug market among prescribed drugs in 2002 in the number of EU countries

Country	Share, %	
	the number of packs	in money terms
Austria	7	5
Belgium	6,7	3,5
UK	52	18
Germany	50	23
Denmark	57	15
Ireland	12,1	7,5
Spain	3,85	3,31
Italy	3,5	1,5
Netherlands	42	14
Portugal	2,1	3
France	8,8	4,7
Sweden	8,6	4,5

The market of generic drugs in EU and attitude towards generic substitution is not the same in different countries; this is due to differences related to the organization of health care systems and medical aid delivery systems. In connection with this the potential of generics market varies from state to state. In Denmark, the pharmacist is obliged to offer the cheapest generic products out of those that are available at the market (regardless of the name specified in the prescription), but the decision rests with the patient. The physician is not consulted regarding generic substitution, as it is considered that all registered generics have the same quality, efficacy and safety. In the UK, the pharmacist permits to use generic substitution only if the medicine is prescribed under the INN. Such generic substitution is allowed in hospitals. In Germany, the doctor should indicate in the prescription that he/she agrees to replace the product or should issue prescriptions with generic names straight away. In France doctors are threaten with penalties if they exceed allowable level of costs set for drug prescriptions, and fee earnings are calculated on the basis of cost savings raised from drug prescription. Despite of this, the generics market in France is not sufficiently developed.

Which methods are used to promote use of generic drugs? In many European countries motivations are introduced for physicians and pharmacists.

Table 2

Motivations for physicians, aimed to increase use of non-patented drugs in EU

Method	Country
It is encouraged or requested to indicate international name in the prescription	UK, Germany, Ireland, Spain (some regions), Italy, Luxemburg, Netherlands, Portugal, Finland, France
Budgets for prescriptions	UK, Germany, Ireland, Italy
Payment agreements related to prescriptions	Spain (local schemes), Netherlands (local scheme)
Dissemination of information to promote prescription of unpatented drugs	Belgium, UK, Ireland, Italy and Portugal
Recommendations on prescription procedures	UK,Netherlands, Portugal, France
Oversight over prescription procedures	Austria, Belgium, UK, Denmark, Luxemburg, Netherlands

It can be seen from the table above that several approaches are used in many countries. In the UK, formularies and computer programs facilitate the process of prescription of generic drugs, where the names of drugs are listed under the INN. The practices used to prescribe generic drugs are growing in other countries, thus, in Netherlands generic drugs reach 42% of prescriptions. Other innovations introduced in various countries, including material incentives contribute indirectly to the increase in use of generic names of drugs. However, initiated measures should be introduced in the comprehensive manner and as of today there is little data on the impact produced by these measures, excluding the budgets of medical prescriptions.

Table 3

Incentives for pharmacists aimed to increase use of geenric drugs in EU

Method	Country
Replacement by generic equivalents (the pharmacist is obliged to offer the cheapest available generic to the patient, however, the patient reserves the right to make decision)	Denmark, Spain, Norway, Finland, France
Generic equivalent is dispensed only if INN is indicated in the prescription	UK, Germany, Italy, Luxemburg, netherlands, Portugal, Sweden
The system designed for making profit by pharmacists encourages to dispense generic drugs	UK, Spain, Norway, France, Netherlands, Portugal

Financial incentives are applied in some EU countries to encourage pharmacists to dispense cheaper generic drugs. Various differentiated extra-charges for generic drugs are applied to encourage pharmacists to dispense the cheapest generic drugs (Spain, France, Netherlands, Norway). In the UK, if a prescription indicates for INN, then it is profitable for a pharmacist to dispense the cheapest generic drug, as part of the difference between the prices of drugs is reimbursed by the state. However, in several EU countries earnings of the pharmacists is made of a certain percentage from sold drugs and this is the system when it is not profitable for pharmacists to dispense cheaper generic drugs.

Should a particular country use the approaches adopted in other EU countries, this depends on several factors, such as a system for reimbursement of drugs in the country, financial situation and goals in health, the role and ethics of medical professionals, the role of the pharmacist in the decision to replace the drug. All these issues should be discussed at the level of health policy in the light of the fact that generic drugs are getting more important.

6. Review of normative documents

In order to implement the concept of generics in the country a number of activities was realized:

- Implementation and regular update of Essential Drug List, which was used as a basis to develop the Formulary of Essential Drug List;

- Introduction of dispensing drugs under INN based on prescription in the framework of Additional Program of MHI "Drug Provision for Insured Citizens at Out-Patient Level";

-Introduction of key strategies on generic substitution to the learning process for undergraduate and postgraduate level of education.

- Development and implementation of evidence-based Clinical Guidelines/Protocols, in which the medication is indicated under INN.

A very important step towards the introduction of the concept of generics was the introduction of evidence-based clinical guidelines and protocols (CD / CP) into medical practices. Currently, the process is adjusted, a series of instructions and regulations governing the development and evaluation of CG/CP was approved by Orders of the MoH and relevant expert bodies were established. However, there were not developed appropriate mechanisms and indicators to assess the commitment of health professionals to follow the CG/CP in terms of drug prescription.

The main normative documents regulating the circulation of drugs are the Law of the KR "On pharmaceutical products" and National Drug Policy of the Kyrgyz Republic for 2007-2010 approved by Decree of the Government of the KR. According to the Law of the KR "On pharmaceutical products" the state regulation of drug circulation is maintained by registration of drugs, licensing of pharmaceutical activity and control, over quality, efficiency and safety of drugs.

Based on the aforementioned bills there was adopted a series of instructions and regulations to control the circulation of drugs. In particular, in order to saturate the market with cheaper generics there was adopted a simplified procedure for registration of generic drugs, which are produced by the technology other than the one used for innovator drugs, and contain other excipients. (The Order MoH KR № 431 from July 10, 2003 "Regulations on the simplified procedure of drug registration"). According to this instruction a drug can be considered to be generic and it can be subject to simplified registration system if previously registered innovator drug is present at the Kyrgyz market in the same drug formulation with similar composition and similar proposed clinical conditions.

A simplified procedure for drug registration does not reduce the level of requirements for quality, efficiency and safety of generic drugs, in connection with which the applicant submits the necessary documents that fully characterize the generic drug, its therapeutic action and side effects, including data on bioequivalence of the drug (the same bioavailability of generic and innovator drugs) in accordance with the order established by that provision in order to prevent entry of low-quality generics into the Republic as it can be achieved only through the requirement requesting to determine bioequivalence and / or interchangeability (relative efficiency).

Bioequivalence is similar bioavailability of generic and innovator drugs.
Bioavailability is the relative amount of drug that reaches systemic circulation (absorption degree), and the speed with which this process occurs (the rate of absorption).

(The Law of the KR "On pharmaceutical products" from April 30, 2003, N 91, Article 4)

To date, however, not all manufacturers provide data on the presence of bioequivalence, as well as DDP&MT does not have sufficient number of experts who can qualitatively evaluate information on bioequivalence. It is necessary to ensure further participation of specialists from DDP&MT at international trainings on the evaluation of registration dossiers.

In addition, a requirement that an applicant shall provide for GMP certificate upon registration, as the basic document that certifies the quality, is often not fulfilled. And the mere existence of the certificate does not guarantee the quality as the GMP certificate is a national document, issued by the national regulatory agency of the country of manufacture. An important step towards ensuring the quality of drugs would be a requirement to provide information about the registration of the drug, for example, in countries of the European Union and Ukraine (Ukraine is the only CIS country which is a member of PIC/S (see www.picscheme.org). Ideally, in order to assure quality

inspectors from the regulatory body (DDP&ME) should have opportunity to carry out inspections at production plants.

There is a strong opinion that the quality necessarily entails higher costs. Nevertheless, the WHO study on “The quality of medicines in public sector procurement of the Kyrgyz Republic ", held in 2008 has shown that procurement of higher quality drugs was sometimes even cheaper, but in most cases it was not more expensive than the drugs of inferior quality.

Experts from DDP&ME often mention that control methods provided by producers often cannot be reproduced. Nevertheless, these drugs sometimes get registered. Failure to reproduce control methods based on recognized pharmacopoeia and techniques provided by manufacturers is a sufficient condition for refusal to register.

6.1. Essential Drug List (EDL) of the Kyrgyz Republic from the perspective of evidence-based medicine

The introduction of Essential Drug List (EDL) was one of the first steps that have been taken in the country to promote the policy on use of generic drugs, aimed at cost containment and improvement of their delivery. First EDL was approved in 1996 and according to WHO recommendations it is subject for review every 2 years and to approval by the Government of the Kyrgyz Republic (1996, 1998, 2001, 2004, 2006, 2009.).

The selection of drugs from EDL is essential process, therefore, upon development of the List it is very important to have clear selection criteria and transparent procedures in order to ensure that the real needs are ultimately reflected within the financial capacity available today at health care system. EDL should include only those drugs which has evidence-based data on quality, efficiency and safety. It is also necessary to consider the affordability of drugs, that is, the proposed drug treatment should be relatively inexpensive, and drugs must be registered in the Kyrgyz Republic. The EDL, approved in 2009, included 357 drugs, out of which 25,6% of included drugs were not registered on the territory of the Kyrgyz Republic and 175 drugs were not included to WHO Model of EDL.

EDL approved in 2009 was extended to include another 25 drugs (7%) in comparison with the previous EDL, approved in 2006, that included 332 names of drugs.

The list was expanded due to emergence of new groups – drugs that regulated metabolic processes (deproteinized hemoderivate, mildronate), inhibitors of bone resorption (alendronate) and immunosuppressants (tacrolimus). There were included tools to improve trophism, cerebral metabolism and blood circulation (Vinpocetine, Actovegin, Pyritinol, Choline Alfoscerate). The newly revised EDL this group was redistributed into 3 groups: 1) noothropic drugs (Pyritinol, Choline Alfoscerate), 2) drugs to improve cerebral circulation (Vinpocetine, Citicoline), 3) drugs to regulate metabolic processes (deproteinized hemoderivative and Mildronate). Thus, this list was expanded by the division into different subgroups, although to date there is no evidence-based

date on effectiveness and safety of these drugs. *[Cochrane Database Syst Rev. 2008, 1: CD000480. [Medline].*

Along with these positions that are not sufficiently justified there are some positive changes, for example, there was eliminated the whole group of hepatoprotectors and amino acids, which had no proven efficiency and safety *[Cochrane Database of Systematic Reviews 2008 Issue 4, Cochrane Library number CD003183].*

It should be noted that the current EDL does not include some drugs that are included into clinical guidelines and protocols approved by the Ministry of Health of the Kyrgyz Republic.

When compiling EDL it is necessary to rely on existing clinical guidelines, protocols or standards on delivery of health care, which are based on evidence-based medicine and systematic reviews, randomized clinical trials and large-scale multi-institutional trials, showing that the established methods of treatment with the use of one or another drug are effective, safe and affordable for patients and lead to their recovery and decreased mortality rate and reduce number of complications and hospitalizations and increase life expectancy. This is no doubt that the principles of *evidence-based medicine* should serve as the basis for informed and justified decision-making and development of criteria.

Therefore EDL should include drugs that have the appropriate level of evidence in terms of their use, i.e. **A** and **B** drugs with **C** level of evidence may be included, if necessary. **D** level is not a criteria for inclusion in the list of drugs, because it is based on opinion of expert and authority figures, but there is no corresponding evidence from research findings.

Every drug has certain indications and level of evidence for those or other illnesses. For example Bisoprolol when used to treat hypertension has **A**-level of evidence, when used to treat chronic heart failure (moderate or stable without an attack in the last 6 weeks) it has **C-**level of evidence, when used to treat stable stenocardia it has **D**-level of evidence D.

For the treatment of epilepsy EDL included 9 drugs from the group of anticonvulsants and antiepileptic drugs. To date, there is evidence of the efficiency and safety only for four drugs (Carbamazepine, valproic acid, Clonazepam, Lamotrigine) out of the nine included preparations. As to other five drugs included in EDL, the evidence is limited or is at D-level due to large number of side effects and low efficiency [*Cochrane Database Syst Rev.* 2008; 1: CD000482.[Medline]].

For the treatment of COPD EDL included 13 drugs (3.7% out of the total number of included drugs). Out of them two drugs are coformulated drugs and active agents used in the combination medication are included separately to EDL under the generic names. For coformulated drugs there is no evidence on efficiency and safety of their use and of their advantages over separate formulations, so they are referred to **D**-level of evidence and should not be included in EDL.

In accordance with the clinical protocol on treatment of COPD, the treatment with inhaled glucocosticosteroids is considered to be optimal. The current EDL includes 4 drugs from this group and only Beclametazon has **A**-level of evidence. The remaining 3 drugs have **C**-level of evidence and it should be taken into account that their cost is very

high. Two drugs with similar pharmacological properties - Ipratropium Bromide with A-level of evidence and Tiatropium Bromide with D-level of evidence – which are from the group of drugs, impacting on the peripheral cholinergic processes, are included to the list of drugs to treat COPD as there are no sufficient research conducted on the safety and efficiency of Tiatropium Bromide. Moreover, the cost of this drug is also very high compared with Ipratropium Bromide.

For the treatment of hypertension EDL included 22 antihypertensive agents (6,2%). Previously conducted international pharmacoepidemiological studies on antihypertensive drugs showed a dominant position of ATE inhibitors, among which Enalapril had a leading position followed with a big gap by Captopril and Lisinopril. Such drug as Fosinopril accounted for a very small share of prescriptions. The list under analysis contains all above-mentioned drugs. It should be noted that these drugs, included to the current list do not have clinically proven advantages over Enalapril and in terms of costs they greatly exceed its price. [National Collaborating Centre for Chronic Conditions. *Hypertension: management of hypertension in adults in primary care: partial update*. London: Royal College of Physicians, 2006. http://www.guideline.gov]. Also the list included the coformulated drug named as Amlodipine + Lisinopril and it should be noted that such composition provides no evidence that it is more effective and safer than each of them taken separately. Also 3 angiotensin receptor antagonist - Losartan, Eprosartan, Candesartan with D-level of evidence – were also included into this group unjustifiably. The mode of action and pharmacological effects of these drugs are similar and their cost is very high [http://www.guideline.gov].

Clinical protocols developed for the treatment of hypertensive disorders among pregnant women recommends to use Labetolol, which is safer during pregnancy, however the drug is not on the list [American College of Obstetricians and Gynecologists (ACOG). Chronic hypertension in pregnancy. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2001 Jul. 9 p. (ACOG practice bulletin; no. 29). [52 references]. http://www.guideline.gov/about/inclusion.aspx.

The group of antacids and antiulcer drugs includes 6 drugs for treatment of GU. The clinical guidelines and protocol developed for the treatment of peptic ulcer provides for tetracycline in the scheme of quadrupletherapy, but it was not included to the approved list of drugs. The group of antiulcer drugs was expanded by inclusion of proton pump inhibitors – it included Lansoprazol and Pantoprazole - although the efficiency of both drugs is the same in comparison with Omeprazole. It should be noted that the cost of treatment during the drug administration increases significantly [http://www.cks.library.org, Dyspepsia, 2008. Aronson, 2006; MeRec 2006].

There is also a lack of justification for the group of antibiotics, such as, Ceftazidime and Cefoperazone, which are antibiotics of cephalosporin line. Both of these drugs are referred to parenteral cephalosporins of III generation, i.e. to the same group and have a similar spectrum of action. The necessity to prescribe this group of drugs is certainly high, but it is not enough to prescribe both drugs. However, they were included to the detriment of cephalosporin of IV generation, which have greater activity in relation to gram-negative flora and are powerful drugs in treatment of nosocomial infections. One

can also evaluate the inclusion of group of fluoroquinolones, such as, Ciprofloxacin, Ofloxacin, Norfloxacin, Levofloxacin to the current EDL. All drugs have both enteral and parenteral forms and have a similar spectrum of action, and therefore there was no need to include all 4 drugs, which differ only in terms of their prices.

In general, there are no clear principles for the formation of the drug list, the data of pharmacoepidemiological and pharmacoeconomic studies are not used, one can see the link between pharmaceutical companies and leading experts who lobbied for certain drugs, lacking evidence of efficiency and safety, which indirectly indicates a lack of transparency. There is no clear feedback mechanism to track problems related to introduction of drug list among treatment and prophylaxis institutions and population. All of this is due to the fact that national criteria to select drugs for EDL has not been legally adopted till now in the country.

Thus, it should be noted that upon development of EDL it is necessary to be guided by certain basic principles and provisions recommended by WHO and international experience, related to development of essential drugs lists:

- justified need to use the proposed drugs, taking into account data on morbidity in the country;
- availability of the proposed drugs at approved clinical guidelines and protocols;
- availability of database on evidences, proving efficacy and safety of the proposed drug;
- availability of results of pharmacoeconomic studies, confirming the economic viability of the proposed drug over the old ones;
- choice of drugs upon availability of advantages compared with existing analogue in the List;
- preference for drugs that consist of one drug substance;
- preference for drugs with short and medium duration of action, except of cases where the inclusion of the repository drug is justified;

6.2. The introduction of procedures to order and prescribe drugs under INN in the framework of additional program of MHI "Drug Provision for Insured Persons at Out-Patient Level"

For today a mandatory prescription of drugs by doctors is regulated only in the framework of AP MHI on drug provision for insured persons at primary level. Analysis of issued and dispensed prescriptions under AP MHI showed that the level of prescriptions for drugs issued under generic names has had a stable growth from 71% in 2001 to 92.8% at present.

The mechanism of the Additional Program is to dispense certain drugs to insured citizens from pharmacies, which have signed contracts with TD MHIF, based on MHI prescriptions issued by family physicians. Upon delivery of drugs at pharmacies the patient pays only a portion of the cost for the purchased drug, a part of the cost is reimbursed to the pharmacy from the funds of mandatory health insurance.

Expenses of citizens incurred to purchase drugs are reimbursed based on calculation of base prices. A methodology designed to calculate the base price has been introduced under conditions where there was no national database available on drug prices and it was based on collection of data taken from official price-lists of wholesalers, used over the past three months.

The basic principle of price formation is the following: few drug prices are taken to set average price of 1 DDD (DDD – defined daily dose) of active ingredient - the generic name of the drug. The analysis of drugs that have been dispensed in the framework of Additional Program of MHI over the last 9 years has shown the real difference at the level of retail prices for drugs in different oblasts. Conditions for implementation of the Program, such as national unified amount of reimbursement per unit of drug formulation and various distribution margins set by pharmacies, resulting in various drug prices, have put patients from different oblasts in a position of inequality upon purchase of drugs under Additional Program of MHI.

Based on this, amendments were made to the Methodology: adjustment coefficients that take into account price differences in different regions were calculated and applied to the formula that was used to calculate the reimbursement costs. Besides, deflection coefficients, taking into account overhead charges related to storage and supply of goods were applied to controlled drugs in the Kyrgyz Republic, which allowed to ensure equal conditions for citizens from different regions of the Republic.

A list of drugs which are subject to reimbursement according to AP MHI is compiled with the use of generic names and indication of all brand names of generics as well as of names of innovator drugs, registered and authorized for use in the Kyrgyz Republic and available in the range of pharmaceutical companies and pharmacies. The last approved list includes 76 international names of drugs. Included drugs were designed to treat most common illnesses, and certainly significantly reduce the cost of treatment for patients. The list of reimbursable drugs is regularly reviewed, but there are no mechanisms to make objective assessment of drugs included to the list, since the budget under this program is limited and not sufficient to compensate for all the drugs included in PZHVLS. Therefore, the process of legislative definition of criteria for which drugs will be included in the list taking into account the epidemiological situation, pharmacoeconomic indicators may be considerably improved the process of providing care to patients at the primary level.

The most recently approved list includes 76 international names of drugs. Included drugs were designed to treat the most commonly spread diseases and definitely reduce significantly the treatment cost for patients. The list of reimbursed drugs is subject to regular reviews, however, there are no mechanisms placed to do objective evaluation of drugs included to this list as the budget of this program is limited and it is not sufficient to reimburse all drugs, included to Essential Drug List. Therefore the process that would legislatively define the criteria for inclusion of drugs to this List, taking into account the epidemiological situation and pharmaeconomic indicators may significantly improve delivery of medical aid to patients at the primary level.

This Program dies not impose restrictions on physicians in terms of choice of drugs, they can prescribe innovator drugs or generics under trade names, provided that

they indicate justification at out-patient medical card of a patient. There are no limitations set neither for patients nor for dispensing at pharmacy chain in terms of choice of drugs. Even in case when the physician prescribes the drug under INN the pharmacist can dispense any drug under trade or original name, which are included to the Essential Drug List that are subject to reimbursement under AP MHI. This also does not exclude an opportunity for pharmacists to dispense mainly more expensive drugs under trade names and does not stimulate them to dispense cheaper drugs under INN. On the other side this gives a patient the opportunity to participate in choosing of optimal option – either to choose cheaper drug or upmarket product for higher price and higher reimbursement cost correspondingly.

In 2008[5], physicians issued 399.9 thousands of prescriptions under Ap MHI, including 371.1 thousand of prescriptions under international nonproprietary names (INNs), which amounted to 92,8%. The number of drugs under INN dispensed at pharmacies made up 265.1 thousand of prescriptions or 71,4% of the number of prescriptions issued under INN. During the first 9 months of 2009 there were issued 330.3 thousand of prescriptions, of which 93,6% (309,1 thousand) prescribed drugs under INN. Drugs under INN were dispensed at pharmacy chain for 194.6 thousand of prescriptions which made up 62,9%. In other cases drugs were released under the trade names (Table 4).

The number of issued and dispensed prescriptions under generic names in the framework of AP MHI

AP MHI	2008	9 months of 2009
Total number of issued prescriptions	399 919	330 364
Including prescriptions prescribed under INN	371 145	309 117
in %	92,8%	93,6%
Drugs under INN dispensed at pharmacies	265139	194550
in %	71,4%	62,9%

Analysis of drugs dispensed under prescriptions of AP MHI shows that not all prescription are dispensed under INN. About 30% of prescriptions in 2008 and about 40% of prescriptions over 10 months of 2009 were dispensed under the brand names.
Of the entire list of drugs that are reimbursable under AP MHI, the largest number of issued and dispensed prescriptions refers to Enalapril, the medication used for the treatment of HD. Of the total number of prescriptions dispensed under AP MHI in 2008, 13.1% of prescriptions fall at international generic and brand names of Enalapril, this number made up 13,9% for 10 months of 2009. On average, almost a quarter of the budget, allocated for the reimbursement of drugs under AP MHI is spent to reimburse trade medications of Enalapril.

[5] For this analysis there was used the database of MHIF on AP MHI and only those prescriptions which indicated generic names in addition to trade names. Thus there were excluded 25 groups of drugs which did not include generic names or combined drugs. This made up 149,8 thousand of prescriptions for 2008 (26% from the number of issued prescriptions) and 144,3 thousand (305) of prescriptions over the 9 months of 2009

In 2008, a pharmacy chain dispensed 74,584 prescriptions, of which 56,2% of cases fall at Enalapril under various trade names (Ednit, Enam, Enap, etc.), of which 52% of cases fall at Ednit - the generic under the trade name.

During 10 months of 2009 there were dispensed 70,303 prescriptions, of which 53,8% fall at trade names of Enalapril (Enap, Enam) from the total number of dispensed prescriptions, of which 38.1% cases fall at Ednit. In general, the analysis of data shows that on average drugs under trade names are dispensed for about 30-40% of prescriptions used by patients to get drugs through AP MHI, and correspondingly it entails higher costs, which primarily reflects the patient, because the reimbursement amount is fixed and the higher is a price the greater is share to be paid by the patient. However, it should be noted that this situation occurs only in relation to some drugs, in other cases, patients often purchase drugs under INN. Annex № 2 provides data on other drugs that are sold out most often in comparison with other drugs under trade and original names.

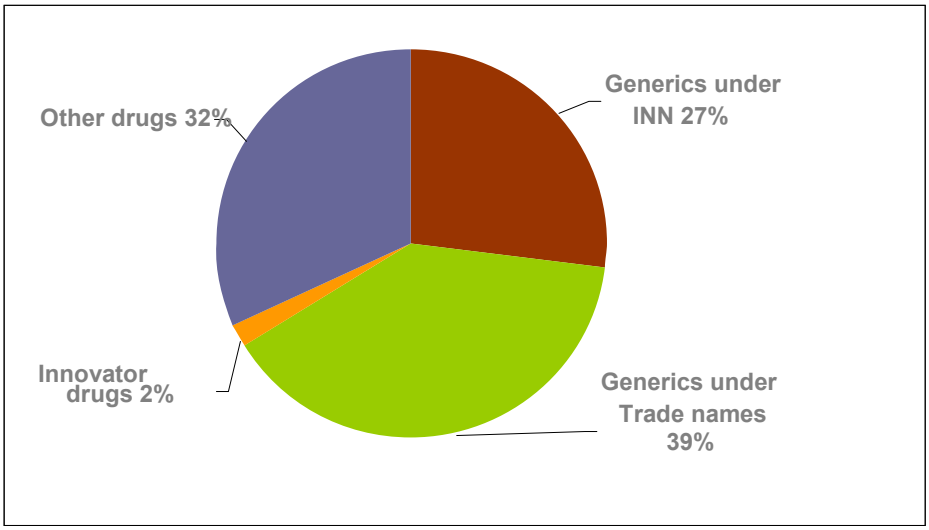
The reasons for this situation is lack of awareness of patients on the economic benefits of drugs under INN, particularly for hypertensive patients who take medication practically for the life term. On the other hand, practice shows that physicians prescribe drugs under INN, but they recommend to patients to purchase drugs under the brand names. This is probably the result of aggressive marketing conducted by pharmaceutical companies, which is currently very prevalent, for example, in our case, the company Gedeon Richter, the producer of Ednit, is one of the most successful in the market of Kyrgyzstan.

6.3. Analysis of the State Register of Medicines, permitted for use in the Kyrgyz Republic

Currently 3516 drugs (AP MHI data, 2009) are registered in the country (that is officially allowed to use). The most recent list of registered drugs has been published in 2007. This Register listed all drugs under the trade name, it did not indicate the international nonproprietary names (INN) and the ATC classification of drugs, which made it difficult to use it for practical purposes. In addition to the registered medicines, the Ministry of Health periodically issues special permits for import of drugs, which are not registered, but are urgently needed. Of the total number of registered drugs 26,5% are not included to EDL. Among the drugs that are permitted to use in the Republic, the vast majority are generic products (under international and trade names) amounting to 66%, 27% of them are medicines that are registered under the International Nonproprietary Name and 39% of generic medicines are registered under the trade names. The share of innovator drug is very small, only 2%. 32% of drugs allowed for use in the Republic are different multi-vitamins, dietary supplements, homeopathic remedies and herbal raw materials (Fig. 2).

Figure 2

The number of registered drugs by groups, (%)



Summary:

In general, the legislation promotes the use of generic drugs:

- corresponding normative documents were adopted to ensure the availability of generics;
- 66% of drugs that are officially authorized for use in Kyrgyzstan are generics and innovator drugs make a small share - 2%;
- indirect mechanisms to promote generic drugs were introduced (EDL, AP MHI, CP/CG, educational programs);
- Ap MHI was designed to reduce costs of patients incurred for purchase of medicines through the use of generic drugs, while not limiting the choice of brand names of medicines;
- The prescription used under AP establishes procedures for the physician on how to prescribe generic names of medicines and the pharmacist is given an opportunity to make a generic replacement.

Problems:

- the national criteria used for the selection of drugs to be included to EDL and List of AP MHI is not legally adopted;
- there are no mechanisms to track introduction of EDL;
- there are problems in relation to ensuring enforcement of CG/CP;
- the requirements for registration of generic medicines is not fully implemented, which does not guarantee their high quality.

7. Research results

7.1. The study on the structure of the market of generic drugs

To study the structure of drug market and the number of generic drugs that are currently used in the country the data was taken from an automated database on imported medicines developed at the Department of Drug Provision and Medical Equipment under MoH KR, the major drug registration body. This database contains information on all drugs that are officially imported into the country and applied for the certification.

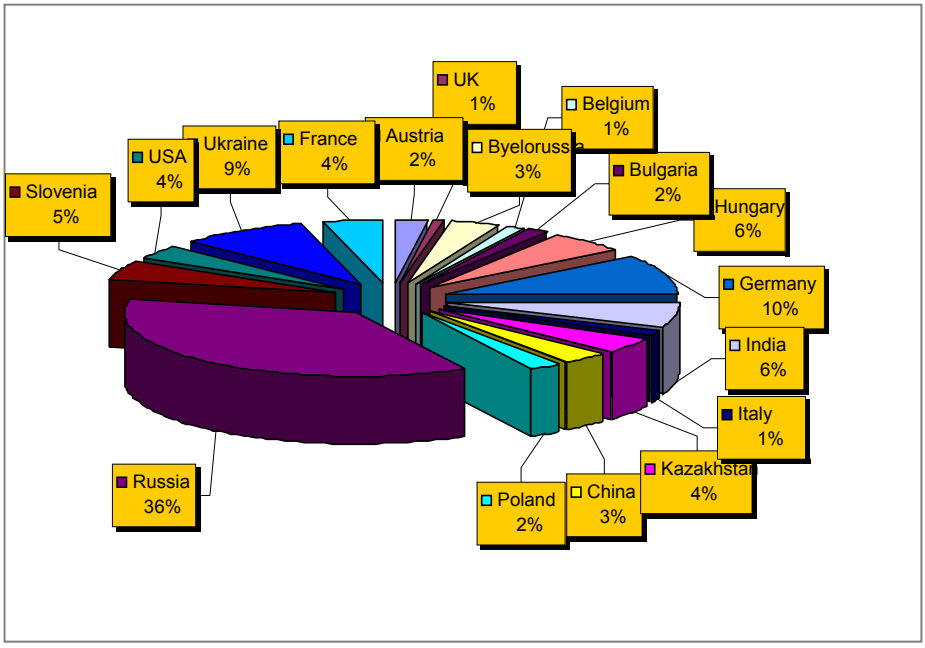
Certification is a procedure to confirm compliance of medicines, through which accredited organization, independent from the manufacturer (seller) and consumer (buyer), certifies in writing form that the product complies with the requirements established by regulatory documents.

Used automated database allows for the collection, systematization and processing of data on drugs imported to the country and for rapid development of all types of reports. The database provided information on the name of drugs, dosages, packaging, manufacturing plant and the country. For this analysis we used data on the import of rugs for the year 2008, medical products were excluded from this analysis.

Analysis of imported drugs and those that were applied for certification in 2008 indicated that medicines were imported from Russia, CIS countries and far-abroad countries. (Fig. 3)

The structure of imported drugs by countries

Figure 3



To determine the amount of imported generic drugs, all the medicines under one name have been sorted out from this database according to their packaging, dosage and manufacturing plant. Then the compiled list of drugs was divided into four groups of drugs:

Group 1: generic drugs that are produced by manufacturers under the INN, for example, Omeprazole, Enalapril

Group 2: generic drugs that are produced by manufacturers under trade names, such as Omez, Ednit

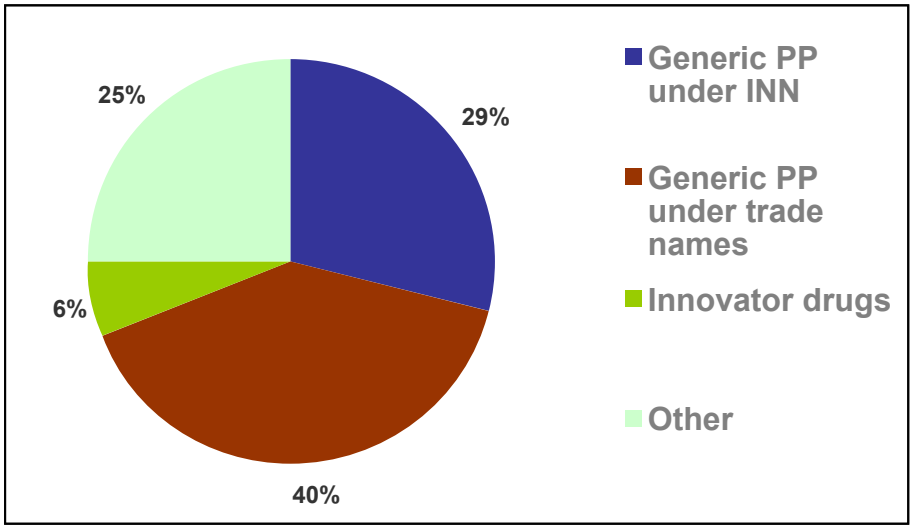
Group 3: innovator drugs, such Losec, Renitec

Group 4: this group included preparations, which are also referred to pharmaceutical products by the Kyrgyz legislation, but it is not possible to determine whether they belong to generics or innovator drugs: these are herbal remedies, and various bio-active supplements (dietary supplements), homeopathic and galenic preparations, etc .

In 2008, there were imported to the territory of the Kyrgyz Republic 3412 items of medicines, including 984 generic drugs under the International Nonproprietary Name (INN), 1382 names of generic drugs under the brand names, 203 names of innovator drugs, and 843 names from the 4th group, which included dietary supplements, homeopathic, galenic and other medications. By the percentage ration generic medicines under the trade names are imported most often and make up 40% from the total volume of imported drugs, 29% of imported drugs are the medicines under INN. The innovator drugs compose of 6% from the total number of all names of drugs imported into the Republic, it should be noted that this is 3 times higher than officially reported. A quarter of imported drugs (25%) were products from the 4th group, represented mainly by dietary supplements and complexes of various vitamins, which, conversely, are imported to the less extent than reported. It should be noted that this group of drugs are popular among the population, although not all of them have evidences, proving their effectiveness. (Fig. 4).

Figure 4

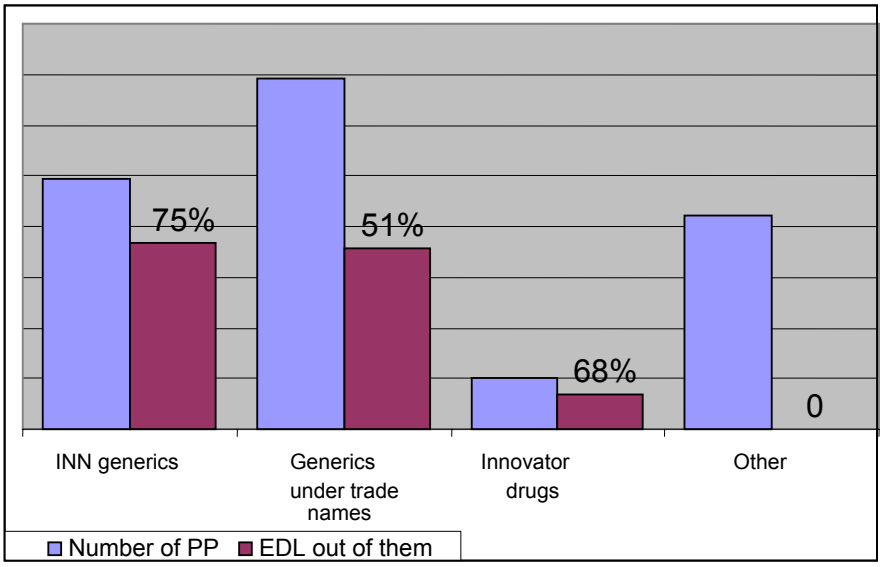
Volumes of imported PP by groups for 2008, %



Constant availability of essential drugs is of high importance to the health care system. Analysis of the quantity of EDL drugs imported to the country, made in a breakdown by examined groups, showed that the largest number of imported EDL drugs was composed of drugs under INN - 75%, 51% of imported generic drugs under the trade names were included to EDL and 68% of the imported innovator drugs were included to EDL and among drugs, which were not identified as either a generic or innovator drug, not one of them, respectively, was included to EDL (Fig. 5)

Figure 5

The number of essential drugs by groups



7.2. Analysis of drugs imported to treat selected diseases

According to the data taken from the database on imported drugs there were imported 87 names of drugs to treat the five selected diseases. During the analysis there were considered only those drugs that were recommended for medical treatment according to the approved clinical protocols.

The greatest number of innovator drugs are imported to the territory of the Republic to treat HD - 5 items, to treat pneumonia - 2 items, to treat GU and COPD by one item. The largest number of drugs to treat all 5 diseases are generic drugs under the trade names - 48 items (Table 5).

Table 5

The number of drugs imported to treat selected diseases

Morbidity	Generics under INN	Generics under trade names	Innovator drugs	Total
HD	9	18	5	**32**
GU	4	9	1	**14**
COPD	5	9	2	**16**
Pneumonia	7	9	1	**17**
Epilepsy	4	4	-	**8**
Total	**29**	**48**	**10**	**87**

7.3. Analysis of PP available at pharmacy chain for treatment of selected diseases

In the surveyed pharmacies at the time of the study there were found 75 drugs that are used for the treatment of 5 selected diseases and are included to the medication treatment according to clinical protocols approved by the MOH. This situation was very surprising because we expected to find a lot more drugs in the pharmacy network than it was indicated by the database on imported drugs, according to which during the year there have been imported 87 kinds of medicines for the treatment of 5 selected diseases. This situation probably arose because of a relatively small sample of pharmacies, either because of the fact that the analysis of a database covered all the drugs that have been imported into the country over the year and at the time of the study the pharmaceutical products could be already sold out and were not imported over the last period. Out of the number of drugs that were available at the time of the study 8 names were for innovator drugs, the greatest number of drugs available in the pharmacy chain were for generic products with brand names and 26 names were for generic drugs under INN. (See Table 6).

Table 6

The number of PP to treat selected diseases found at surveyed pharmacies

Morbidity	Generics under INN	Generics under trade names	Innovator drugs	Total
HD	7	16	4	27
GU	4	5	1	10
COPD	4	5	2	11
Pneumonia	6	11	-	17
Epilepsy	5	4	1	10
Total	**26**	**41**	**8**	**75**

7. 4 Analysis of PP prices at pharmacy chain based on selected list of drugs

The study of prices in the retail pharmacy chain found that prices differed by certain parameters. At the time of the study innovator drugs were available for 12 drugs out of 30 drugs that were covered by examination. In the surveyed regions the network of pharmacies offered mainly generic drugs under INN and trade names.

Analysis of prices for drugs that are used to treat selected diseases showed the differences in prices between the examined categories of drugs:

- Prices of selected innovator drugs on average were higher than for generics in the range from 2,7 up to 10 times (the exception was Ciprofloxacin (the least expensive generic), which was cheaper than the innovator drugs (Ciprobay) by 85 times!)
- Prices of generics under the trade names differed depending on the manufacturer - an average in the range from 2 up to 5 times;
- Prices of selected generic drugs under INN were lower than prices for generics under the trade names in the range from 1,5 up to 6 times;

On average, the price of innovator drugs used for the treatment of HD is more expensive than for generic drugs under INN in the range from 2,7 times (Verapamil /

Izoptin) up to 7.8 times (Amlodipine / Norvasc). Differences in the prices of generic products under brand names are observed depending on the manufacturer, mainly drugs manufactured in the CIS are cheaper by 2 -3.5 times than drugs manufactured in Europe, for example, Indapamide, produced in the Czech Republic is 2 times more expensive than the one produced at Russian plant-manufacturer. Atenolol produced at "Balkanfarma" is more expensive than the one manufactured in Ukraine by 3.5 times, the generic drug under the trade name of Ednit (Gedeon Richter) is more expensive by 4,6 times than Russian generic under INN of Enalapril and by 6,3 times more expensive than Enap (Krka).

Among the drugs that are designed to treat COPD, Lazolvan, the innovator drug, is by 6.6 times more expensive than the generic under the INN (Ambroxol) and by 2.6 times is more expensive than the generic drug under the trade name (Ambro, Ambrobene). Inhalant medications of Beklametazon are represented only by generics under the trade names and vary in price by 1.5 times (Nasobek, Beklametazon Eco).

Antisecretory medications of Omeprazole, used for the treatment of GU, are also mainly represented by generics under the trade names and vary in price depending on the manufacturer; these medications produced in the CIS-countries are cheaper than those produced overseas by 5.2 - 6.5 times. Another group of antisecretory drugs (blockers of histamine receptors) is represented by Famotidine and Ranitidine. Kvamatel, the innovator drug is imported to the market of the Republic, which is more expensive than Famotidine, the generic under INN, by 4,3 times. Ranitidine has few generics under the trade names, which vary in price depending as well on the manufacturing plant, for example, production at CIS-countries is cheaper than at Czech Republic (Ranisan) by 2 times.

For the treatment of epilepsy there are imported mainly generic drugs under INN. Prices for generic medications of Carbamazepine vary in price by 3,8 times. Innovator drug, Rivotril, is 7 times more expensive than Clonazepam (the drug under the INN). The prices for generic medications of Amoxiclav under brand names, which are used for treatment of pneumonia are virtually identical to the price of Augmentin. (Table 7).

Average prices of drugs by regions are given in Appendix № 3

Table 7

Average prices set by pharmacies for drugs under examination

	INN	**Average price of generics under INN (per 1 tablet)**	**Average price of generics under trade name (per 1 tablet)**	**The price of innovator drug (per 1 tablet)**
1	Hydrochlorthiazide	1,96	5,87	-
2	Atenolol	0,7	2,45	-
3	Nifedipine	0,89	2	3,6
4	Verapamil	0,87	1,2	2,4
5	Amlodipine	2,9	15,22	22,57
6	Enalapril	0,85	4,6	-
7	Captoprile	1	-	6,3
8	Famotodine	1,74	3,9	7,5
9	Ranitidine	1,7	3,56	-
10	Omeprasole	1,73	10,38	-
11	Indapamide	2,03	4	-

12	Ipratropium	-	-	1,3
13	Salbutamolum	1,7	0,8	-
14	Beclametazone	-	2,45	-
15	Ambroxol	2,59	4,47	6,8
16	Carbamazepine	1,47	5,6	-
17	Fenobarbital	1,54	-	-
18	Valproat sodium	-	11,2	-
19	Clonezepam	1,5	-	10,56
20	Amoxicillin	2,45	15,8	-
21	Amoxiclav	15	28,3	30
22	Metranidazol	0,56	4,48	-
23	Roxitromycine	25,77	28,2	-
24	Azitromycine	37,8	48,75	102,3
25	Claritromycine	-	75,7	-
26	Doxicycline	1,48	2,2	-
27	Cefuroxim	17,2	38,8	-
28	Cyprofloxacin	2	7,55	170
29	Ceftriaxone	46	245	-
30	Sulfamethoxazole trimethoprim	1,78	4,7	17

Summary:

- The number of original drugs in the Kyrgyz Republic is small. In 2008, their share made up only 6% from the total number of imported drugs, but it is 3 times higher than officially reported figures. This situation happens probably due to the fact that in addition to those drugs that are officially registered and included to the State Register of the KR, there is an additional list of drugs that are approved to be imported. Also, we do not exclude the possibility that some drugs are imported illegally.
- A significant proportion is made up by generic drugs - 69%, the market of generic drugs under the brand name is very well developed and makes up 40%, the remaining 29% fall at drugs under the INN;
- Innovator products are available mainly only at the central level, i.e. in Bishkek City; the availability of generic drugs in the pharmacy network of the studied regions is at an acceptable level;
- Throughout all studied cases innovator drugs were always more expensive than generics and generics under the trade names were always more expensive than generic drugs under INN.

7.5 Results of physicians' survey

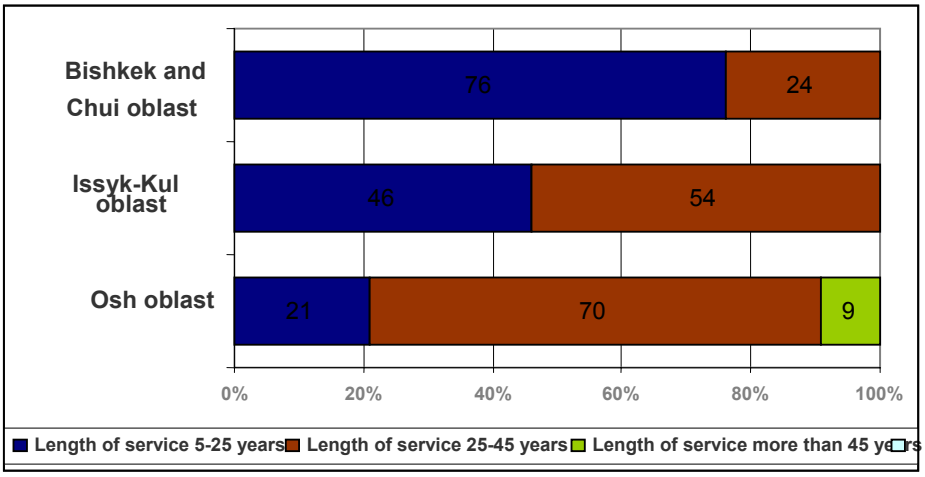
7.5.1 The portrait of respondents

In total, 90 family physicians have participated, including 30 physicians from the Issyk-Kul oblast, 30 physicians from the Osh oblast and 30 physicians from Bishkek City and Chui oblast. The survey involved FGP physicians, specialized in family medicine. In Osh oblast 70% of doctors had length of service from 25 to 49 years and 30% of doctors had length of service from 13 to 25 years. In Issyk-Kul oblast 50% of doctors had work experience in the range from 25 to 45 years and 50% of doctors in the range from 7 to 25 years. In Bishkek and Chui oblast 76% of doctors

had length of service from 5 to 25 years, other doctors had experience from 25 to 37 years (Figure 6).

Figure 6

Length of service of respondents, (%)



7.5.2 Sources used by physicians to get information about drugs

Each year the range of drugs available in Kyrgyzstan increases substantially. In connection with it becomes very relevant to raise questions about new drugs, their efficacy and safety, which is important for implementation of practices by doctors while prescribing drugs for treatment of various illnesses.

Currently there are just few reliable sources of information about drugs that are recognized throughout the world. In German language they use directory named as Arzneimittelgrossbuch, in English language they use Martindale, the British Formulary (BP) and USP (U.S. Pharmacopeial Convention). These documents are compiled by scientists who do not collaborate with pharmaceutical companies. Such publications are funded only by the state or non-profit organizations. The reference of Doctor Mashkovskiy was used as the source of information about drugs in the former USSR, which is still being used by pharmacists and doctors of the country, but given the current range of drugs and new evidences in regards to many medicines, it is clear that this information is insufficient.

In Kyrgyzstan, one of the important steps was to publish national formulary of essential drugs of the KR (NFED), which was developed based on EDL. First NFED was published in 1997 and republished in 1999 in connection with changes in the revised EDL. The third edition was released in 2003. At present the fourth edition of the Formulary is under preparation. The Formulary includes a description of synonyms, chemical structure, mode of action, indications, contraindications, dosage and side effects of drugs included to the essential drug list, as well as recent achievements of scientific researches and clinical trial data for well-known drugs. The description of drugs in Formulary contains the Anatomical Therapeutic Chemical (ATC) classification of medicines, adopted in many countries around the world in which medicines are divided into different groups according to their mode of action and therapeutic and chemical characteristics. The Formulary is designed for the use by all practitioners. The

first edition of the Formulary has been introduced throughout the Republic and followed by other publications that were also distributed among practitioners

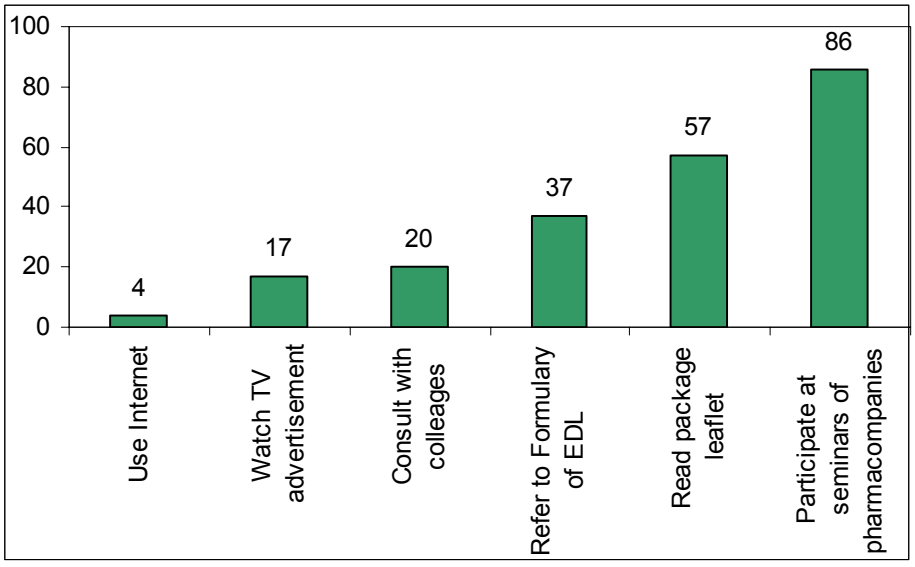
In addition, efforts were made to educate physicians about the drugs on the base of Drug Informational Centre, established under DDP&ME. The Center uses available databases on drugs to provide information to clinicians at their request, and also the Center collects data on side effects that are revealed by physicians. According to data of DDP&ME in 2009 there were received 72 requests for information about drugs from medical professionals. In addition, the Centre publishes "Herbal newsletter" containing information about drugs, which is also distributed among physicians. However, the question whether NFED and other objective editions are available to medical practitioners and whether they use them in their work remains to be open.

What is clear is that currently the pharmaceutical companies conduct very aggressive marketing campaigns to advertise manufactured products among doctors, which is very disturbing as the information provided by them about medication is often biased. In all hospitals that we have visited, manufacturing companies hold regular presentations of their products, and presence at so-called conferences is obligatory for doctors, as it is included in working plan schedules of FMC. Usually once a week, pharmaceutical companies hold conferences at FMCs according to the schedule, apart from this their medical representatives visit doctors individually at the reception time.

The analysis of existing sources of information about medicines, obtained by physicians, reveals that the majority of physicians - 86% - get their information about the medicines they prescribe at seminars and presentations, which are conducted by pharmaceutical companies, 57% of physicians use the instructions on the medical use of drugs and 37% of physicians indicate that they use Formulary of Essential Drugs as the source of information, 20% of physicians indicate that they turn for advice to colleagues in order to obtain any information about the medication, 17% of physicians watch TV advertisements and 4% of physicians indicated that they use the Internet to obtain information about medicines (Fig. 7).

Figure 7

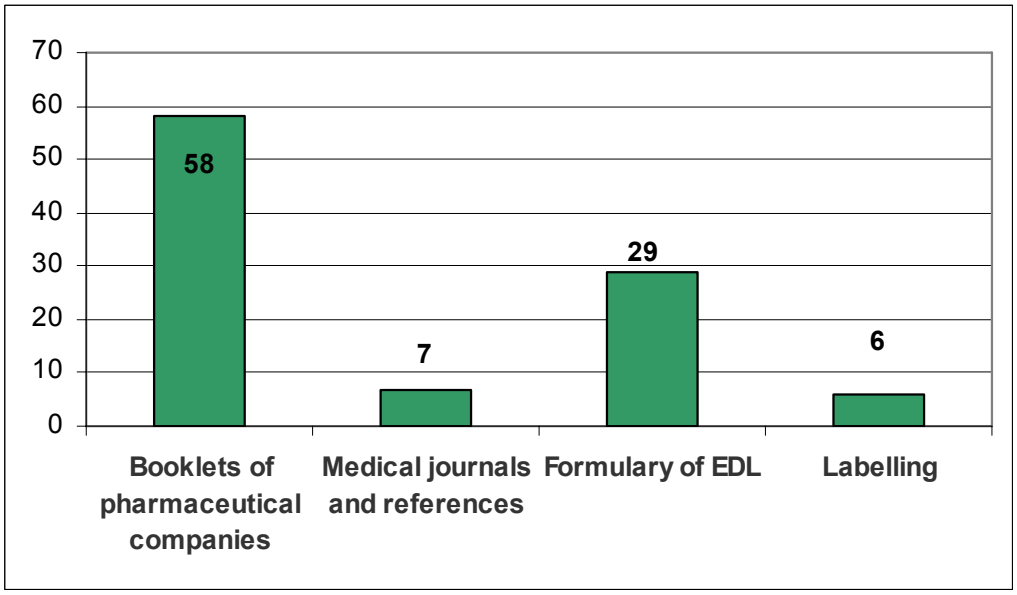
Sources used by physicians to get information about drugsax (%)



Out of all the sources of information that are used by physicians, the most often used ones are materials and booklets provided by pharmaceutical companies - 58%. 29% of the doctors surveyed said that they used the Formulary of Essential Drugs most frequently. However, the research team is very critical about this figure, as during the study almost no FGP physician had the Formulary at his/her office. Most doctors attributed this to the fact that the Formulary was usually kept in the office of the director and they used them as needed. In addition, as respondents indicated there were no sessions or staff meetings organized to discuss specific aspects of drugs with reference to Formulary as basic document. The rest of respondents listed various medical reference books, medical journals and instructions for medical use of drugs (Fig. 8).

Figure 8

The sources of information about drugs that are most frequently used by physicians



In addition, on average 69% of physicians in the country believe that the workshops and leaflets for pharmaceutical companies is the most reliable source of information (82% of physicians in Bishkek and Chui oblast and 74%in the Osh oblast and 51% in Issyk-Kul oblast). 16% physicians noted that information provided by pharmaceutical companies was the most understandable and easy to remember and 15% of physicians said that they also would like to have access to other objective and independent sources of information about medicines.

7.5.3. Review of practices used by physicians to prescribe drugs for treatment of selected diseases

Starting since the mid 90-s the Ministry of Health has consistently pursued a policy, aimed to introduce the concept of generics, which was focused to orient physicians to prescribe drugs under INN. In the framework of AP MHI doctors are recommended to prescribe drugs under INN. In addition, the developed clinical guidelines and protocols provide for names of drugs only under the INN. However, practice shows that physicians not always prescribe medication under the INN and frequently prescribe drugs under trade names while treating certain diseases. On

average, 65% of physicians (Osh oblast - 60%, Issyk-Kul oblast - 64%, Bishkek and Chui oblast - over 70% of physicians) noted that they had to prescribe more expensive drugs under trade names on the insistence of patients. In turn, the patients (70%) explained such situation by the fact that while in-patient treatment they used to take such drugs and felt much better and they did not want to change the medication to another. The other part of the patients (30%) justified the reluctance to receive generic drugs under INN by the fact that they did not trust their quality and believed that the more expensive were drugs, the better effect they would produce.

The smallest number of cases in which doctors prescribe generics under INN fall at hypertension (23,3%) and gastric ulcer (32,3%); the largest number of cases fall at epilepsy (83%) and pneumonia (72.2%) . The same trend is observed in the context of regions. It should be noted that in Bishkek and Chui oblast doctors prescribe generics under the INN to the least extent for all diseases under examination (Table 8).

Table 8

Practices used by physicians to prescribe generic drugs under INN based on survey results,%

Disease	Osh oblast	Issyk-Kul oblast	Bishkek and Chui oblast	Average for the Republic
HD	43%	17%	10%	23,3%
Epilepsy	93%	93%	63%	83%
COPD	77%	74%	37%	62,7%
Pneumonia	98%	87%	33%	72,7%
GU	47%	37%	13%	32,3%

7.5.4 Review of practices used by physicians to prescribe drugs for treatment of selected diseases based on analysis of out-patient medical records

In the course of the study out-patient visits to doctors were considered retrospectively, based on data recorded in medical records (outpatient cards of patients). The examined visits to FGP doctors covered 5 diseases (HD, GU, epilepsy, pneumonia, COPD) and various age categories; there were reviewed those visits to the doctors where patients referred only with one disease and it has covered the period from January 2008 to August 2009.

In total there were studied 565 outpatient medical cards: the selection of cards was based on a random sample, at each institution there has been studied by 10 out-patient medical cards with hypertension, COPD and GU and 5 out-patient cards with pneumonia and epilepsy. Analysis of outpatient cards was conducted as follows: if in every case under review the doctor prescribed one or more drugs under the brand names or innovator drugs, this case was considered to be the treated case with prescription issued for drugs under trade names or innovator drugs.

Analysis of the outpatient medical cards showed that the least number of drugs under INN was prescribed by physicians for treatment of HD (23,6%) and GU (34%)

and COPD (36%). Most often, doctors prescribe drugs under INN for the treatment of epilepsy (74,6%) and pneumonia (71.3%) (Table 9). It should be noted that 34,5% of outpatient cards, where it was prescribed to use medication under the brand name or innovator drugs, followed the medication prescribed to patients during in-patient treatment and indicated in the discharge record of the patient attached to a medical card.

Table 9

Practices used by physicians to prescribe generic drugs under INN based on out-patient medical cards

Disease	Osh oblast	Issyk-Kul oblast	Bishkek and Chui oblast	Average for the Republic
HD	30%	34%	7%	23,6%
Epilepsy	80%	82%	62%	74,6%
COPD	28%	52%	28%	36,0%
Pneumonia	72%	80%	62%	71,3%
GU	42%	45%	15%	34,0%

7.5.5 Assessment of opinion of physicians on generic and innovator drugs

For today it is obvious that doctors have very little information about medicines. Lack of information developed the stereotype among doctors that the innovator drugs and generic products under the brand names, which are more expensive, are more effective and safer than generics under INN.

During interviews, many doctors, based on their experience, were convinced that the cheaper drugs under INN did not have the desired effect in the treatment of certain diseases, so they were forced to prescribe innovator drugs and generic products under the brand names.

Most doctors believe that in many respects innovator drugs and generic products under the brand names are better than generic drugs under INN. For example, 57% of doctors reported in regards to the effectiveness of treatment that innovator drugs and generic products under the trade names had higher effectiveness than the treatment with generic drugs with the INN, and 23% doctors said they did not observe any differences in terms of effectiveness of treatment. The same situation exists regarding the duration of treatment, nearly half of physicians (48%) considered that the administration of innovator drugs and generic products under the brand names provides for much shorter duration of treatment than the treatment with cheaper generic drugs under INN and only 12% reported that duration of treatment did not depend on what kind of drugs were used.

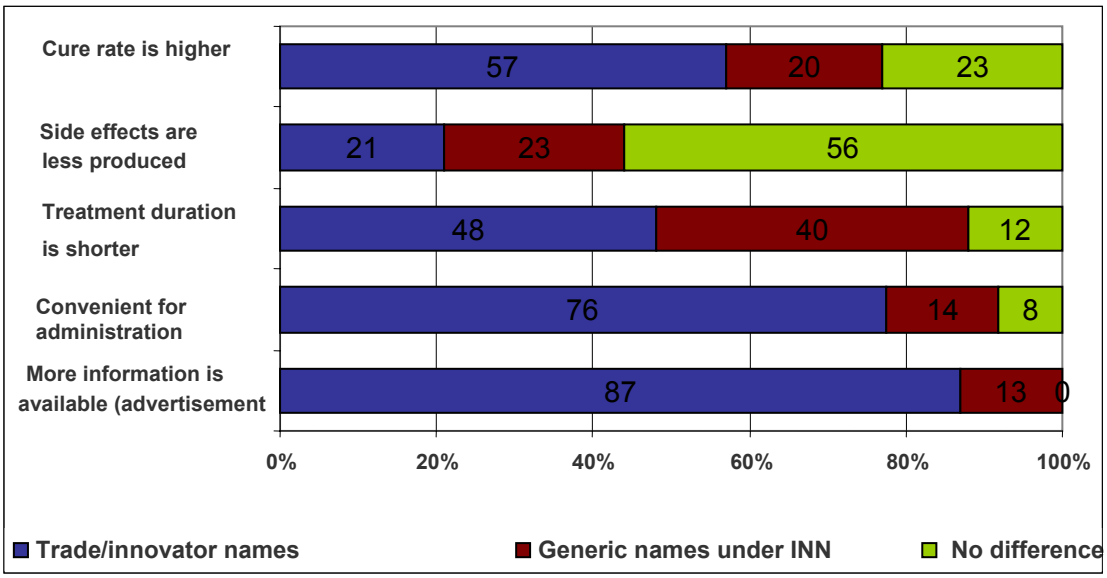
Most of the doctors indicated that, indeed, many names of innovator drugs and generic products under the brand names had more convenient form for administration by the patient (sweet syrups for children, the availability of different metering devices, etc.), which made them more attractive to doctors and patients.

In regard to manifestations of side effects, more than half of physicians (56%) indicated that the demonstration of side effects did not depend on what drugs the patient took: innovator/trade names or generic under INN, in other words, side effects appeared to the equal extent, regardless of administration of this or another drug. 21%

of physicians believed that the side effects was less evidenced among generics under the trade names and innovator drugs (Figure 10).

Figure 10

Comparative characteristics of drug categories by some parameters, %



Summary:

- Awareness level of physicians about generic drugs under INN, generics under trade names and innovator drugs is very low, the physicians get their information about drugs mainly from manufacturers of pharmaceutical products;
- Lack of objective information from regulating agencies and aggressive marketing by pharmaceutical companies developed a stereotype that the innovator drugs and generics under the trade names are more effective and safer than generics under the INN;
- When prescribing drugs, physicians increasingly rely on practical experience, and in many cases related to the treatment of certain diseases (HD, GU) they prefer to prescribe more expensive generics under the trade names and innovator drugs, which is also confirmed by the analysis of outpatient medical records of patients in relation to selected diseases;
- There is the practice of prescribing generic drugs under the brand names and innovator drugs under pressure from patients;
- Doctors are poorly informed about the range of medicines available at pharmacies and their prices and they have very rare contacts with pharmacists.

7.6. Results of patients' survey

7.6.1 Demographic portrait of respondents

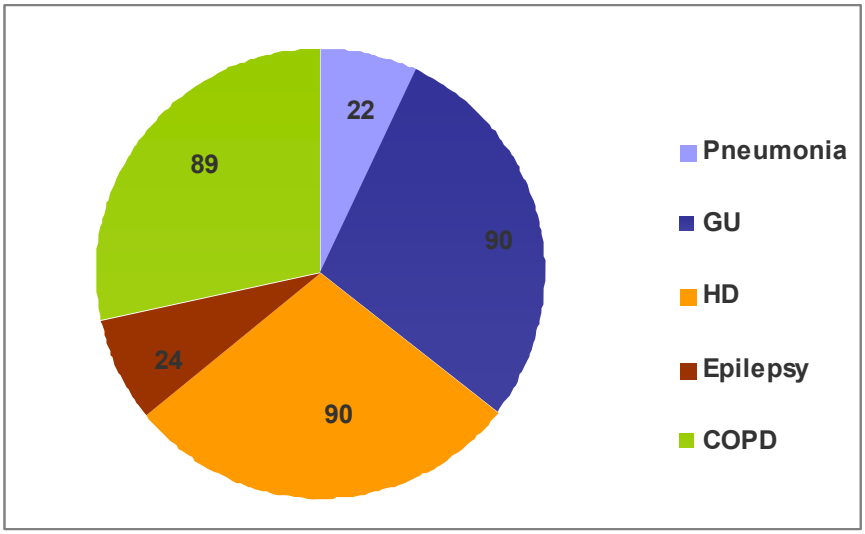
In total there were surveyed 315 patients that had been diagnosed to have studied diseases: HD, GU, COPD, pneumonia and epilepsy.

The task for the survey was to interview the same number of patients in each nosological group, but for nosological groups of pneumonia and epilepsy we were unable to interview the required number of patients because patients with pneumonia are rarely treated at the primary level and most of them are directly referred for hospitalization. Patients with epilepsy turned out to be very sensitive group and it was not always possible to survey them.

Survey of patients was conducted to interview about the last visit to FMC doctor, when they referred in relation to major illness and drug treatment was prescribed. Some patients were surveyed directly at FMC after visiting doctors, and some patients have been interviewed at home. Out of those outpatient medical cards that contain the diseases under examination there were selected those cases of visits to doctors which were made in relation to the major disease and within the period from January 2008 to August 2009, and the interviewers visited patients at home by indicated address to do the interview. 110 people were interviewed in Osh oblast, 105 people in the Issyk-Kul oblast and 100 people - in Bishkek City and Chui oblast. Among the respondents, 90 patients administered drugs to treat hypertension, 89 – to treat COPD, 90 patients to treat gastric ulcer, 24 patients to treat epilepsy and 22 patients to treat pneumonia (Fig. 11).

Figure11

The structure of respondents by diseases, number of people



Among interviewed respondents 121 (38,4%) were males and 194 (61,6%) were women. The average age of respondents made up 50 years. There were also surveyed parents of 6 children under 18 years (1,9%) and 12,7% of respondents aged 20 to 30 years, 12,4% respondents in age period of 31-40 years, 17.1% respondents in age period of 41-50 years, and 53% respondents in age period after 51 years. 40,3% of respondents had a secondary education, 23,8% respondents had higher education and 19,4% of respondents had secondary special education.

Most respondents indicated that they preferred to do regular medical check-ups at FGP / FMC and to obtain professional consultancy in relation to their major disease. In overall, more than 70% of respondents have visited a doctor less than 6 months prior to the survey, including 34.4% of respondents that visited less than a month ago and 38% who visited in the period from 1 up to 6 months ago. The rest of the patients - 27.6% - visited a doctor on the day of the interview. In case of

health aggravation related to the major disease, the most common behavioral practice is to visit family physician - 62% (Table 10). About 9% apply directly to the hospital to be treated at in-patient level, often such behavior is typical for patients with pneumonia (22,7%) and epilepsy (33.3%). However, 20% of respondents indicated that they preferred to be treated independently, these were predominantly patients with chronic diseases: hypertension (22,4%) and patients with COPD (31,8%). Other behavioral practices relevant to recrudescence are not of common nature.

Table 10.

Behavioral practices of patients upon recrudescence, related to major disease, %.

	Pneumonia	GU	HD	COPD	Epilepsy	Total
I visit family physician	63,6	65,7	67,2	55,7	45,8	62,2
I go to the hospital to be treated at in-patient level	22,7	12,9	3,2	2,3	33,3	8,6
I go to the pharmacy to be advised which drugs to administer	0,0	4,3	1,6	5,7	0,0	3,2
I do self-treatment	4,5	11,4	22,4	31,8	8,3	20,0
I turn to advise to relatives, close friends and neighbors	9,1	4,3		2,3	8,3	2,9
Calling a doctor	0,0	0,0	4,8	2,3	4,2	2,9
Other	0,0	1,4	0,8	0,0	0,0	0,3

7.6.2 Sources used by patients to get information about taken medicine

Currently, patients are poorly and superficially informed about the main characteristics of the drugs they use. The physician is the main source from which patients must receive information about medicine. However, most physicians do not always give the patient full information because they have lack of time and consider that the patient does not necessarily need to know everything about the product, and moreover, sometimes physicians do not have enough knowledge themselves and so patients do not always tend to get it.

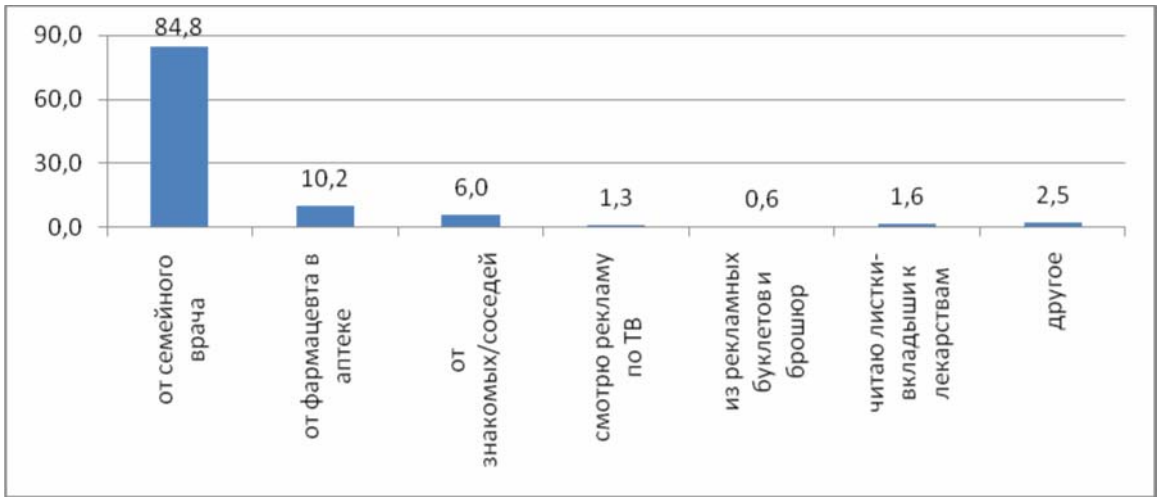
Names of drugs prescribed by physicians are of greater significance for patients and questions of quality and safety are not always important to them (most likely due to the fact that patients are simply not aware of it). Lack of sufficient knowledge about the benefits and risks of drug usage and on how to administer drugs correctly, can lead to the situation when the patient will not only have the expected therapeutic effect, but may also suffer from unwanted side effects. This applies both to drugs prescribed by physicians and those that are taken by the patient independently.

Family physicians are the most important source of information about drugs for patients. Thus, 84.8% of interviewed patients noted that most often they received information about the drugs, designed to treat their diseases, from family physicians. 10.2% of respondents noted that they turned to advice of pharmacists and some respondents named other sources of information (Fig.12.). However, we should recognize that the opinion of a physician is considered by patients to be the most

competent when choosing drugs: 88,9% of respondents said that they would focus only on the advice of a doctor when buying medicines.

Figure12.

Where do you get information from about drugs that you administer to treat your major disease?, %



7.6.3 Informing patients by physicians about cheaper generic drugs

The following answers were given to the question on whether physicians inform patients about existence of generics: 47,3% of respondents noted that during the recent visit to the doctor they had not received any information about the existence of various drugs with different prices that can be used for treatment of their disease. However, there is some difference when this issue is considered in the context of specific diseases (Table 11). Patients with GU were informed on this subject to the least extent - 61% noted that the doctor just issued a prescription. Over 70% of patients who have had pneumonia, stated that that the physician recommended more expensive medicine to achieve better results. Patients with such chronic diseases as COPD and HD either have not received any explanation (44,3% and 49,6% respectively) [6], or they have been recommended to take cheaper drugs (25% and 32% respectively). Patients with epilepsy also often were not given any explanation on drugs (37,5%), or were recommended to take more expensive ones (37,5%).

Table11

During your last visit to a doctor have you been informed by the doctor that to treat your disease there were available the same drugs in terms of the mode of action but for different prices and by different names?, %

	Pneumonia	GU	HD	COPD	Epilepsy	Total
The doctor provided no information and simply issued the prescription	18,2	61,4	49,6	44,3	37,5	47,3
The doctor provided just some information and I have understood nothing	4,5	0,0	2,4	5,7	16,7	4,1

[6] This can be conditioned also by the fact that they have received such clarifications earlier.

The doctor has provided information about it and **recommended to use cheaper drug** as there was no difference between the drugs	4,5	17,1	32,0	25,0	8,3	23,5
The doctor provided information and **recommended to take more expensive drug** as it was more efficient	72,7	17,1	8,0	10,2	37,5	17,5
The doctor provided information and advised me to make my own choice	0,0	2,9	4,8	10,2	0,0	5,4
Other	0,0	1,4	2,4	3,4	0,0	1,6
No reply	0,0	0,0	0,8	1,1	0,0	0,6

7.6.4 Preferences of patients regarding choice of drugs.

The key factor, influencing on preferences regarding the selection of drugs, is the efficiency of its action. The respondents were observed to have a stereotype that more expensive drugs were more effective.

Upon the purchase of medicines, the quality and efficiency were the most important factors for the vast majority of respondents (90,8%). Second important factor was the low cost of drugs (30,2%). Such factors as reputation or wide-scale advertisement of drugs (0.3%), additional information about medicine, in particular booklets (4,4%), packaging and design (0,6%) did not find substantial support among the respondents.

When replying to the question about which drug they would prefer to take depending on the price, the views of patients diametrically divided: 48.3% said they would prefer to take the more expensive drugs, and 49,8% - cheaper ones. The majority of patients with pneumonia (68,2%) and epilepsy (70.8%) were oriented to buy more expensive drugs and mainly patients with hypertension (61.6%) were more focused on cheaper drugs. Among patients with GU and COPD about a half of them were focused on cheap drugs (41,4% and 47% respectively), and another half was focused on expensive ones (52,9% and 50% respectively). It should be noted that among those who have been advised by the doctor to take more expensive medication (n = 55), 96.3% expressed their intention to purchase expensive medicines. However, among those whom the doctor advised to take cheap medicines (n = 74), 37.8% also would prefer to buy more expensive drugs.

Those who prefer expensive drugs (n = 152), speak in favor of their choice mainly because they think that these drugs are better, more efficient and faster (79,6%). Approximately 8% of them say that only certain medications, which are more expensive, help them, and 3% of respondents say that they make such a choice, because "this drug is prescribed by the physician" or "because they have greater trust to it." Those who preferred the cheaper drugs (n = 157), most often explained their choice by an affordable price - 59,9% ("it costs less", "I have no money to buy expensive drug", "it is

affordable in terms of price", etc.), or by the fact that their have similar action as expensive ones - 23,6%. In addition, 10,8% believed that these medications were better in terms of their action, 3,2% - trusted the product and 2,5% named other reasons.

7.6.5 Raising Awareness and Drug Substitutes in Drugstores.

Excerpts from Interviews:

COPD patient, 48 y.o.
"A physician prescribes a drug and I go to a drugstore, where sometimes the drug might not appear available under the name indicated in the prescription, and I have to visit another drugstore because I need to buy this particular drug only"

HD patient, 56 y.o.
"My physician prescribed a drug, but it turned out be very expensive in a drugstore; I could not buy it; they offered me another drug in the drugstore, which appeared under a different name; I am not sure it can help me; I'd better buy the drug prescribed by the physician when I have the money."

Interviews with patients indicate lack of awareness on the side of the patients of the essence of generic drugs under INN, which are much cheaper. Lack of awareness is the reason for the patients to refuse to take substitutes for the drugs offered in the drugstores. However, the fact that the drugstores offer substitutes only in cases of unavailability of the prescribed drugs or when the substitute is more expensive than the prescribed drug most likely gives rise to doubts among the patients, thus making them frequently turn down the substitution offers.

Hence, 32% of the interviewed patients noted the cases when they were offered substitute drugs in drugstores, while share of interviewees in Bishkek city and Chui oblast is the largest (47,5%), less in Issyk-kul (31,1%) and Osh (19,5%) oblasts.

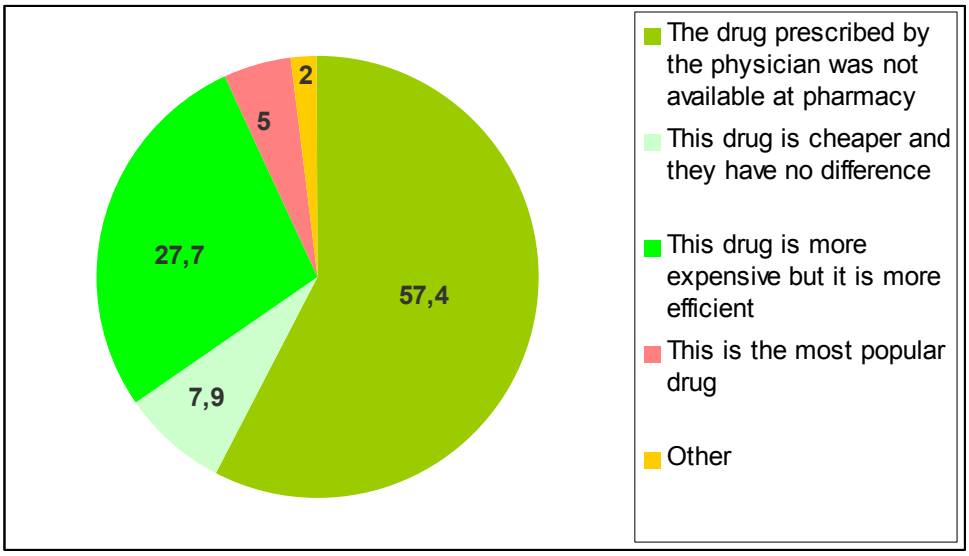
Those who encountered such cases (n=101), were recommended to take substitute drugs because, among other reasons, the prescribed drug was not available in a drugstore -57,4%, the substitute was more effective and more expensive compared to the prescribed drug - 27,7% and only 7,9% of patients noted that the substitute drug was cheaper than the one prescribed by their physician (Figure.13).

More than half of the interviewees (54,5%) agreed to take the substitute drug, while (n=55) 54,5% of them purchased a more expensive drug, 23,6% - a same price drug, and 12% - a cheaper drug.

Among those who refused to take a substitute drug (n=47), the majority did that because the preferred to purchase only the drugs prescribed by their physician (70,2%), and 23% did not take the substitute because the latter was much more expensive than the prescribed one.

Figure.13

When you were last time offered a substitute drug in a drugstore, what was the rationale provided by the the pharmacist ?, %



7.6.6 Behavioral Impact of Inpatient Care on the Patients

Among those interviewed in Bishkek city and Issyk-Kul oblast (n=202), 82,7% received inpatient treatment, including 45,5% of those who received treatment more than 12 months ago, and 37,1% of the interviewees received treatment within 12 months before the interview period. As it turned out, prescriptions made upon release from hospital are crucial for follow up treatment. This way, 67% of the interviewees noted that an FGP physician recommended to take the same drugs as prescribed upon release from hospital, and only 5,4% noted that the FGP physician recommended to replace the drugs. 8,4% of the interviewees noted they did not discuss the prescribed treatment with the physician, and other 18% could not recall how the case evolved. At the time of interview, 56% of interviewees said they kept taking the drugs prescribed in the hospital, 8,4% of the interviewees started to take other drugs. It should be noted that 19,3% of the interviewees keep receiving treatment on their own, and 16,3% did not take any drugs at that time (primarily patients with pneumonia – 55,6% and with COPD – 31%).

7.6.7 The Drugs Taken by Patients for Main Disease

The range of the drugs prescribed and taken by the patients is very broad. On average, there is 2,8 drugs per patient as for the drugs being taken by the patients at the time of interview.

On average, each interviewee diagnosed with *pneumonia* named about 3 drugs being taken. Among those drugs, the majority comprises generic drugs: 43,8% of the listed drugs comprise generic drugs under INN, 39,1% - generic drugs under trade name (Table 12). Besides, there was a number of drugs not related to the main disease: their share makes 6,3%.

On average, to treat for *gastric ulcer,* each interviewee took 3 drugs. Where the share of generic drugs is dominant: generic drugs under INN amount to 29,4% while generic

drugs under trade name – 26,3%. However, the patients with GU named the highest number of innovator drugs they took – 17% (Table 12).
To treat for *hypertensive disease,* the patients take about 3 different drugs on average. Most frequently, to treat for HD, generic drugs under INN (37,4%) and generic drugs under under trade names (48,6%) are taken. Share of the innovator drugs taken by the patients amounted to 1,8% only.
Each patient with COPD named 3 different drugs on average. Most frequently, generic dugs under INN (38%) are used, somewhat rarer – are generic drugs under trade names (28%). Innovator drugs have been taken very rare (0,9%).
As for the drugs prescribed to treat for *epilepsy*, 19 names were mentioned, while, on average, one interviewee took about 2 different drugs. The share of generic drugs under INN mentioned by the patients was 54% (Table 12). The fact that, among drugs named by the patients for epilepsy treatment, 20% are not related to the disease treatment.

Table 12

«What drugs did you take lately due to the main disease?», %

	Pneumonia	GU	HD	COPD	Epilepsy	Total
Generic drugs under INN	43,8	29,4	37,4	38,0	54,0	40,6
Generic drugs under trade names	39,1	26,3	48,6	28,0	16,0	37,9
Innovator drugs	4,7	17,0	1,8	0,9	2,0	5,2
Drugs not related to the treatment of the particular disease	6,3	21,1	8,5	5,5	20,0	11,4
Other	4,7	4,1	2,4	2,4	0,0	3,0
Cannot recall	1,6	2,1	1,2	0,9	8,0	1,8

Summary:

- the most widespread practice among the interviewed patients is to see a family physician, while more than 70% of patients had appointments with the FMC physician in the past 6 months;
- the patients are insufficiently and superficially aware of the main characteristics of the drugs they are taking, the patients shall get information on the drugs from their physicians, but the physicians not always inform the patients about the drug due to lack of time or knowledge, at the same time, the patients do not demonstrate interest in obtaining information on the drugs being taken;
- not all the patients are aware of the availability of cheaper drugs under INN as well as of more expensive generic drugs under trade names, which do not differ in terms of effects. They also have such a stereotype according to which the more expensive the drug is the better its effects are;
- while purchasing drugs, patients find it very important to have physician's recommendation and the most important factor for them is effectiveness and quality of a drug, at the same time, half of the interviewed patients are willing to purchase more expensive drugs;

- in 32% of cases, the interviewed patients were offered substitute drugs in a drugstore by a pharmacist, where more than half of the patients (57,4%) were offered substitutes due to unavailability of the drugs prescribed by physicians, about 28% of the patients were offered more expensive drugs compared to the one prescribed by a physician, and only about 8% of the patients were offered cheaper drugs, these numbers indicate that the pharmacists do not understand the principle of generic replacement, i.e. when a physician prescribes a drug under INN, while a pharmacist shall offer the cheapest of the available generic drugs.
- in terms of following drug therapy schemes, FGP/FMC physicians are very much influenced by the treatment provided to patients in a hospital;
- as for the drugs taken or being taken by the patients, generic drugs under trade names prevail, share of innovator drugs was prevalent for patients with GU (17%).

7.7. Pharmaceutical Staff Interview Outcomes

7.7.1 A portrait of an Interviewee

A target audience for the research comprised front desk pharmacists in drugstores, who released drugs to the people.

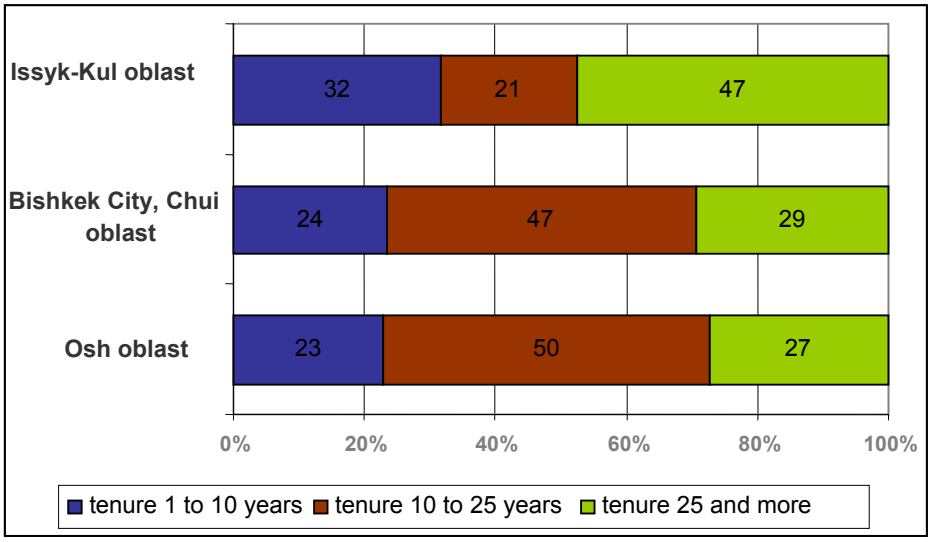
Overall, 60 pharmaceutical staff participated in a survey among those who worked in drugstores and drugstore points in the surveyed regions of the Kyrgyz Republic.

All the interviewees were women. Of all the interviewees, 53,5% - were specialists who possess secondary level pharmaceutical education, 46,5 % - higher education[7]. Average age of all the interviewees was 45,5 years. Work experience in the area is about 19,5 years on average (Figure.14)

All the interviewees work for pharmaceutical organizations under private ownership: 39,6 % pharmaceutical organizations operate as private entrepreneurs, 50 % - as companies with limited liabilities, 11,4 % - other types of ownership.

Figure 14

Interviewees' Work Experience (%)



[7] Hereinafter in the report, the term "pharmacist" implies specialists with higher or secondary education.

7.7.2 Evaluation of Information Sources on the Drugs

Outcomes of the interviews with pharmacists indicate that operations of pharmaceutical companies with regard to drugstores are mainly limited to periodic visits of the drugstores by company representatives with a view to providing informational booklets on the drugs and some small presents. Special presentations given by pharmaceutical companies periodically on the Family Medicine Centers are not the case for drugstores.

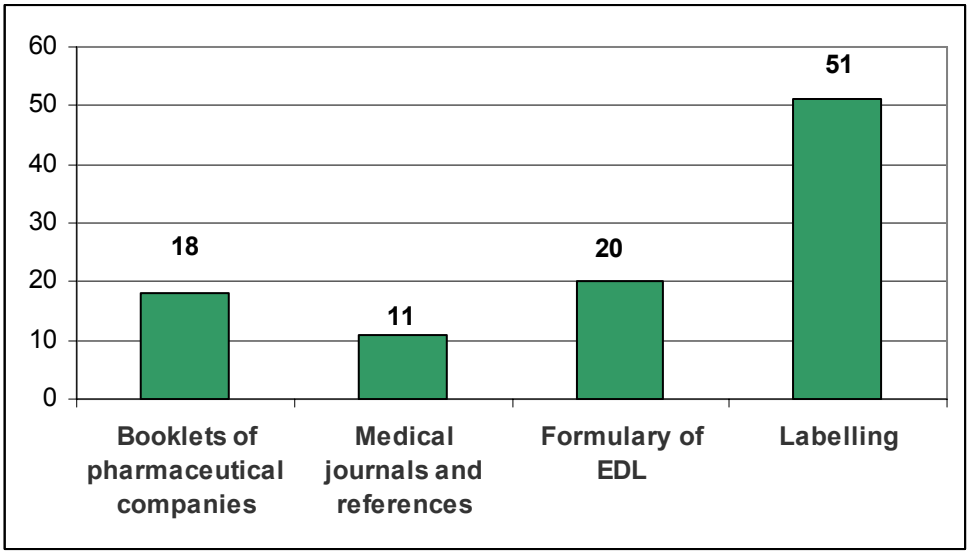
An excerpt from an interview with pharmacists:
«we are aware that the pharmaceutical companies cooperate well with the physicians, the latter receive bonuses and earn interests for the drugs prescribed. They do not provide any incentives to us, just give us some pens and other minor things as we have to sell their products anyway since the physicians prescribe these to their patients».

Hence, instructions of the producer for use of PP enclosed in the package are the main source of information on the product for more than half of the interviewed pharmacists – 51%. This is logical as well, since the pharmacist, having the product available and not being aware of the pharmacologic properties of the drug, can read the instruction, which is mandatorily enclosed in the package.

A very interesting findings is that 20 % of pharmacists mentioned a Logbook of major pharmaceutical products as a source of information, which was not available for many of them and 18 % of pharmacists noted that they used booklets of the pharmaceutical companies as the source of information for PP, 11% of interviewees refer to various medical journals and reference books for information (Figure 15).

Figure 15

The Most Frequently Used Sources of Information on Pharmaceutical Products for Pharmacists, %

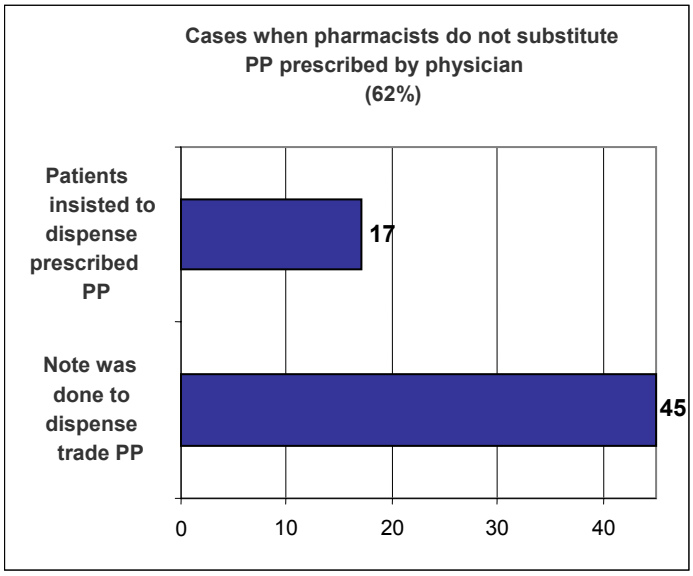


7.7.3 Generic Substitute Practices in Drugstores

The principle of generic substitute is the following: a physician prescribes a pharmaceutical product under INN, a pharmacist offers the cheapest one of the available in the drugstore generic PPs to the patient. However, as outcomes of the survey indicate, the pharmacists do not understand the principle of generic substitute. In drugstores, the patients are offered a substitute for the prescribed drug, most frequently, in case the latter is not available, which does not imply offer and sale of a cheaper generic drug. However, another factor contributing to non-existence of the Generic Substitute Principle in the drugstores is refusal of the patients to take the substitute for the drug prescribed by physicians, as they do not have information on the essence of the principle of generic substitute. Therefore, an opinion that it is in the interest of the pharmacists to sell more expensive PPs under trade names is hypothetical as there are evident cases when the pharmacists cannot always influence the patients' choice of PPs.

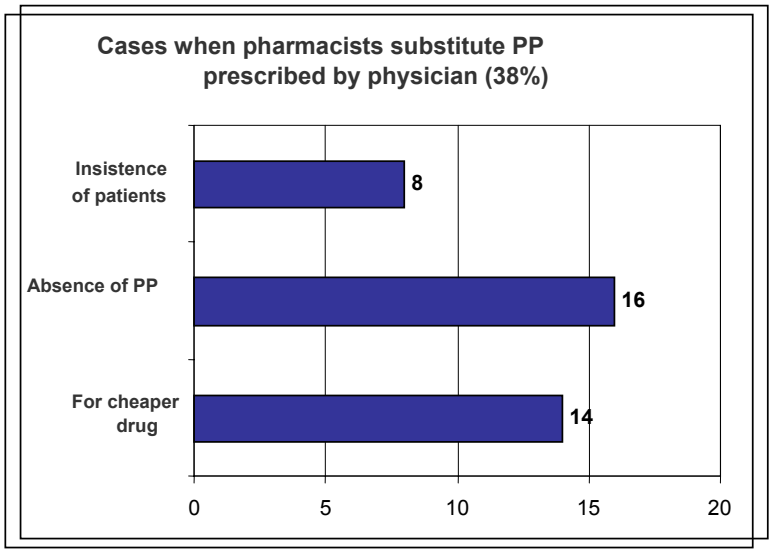
In the majority of cases - 62%, the pharmacists do not offer substitutes for the PPs prescribed by physicians, where 45% of cases the doctor made notes instructing to sell the indicated PP under the trade name and for the rest of cases, the patients insisted on purchasing the PP indicated in the prescription -17% (Figurer 16).

Figure 16



The drugs prescribed by a physician were substituted by pharmacists in 38% of cases, where 14% - is substitution for a cheaper drug under INN since the patient could not afford the product prescribed by a physician, 16% - a substitution occurred due to unavailability of the prescribed drug, and 8% - the patients requested a more expensive and more effective product (Figure 17)

Figure 17



Additionally, interviews with the pharmacists indicated, that about 25% of the patients visiting a drugstore are those with diseases who came to a drugstore to purchase a drug while bypassing a physician. As it turns out, pharmacists act as physicians for almost one fourth of the patients coming to a drugstore by giving recommendations on the choice of pharmaceutical products to the visitors and within several minutes, based on short conversations, which is quite challenging and bears responsibility. There are several reasons for this, firstly, the patients consciously choose this option in order to save time to be otherwise spent in line in an out-patient facility and get their needs met as fast as possible, they come to drugstore and using information from a TV commercial, advice of some acquaintances and asking for a pharmacist's advice at best, they purchase a pharmaceutical product. Secondly, at present, the drugstores have a sufficient variety of PP, numerous PPs emerge many of which are not known even for physicians. Nowadays, the drugstores are surviving in a strongly competitive environment, their well-being as an institution and a pharmacist depend on sales, therefore pharmacists have to provide counseling and prescribe drugs to patients.

And, thirdly, there is no an adequate mechanism as of today to regulate sale of prescription drugs at drugstores based on prescriptions. This is one of main reasons why the patients are not always visiting a physician but going to a drugstore directly. This leads to a conflict of interests for the pharmacists.

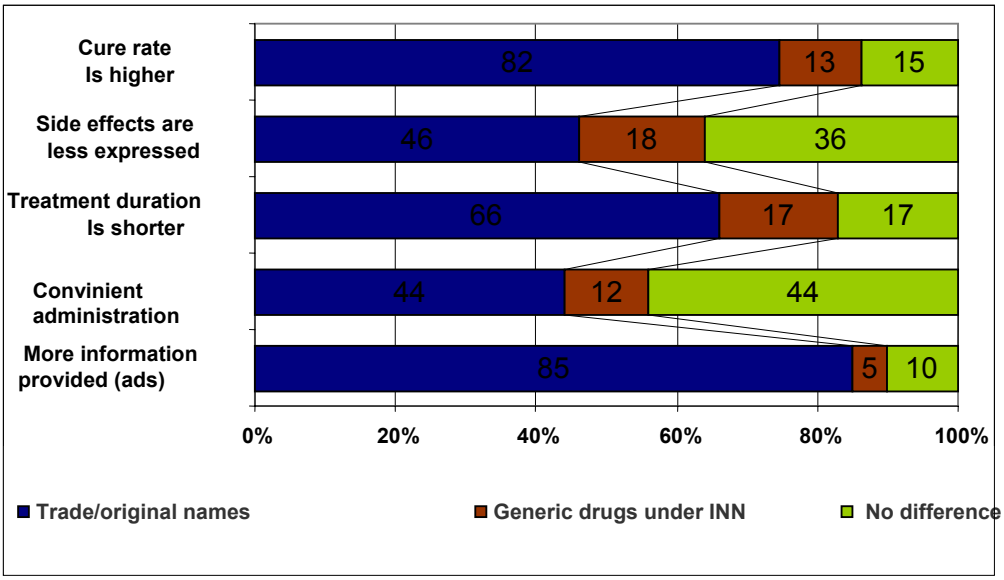
7.7.4 Opinions of Pharmacists on the Generic and Innovator Drugs

Outcomes of the conducted survey indicate that lack of knowledge and information among the pharmacists has led to forming an opinion among the latter, according to which, based on some parameters, innovator drugs and generic drugs under trade name are more effective than the generic products under INN. For example, 82% of the interviewed pharmacists noted that innovator drugs and generic drugs under trade names are more effective for treatment compared to generic products under INN. A similar situation is with regard to duration of treatment, a large share of pharmacists - 66% - think that a treatment period is much shorter if innovator drugs and generic drugs

under trade names are taken compared to cases when the patients take cheaper generic products under INN (Figure 19.).

Figure19

Comparative Features of the Drug Categories by Some of the Parameters %

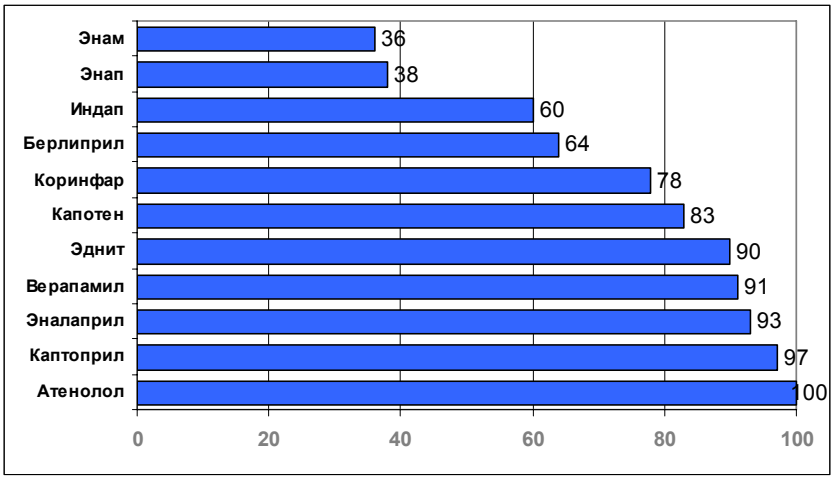


7.7.5 Frequency of Drug Sale for Five Surveyed Diseases as Revealed in the Aftermath of Interviews with the Pharmacists

Assessment of the frequency of drugs sale for treatment of selected diseases has shown that most frequently the pharmacists sell generic drugs under INN and generic drugs under trade names. The most frequently sold generic drugs under INN for treatment of HD: athenolol (100%), captopril (97%), enalapril (93%), verapamil (91%). Generic drugs under trade names are Ednit - 90% of the interviewed pharmacists rated this as the most frequently sold drug. This is also confirmed through data obtained by analyzing a data base of sold drugs as part of AP MHI (see section). Other most frequently sold generic drugs under trade names are Kapoten, Korinphar, Berlipril, etc. The innovator drugs used for treatment of HD were rated as the most frequently sold drugs, in 2 to 7% of interviewed cases. (Figure 20).

Figure 20

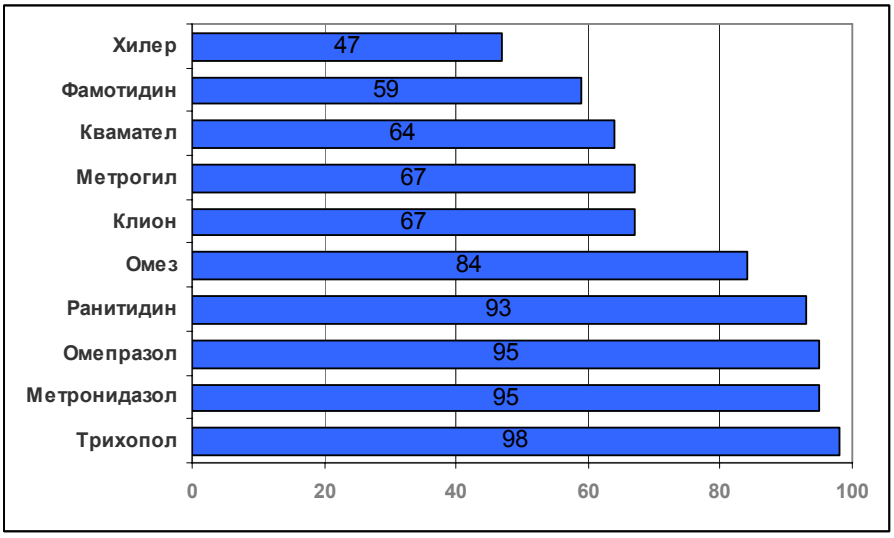
The Most Frequently Sold Drugs for Treatment of HD, (%)



The most frequently sold drugs among proto-ulcer products are generic drugs under trade names – Trichopol (98%), Omez (84%), Clion (67%), Metroghil (67%), Healer (47%), generic drugs under INN – Metronidazol (95%), Omeprazol (95%), Ranitin (94%), Phamotidin (59%). 64% of the interviewed pharmacists rated the innovator drug Quamatel as the most frequently sold product (Figure 21).

Figure 21

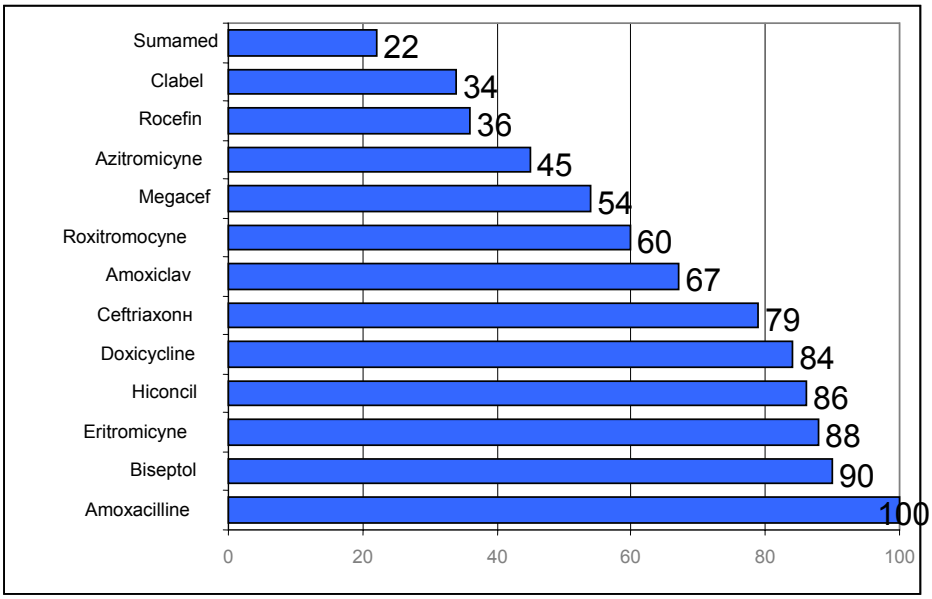
The Most Frequently Sold Drugs for Treatment of GU, (%)



Of anti-infection drugs, amoxicillin was the most frequently sold generic drug under INN (100% of the interviewed pharmacists rated this product as the most frequently sold drug), the second best is Biceptol – a generic drug under trade name - 90%, Erithromicin - a drug under INN – 88%. Besides, the following generic drugs under trade names are those the most frequently sold: Khikoncil - 86%, Amoxiclave - 67%, Megacef - 54%, Clabel - 34%. In 22% cases, the innovator drug Sumamed was rated as the most frequently sold (Figure 22).

Figure 22

The Most Frequently Sold Anti-Infection PP, (%)

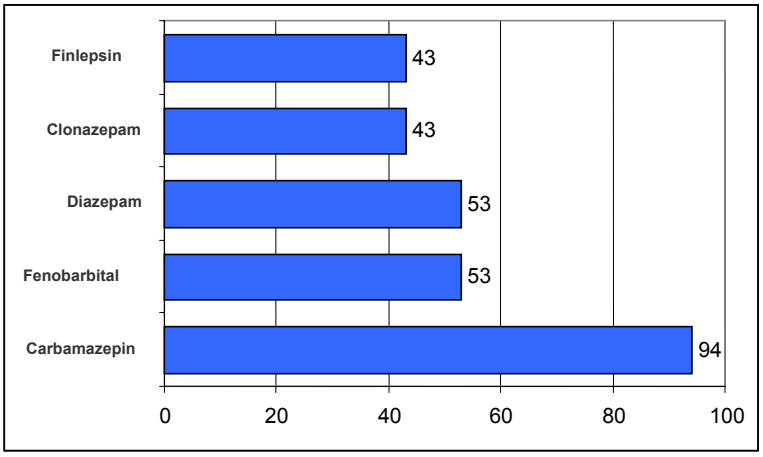


Not all of the surveyed pharmaceutical companies sell psychotropic pharmaceutical products. Of 60 interviewed pharmacists, 28 only noted they sold psychotropic PP to patients based on doctor prescriptions.

Range of PP used for treatment of epilepsy is small, 5 medicines are among the most frequently sold. The other drugs were sold practically once only. The most frequently sold anti-epileptic PP are Carbamazepin (94%), the second best are Phenobarbital and Diazepam (53% each), the third best are Clonazepam and Phinlepsin – a generic Carbamazepin under trade name (Figure 23).

Figure 23

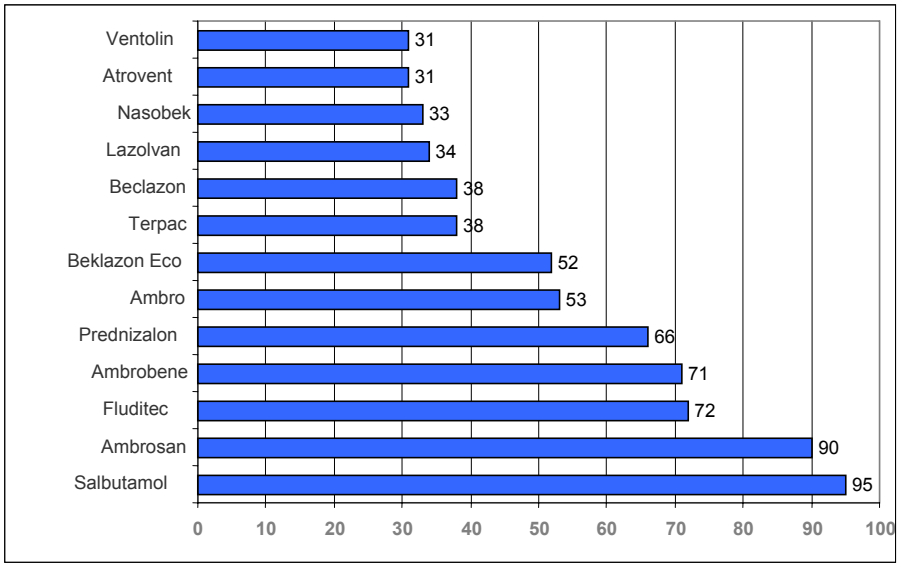
The Most Frequently Sold PP for Treatment of Epilepsy



For treatment of COPD, the following generic drugs under INN are the most frequently sold: Salbutamol (95%) and Prednizolon (66%), generic drugs under trade names and innovator drugs are Lazolvan - 34%, Athrovent – 31% (Figure 24).

Figure 24

The Most Frequently Sold PP for Treatment of COPD (в %)



Summary:
- the main source of information for the pharmacists is instructions enclosed in the PP package, the role of pharmaceutical companies in providing information is not as aggressive as the one of physicians;
- lack of awareness and knowledge contributed to an opinion among the pharmacists according to which generic drugs under trade names, which turned out to be more expensive during the survey, are more effective compared to generic drugs under INN, based on certain parameters;
- the pharmacists had no grasp of the principle of generic substitution, substitute drugs are offered to patients only in case the prescribed drugs are not available, this does not imply, however, that the pharmacists offer cheaper generic drugs under INN as a substitute;
- Generic substitution is not carried out properly because, inter alia, the pharmacists cannot always influence opinions of the patients, a large number of patients prefer the drugs prescribed by their physicians;
- About 25% patients go directly to a drugstore with no recommendations of their physicians and more frequently they purchase the drugs recommended by the pharmacists;
- The most frequently sold PP for treatment of 5 selected diseases turned out to be generic drugs under INN and trade names, while for HD treatment, trade names of Enalapril were mainly sold (Ednyt, Berlipril, Enap, Enam) and rated as the most frequently sold products.
- The highest number of innovator drugs and generic ones under trade names used for treatment of GU and COPD were rated as the most frequently sold PP.

8. Conclusion

Presently, in Kyrgyzstan generic drugs comprise the main bulk of the pharmaceutical market - 94%. A arge share of the market is made of generic drugs under trade names, which are the most frequently prescribed by physicians and taken by the patients for treatment of certain diseases. The number of innovator drugs in the country is small, 2% are officially registered medicines and about 6% of the total drug imports, which is three times the size of the officially registered drugs and might be a consequence of the illegal drug imports into the country.

Increase in the share of generic drugs is a clear development trend on the national pharmaceutical market, since generic drugs create the necessary conditions for fair competition on the pharmaceutical market in terms of prices. However, the quality of generic drugs used in the country remains an open issue, since there are some drugs of not convincing quality and effectiveness on the national pharmaceutical market. No doubt, given the financing constraints of healthcare system, use of generic drugs is a preferable option, while financial deficit shall not precede the issues of effectiveness, safety and quality.

A very important step toward introduction of the concept of generic drugs at the primary level was introduction of clinical guidelines and clinical protocols (CG/CP) into practice in line with evidence based medicine and based on the use of generic drugs under INN. However, appropriate mechanisms and indicators have not been developed yet to allow for evaluation of the commitment of healthcare specialists to CG/CP and the

degree to which they adhere to prescribing drugs under INN. Therefore, a proper evaluation of the generic drugs introduction and use policy is a quite challenging endeavor.

The physicians are instructed to prescribe drugs under INN as part of the AP MHI, however this program does not limit the physicians in prescribing, when needed, generic drugs under trade names and does not exclude the possibility of selling predominantly more expensive generic drugs under trade names by the pharmacists. Choice of the patients is not limited as well, they might as well purchase cheaper generic drugs under INN and co-pay less either go for a more expensive innovator drug under trade names and co-pay more. In this case it depends on what drug will be recommended by a pharmacist.

Physicians receive information of the medicines predominantly from the pharmaceutical product manufacturers. Hence, the degree of information accuracy and completeness should be taken into consideration. The pharmacists have a limited access to information on the drugs as well, however, it should be noted that majority of them refer to instructions for drug use enclosed in the package, which are, although developed by manufacturers, undergo expertise and are approved by the relevant regulators. There is virtually no system for informing the patients of the drugs, while the patients are not much enthusiastic about obtaining this information. Many of the physicians, due to lack of knowledge or information, do not provide explanations to the patients of the advantages of the generic drugs use.

The survey has revealed the pharmacists have no grasp of the Generic Substitution Principle, substitute drugs are offered to patients only in case the prescribed drugs are not available at a drugstore, this does not imply, however, that the pharmacists offer cheaper generic drugs under INN as a substitute. Besides, the pharmacists cannot always influence opinions of the patients, if the latter has physician's recommendations. When patients go directly to a drugstore, more frequently they purchase drugs recommended by a pharmacist.

Obviously, one of the factors contributing to prescription of drugs by family practitioners is continuation of the drug therapy received by patients while in hospital. It should be noted that while reviewing hospital release statements enclosed to the outpatient card, it was found that a large number of drugs was prescribed under trade names of generic and innovator pharmaceutical products.

9. Recommendations:

- develop and approve national criteria for drug selection as part of EDL, where one of the criteria shall be a requirement to include drugs of proved effectiveness only in the list;
- For generic drugs quality assurance, amendments shall be made to the registration dossier thus making it mandatory for the applicant to provide main documents certifying the quality of drugs, such as GMP certificate and information on the drug registration, e.g. in the EC countries and Ukraine;

- With a view to conducting a quality evaluation of the information on bio-equivalence of the registered generic drugs, training shall be provided to the specialists of the expert bodies of the DDP&ME at an international training;
- For generic drugs quality assurance and in order to ensure accessibility, mechanisms shall be introduced to stimulate registration and re-registration of those drugs with proven quality, preferably listed in the EDL and are not sufficiently available on the market. This mechanism might imply free of charge registration of the necessary and vitally important drugs of proven quality, given that the applicant presents a registration dossier and drug samples;
- Activities aimed at preventing import of unregistered PP shall be reinforced by revising and abolishing lists of drugs permitted for import without registration; pharmacologic supervision of the drugstores shall also be strengthened;
- Further pursue the policy of introducing the Concept of Generic Drugs by means of training and informing physicians, pharmacists and population in general. To this end, develop a more elaborated educational programs to promote the Concept of Generic Drugs, encompassing the issues of economic advantages, quality and proven effectiveness of the generic drugs;
- Improve access of healthcare specialists to accurate information on drugs by means of strengthening the role of the Information Center under the DDP&ME in providing unbiased information and a widespread dissemination of the EDL among the healthcare staff;
- It is necessary to have an in-depth study of the status of drug promotion and advertizing in Kyrgyzstan with a view to providing further training to the healthcare workers on the critical skills for evaluation of the information provided by pharmaceutical companies on drugs, counteraction approaches to withstand aggressive marketing and communication skills to hold effective dialogues with representatives of pharmaceutical companies;
- Consider a possibility to add a permanent staff member in the FMC to be recruited as a clinical pharmacologist, whose terms of reference will include counseling of the physicians and general public on the drug safety, quality and effectiveness;
- At the Ministry of Health level and other healthcare institutions, there shall be a delimitation introduced to contain operations of the pharmaceutical companies in the healthcare facilities with a view to aggressively promoting drugs among physicians;
- Introduce an incentive scheme for pharmacists and drugstores operating on the basis of AP MHI agreements, thus stimulating sale of generic drugs under INN accompanied with mandatory tracking of the process by means of periodic inspections by MHIF.

Annex 1.

The list of normative documents regulating turnover of pharmaceutical products

1. The law of the KR	«On pharmaceutical products» from April 30, 2003, N 91
2. The Decree of the Government of the KR from January 12, 2007, N 11	«On State Drug Policy of the KR for 2007-2010»
3. The order of MoH of KR from September 8, 1998, N 215	«On approval of the range of instructions» («INSTRUCTION on registration and renewed registration procedures for domestic pharmaceutical products and substances).
4. The order of MoH of KR from October 7, 2003, N 431	«Regulations ПОЛОЖЕНИЕ об упрощенной процедуре государственной регистрации лекарственных средств
5. The order of MoH of KR from March 19, 2007, N 124	In implementation of the Decree of the Government of the KR from October 31, 2006, N 759 "On approval of Essential Drug List in the KR"
6. The order of MoH of KR from April 30, 2001, N 133	"On drug provision for insured citizens under Additional Program of Mandatory Health Insurance at primary level"
7. The order of MoH of KR from June 12, 2000, N 186	“On approval of calculation methodology for base prices of pharmaceutical products”
8. The order of MoH of KR from June 20, 2006, N 332	PROVISIONAL RELGULATIONS on reimbursed drug provision at out-patient level under the State Guaranteed Benefits Program on provision of citizens of KR with medical and sanitary aid for certain diseases through pharmacy chain
9. The order of MoH of KR from September 11, 2008, N 469	INSTRUCTION on filling out prescription form “The prescription of the Program of State Guarantees ", the form N 109-ПГГ"
10. Order	On making amendments and additions to orders of MoH KR from September 8, 1998, N 215 "On approval the range of instructions", from October 7, 2003, N 431 "Regulations on simplified procedure of state registration of pharmaceutical products "

Annex №2

Data on some dispensed PP under generic and trade names under AP NHI for 2008 and 10 months of 2009, (highlighted are dispensed generic drugs under INN).

Code of dispensed PP2	Code of dispensed PP		2008	Share of Rp within the limits of the group	Share of prescriptions of the group from the total statement выписки	2009	Share of Rp within the limits of the group	Share of prescriptions of the group from the total statement выписки
124	124,0103	Carbamazepine 200 mg	4036	86,2%		3310	88,9%	
	124,0104	Carbamazepine 100 mg	64	1,4%		51	1,4%	
	124,0301	Finlepsin 200 mg	276	5,9%		135	3,6%	
	124,0501	Carbamazepine Acri 200 mg	37	0,8%		37	1,0%	
	124,0601	Finlepsin Retard 200 mg	269	5,7%		192	5,2%	
124 Total			4682		0,8%	3725		0,7%
127	127,0101	Ketotifen syrop	28	3,5%		30	4,2%	
	127,0102	Ketotifen 1 mg	763	95,7%		684	95,0%	
	127,0201		1	0,1%		2	0,3%	
	127,0202	Zaditen 1 mg	5	0,6%		4	0,6%	
127 Final			797		0,1%	720		0,1%
165	165,0201	Flagyl 500 mg supp	48	0,3%		42	0,4%	
	165,0202	Flagyl tab 250 mg	89	0,6%		42	0,4%	
	165,0302	Clione 250 tab	89	0,6%		28	0,3%	
	165,0401	Clione D 100 mg vag tab	338	2,4%		219	2,3%	
	165,0501	Metronidazol tab 250 mg	1846	13,3%		1587	16,3%	
	165,0502	Metronidazol tab 250 mg	7344	52,9%		4992	51,3%	
	165,0503	Metronidazol sup 500 mg	2789	20,1%		1747	18,0%	
	165,0601	Trichopol 250 mg tab	560	4,0%		416	4,3%	
	165,0602	Trichopol vag tab 500 mg	567	4,1%		505	5,2%	
	165,0603	Trichopol 500 mg tab	89	0,6%		75	0,8%	
	165,0701	Trichocid 250 mg tab	16	0,1%		17	0,2%	
	165,0702	Trichocid 250 mg tab	119	0,9%		61	0,6%	
165 Total			13894		2,4%	9731		1,9%
172	172,0202	Dicloberl	375	1,5%		259	1,4%	
	172,0301	Dicloberl Retard	341	1,4%		339	1,8%	
	172,0401	Diclobru tab	162	0,7%		115	0,6%	
	172,0403		1	0,0%		1	0,0%	
	172,0404	Diclobru amp	557	2,2%		441	2,4%	
	172,0405	Diclobru tab retard	499	2,0%		389	2,1%	
	172,0501	Diclofenac Sodium amp	3646	14,6%		2424	13,1%	
	172,0502	Diclofenac Sodium amp	7801	31,3%		5050	27,3%	

	172,0504	Diclofenac Sodium tab	538	2,2%		297	1,6%	
	172,0601	Diclofenac amp	6626	26,6%		5647	30,5%	
	172,0602	Diclofenac tab	265	1,1%		240	1,3%	
	172,0604	Diclofenac tab	481	1,9%		386	2,1%	
	172,0606	Diclofenac supp	41	0,2%		35	0,2%	
	172,0608	Diclofenac tab	83	0,3%		107	0,6%	
	172,0613	Diclofenac amp	468	1,9%		507	2,7%	
	172,0614	Diclofenac supp	28	0,1%		29	0,2%	
	172,0615	Diclofenac tab	141	0,6%		82	0,4%	
	172,0616	Diclofenac tab	39	0,2%		38	0,2%	
	172,0617	Diclofenac tab	170	0,7%		148	0,8%	
	172,0801	Naclofen amp	23	0,1%		12	0,1%	
	172,0802	Naclofen tab	4	0,0%		7	0,0%	
	172,0804			0,0%		1	0,0%	
	172,0901	Ortofen amp	123	0,5%		84	0,5%	
	172,0902	Ortofen tab	2100	8,4%		1628	8,8%	
	172,1002	Pensle tab	5	0,0%		3	0,0%	
	172,1601	Diclofenac amp	34	0,1%		13	0,1%	
	172,1602	Diclofenac tab	7	0,0%		5	0,0%	
	172,1801	Diclofenac Ant supp 100 mg	290	1,2%		190	1,0%	
	172,1802	Diclofenac Ant supp 50 mg	32	0,1%		26	0,1%	
	172,1901	Vifenac amp	14	0,1%		6	0,0%	
172 Total			24894		4,4%	18509		3,7%
191	191,0101	Omeprazol	5156	74,3%		4215	72,7%	
	191,0102	Omeprazol	842	12,1%		651	11,2%	
	191,0201	Omez	402	5,8%		437	7,5%	
	191,0202	Omez	308	4,4%		282	4,9%	
	191,0401	Omperazol Akos Omperazol Akos	114	1,6%		103	1,8%	
	191,0501	Omperazol Akri	27	0,4%		41	0,7%	
	191,0602			0,0%		1	0,0%	
	191,0701	Rayzek	14	0,2%		4	0,1%	
	191,0801	Omegast	56	0,8%		53	0,9%	
	191,0901	Omeran	4	0,1%		3	0,1%	
	191,1001	Omizak	14	0,2%		6		
191 Итог			6937		1,2%	5796		1,1%
305	305,0101	Cifloxinal 250 mg	106	0,4%		98	0,5%	
	305,0301	Ciprinol 250 mg	26	0,1%		16	0,1%	
	305,0302	Ciprinol 500 mg	76	0,3%		73	0,3%	
	305,0501	Ciprofloxacin 500 mg	9387	36,3%		8740	40,8%	
	305,0502	Ciprofloxacin 250 mg	15015	58,1%		11381	53,1%	
	305,0701	Ciprolet 250 mg	74	0,3%		118	0,6%	
	305,0702	Ciprolet 500 mg	779	3,0%		702	3,3%	
	305,1001	Cebect 250 mg	10	0,0%		1	0,0%	

	305,1002	Cebect 500 mg	31	0,1%		29	0,1%	
	305,1101	Ciplox 500 mg	32	0,1%		38	0,2%	
	305,1201	Cipronex 250 mg	13	0,1%		10	0,0%	
	305,1202	Cipronex 500 mg	40	0,2%		69	0,3%	
	305,1301	Cipronex 250 mg	3	0,0%		3	0,0%	
	305,1402	Cirocin 500 mg	245	0,9%		145	0,7%	
305 Итог			25837		4,6%	21423		4,2%
644	644,0101	Berlipril	126	0,2%		135	0,2%	
	644,0105	Berlipril	568	0,8%		370	0,5%	
	644,0106	Berlipril	1229	1,6%		1139	1,6%	
	644,0202	Ednit	1	0,0%			0,0%	
	644,0204	Ednit	4	0,0%		6	0,0%	
	644,0205	Ednit	180	0,2%		111	0,2%	
	644,0206	Ednit	1114	1,5%		1135	1,6%	
	644,0207	Ednit	6966	9,3%		6766	9,6%	
	644,0208	**Ednit 20 mg**	**30567**	**41,0%**		**26790**	**38,1%**	
	644,0301	Enalapril	15094	20,2%		13834	19,7%	
	644,0302	Enalapril	577	0,8%		845	1,2%	
	644,0303	Enalapril	1	0,0%			0,0%	
	644,0304	Enalapril	16889	22,6%		17675	25,1%	
	644,0401	Enalapril Akri	18	0,0%		11	0,0%	
	644,0402	Enalapril Akri	80	0,1%		94	0,1%	
	644,0501	Enap	54	0,1%		45	0,1%	
	644,0502	Enap	205	0,3%		132	0,2%	
	644,0503	Enap	308	0,4%		204	0,3%	
	644,0504	Enap	18	0,0%		10	0,0%	
	644,0801	Enid	2	0,0%			0,0%	
	644,0802	Enid	2	0,0%		2	0,0%	
	644,0803	Enid	2	0,0%			0,0%	
	644,0901	Enarenal	560	0,8%		997	1,4%	
	644,1001	Enat	4	0,0%		1	0,0%	
	644,1002	Enat	15	0,0%		1	0,0%	
644 Total			74584		13,1%	70303		13,9%
645	645,0101	Hiler Хилер	431	9,3%		261	7,2%	
	645,0102	Hiler Хилер	825	17,8%		545	15,1%	
	645,0201	Famosan	301	6,5%		182	5,1%	
	645,0202	Famosan	428	9,2%		390	10,8%	
	645,0301	Famotidin	469	10,1%		360	10,0%	
	645,0302	Famotidin	1163	25,0%		972	27,0%	
	645,0303	Famotidin	305	6,6%		329	9,1%	
	645,0401	Kvamatel	337	7,3%		218	6,1%	
	645,0402	Kvamatel	385	8,3%		346	9,6%	
645 Total			4644		0,8%	3603		0,7%
688	688,0101	Claritin	15	0,8%		12	0,5%	

	688,0102	Claritin	7	0,4%		32	1,4%	
	688,0103	Claritin	43	2,2%		70	3,0%	
	688,0104	Claritin	35	1,8%		91	3,9%	
	688,0201	Clarotadin	8	0,4%		7	0,3%	
	688,0202	Clarotadin	7	0,4%		13	0,6%	
	688,0203	Clarotadin	4	0,2%		2	0,1%	
	688,0204	Clarotadin	4	0,2%		14	0,6%	
	688,0301	Lomilan	75	3,9%		90	3,8%	
	688,0302	Lomilan	247	12,9%		292	12,4%	
	688,0401	Loractiv	3	0,2%		9	0,4%	
	688,0402	Loractiv	82	4,3%		38	1,6%	
	688,0501	Loratadine	445	23,2%		725	30,8%	
	688,0601	**Loratal**	**945**	**49,2%**		**957**	**40,7%**	
688 Total			1920		0,3%	2352		0,5%
689	689,0101	Roxithromycine Lek	1953	23,1%		2190	26,0%	
	689,0201	Roxithromycine	3495	41,3%		3482	41,4%	
	689,0301	Roxibel	3005	35,5%		2721	32,3%	
	689,0401	Rulicin	8	0,1%		13	0,2%	
	689,0501	Rulid	6	0,1%		3	0,0%	
	689,0502	Rulid	4	0,0%		3	0,0%	
689 Total			8471		1,5%	8412		1,7%
Total number of dispensed prescriptions			567475			506299		

Annex №3

Average prices for drugs depending on manufacturer and trade name

Hypertensive disease

INN	Name of trade mark	Average price for the Republic	Average price in Osh oblast	Average price in Issyk-Kul oblast	Average price in Chui oblast and Bishkek City	Availability at surveyed pharmacies, %	Average price per 1 tablet (dosage, unit) for the republic
Hydrochlorothiazide	Hydrochlorothiazide, 25 mg № 20 Borisovskyi Chemical and Pharmaceutical Plant	39,32	40	38	39,6	70,5	1,96
Hydrochlorothiazide	Hypotiazide, 25 mg № 20 Hinoin, Hungary	117,48	119,5	108,5	123,7	73,5	5,87
Atenolol	Atenolol 50 mg № 50 Borisovskyi Chemical and Pharmaceutical Plant	22	25,62	24,6	14,35	73,5	0,44
Atenolol	Atenolol 50 mg № 30 Sintez, Russia	22,3	25,3	24	16,75	41	0,7
Atenolol	Atenolol 50 mg № 50 Balkanpharma, Bulgary	48	54,6	44,5	46	35,3	0,96
Nifedepin	Nifedepin 10 mg №50 Aktavis, Bulgary	44,6	51,44	44,3	37,25	76,5	0,89
Nifedepin	Fenigidin 10 mg № 50 Health, Ukraine	22,33	21,6	25,83	18	44	0,45
Nifedepin	Korinfar10 mg № 100 АВД, Germany	201	211	201	205,4	82,5	2
Verapamil	Verapamil 40 mg №50 Tumensk Chemical and Pharmaceutical Plant, Russia	59,8	60,7	60	58,5	50	1,2
Verapamil	Verapamil 80 mg № 50 Akrihin, Russia	87,61	89,14	81	107,4	59	0,87
Verapamil	Izoptin 80 mg №100 Ebbot, Germany	470,83	509,75	520	441,5	35,3	2,4
Amlodipin	Norvask 5 mg № 30 Phizer, USA	677,32	603	707	789	50	22,57
Amlodipin	Normodipin 5 mg № 30 Gedeon Richter, Hungary	456,85	442,58	492,4	433,5	59	15,22
Enalapril	Enalapril 10 mg №20 Organika, Russia	16,92	21,37	17,25	12,6	73,5	0,85
Enalapril	Berlipril 10 mg № 30 Berlin Chemi, Germany	129,94	142,4	120,2	124,4	56	4,3
Enalapril	Ednit 20 mg №20 Gedeon Richter, Hungary	149,48	153	147,45	148	88	0,49
Enalapril	Enap 10 mg №20 KRKA, Slovenia	101	105,8	103	96	47	5,05
Kaptopril	Capropril 25 mg № 10 Borisovskyi Chemical and Pharmaceutical Plant, Byelorussia	9,84	7	9,3	13,6	76,5	1
Kaptopril	Kapoten 25 mg №30 ББristol Myers. Australia	189	178,9	216	168,25	41,2	6,3

Gastric Ulcer

INN	Name of trade mark	Average price for the Republic	Average price in Osh oblast	Average price in Issyk-Kul oblast	Average price in Chui oblast and Bishkek City	Availability at surveyed pharmacies, %	Average price per 1 tablet (dosage, unit) for the republic
Famotidin	Famotidin 20 mg № 20 Ozon, Russia	34,85	41,2	35,7	21	70,6	1,74
Famotidin	Kvamatel 20 mg № 28 Gedeon Richter, Hungary	209,28	228,5	207,5	192	73,5	7,5
Famotidin	Famosan 20 mg № 20 Promed, Czech Republic	95	93	113,6	96,15	56	4,75
Famotidin	Hiler 40 mg №10 Getz, Pakistan	63	60,9	68	59,25	59	3,15
Ranitidin	Ranitidin 150 mg №20 Ozon, Russia	34,35	36,6	26,1	18,64	79,5	1,7
Ranitidin	Ranisan 150 mg №20 Promed, Czech Republic	71,2	73,4	80	78,35	38,22	3,56
Кол. субцитрат висмута	De-Nol 120 mg №112 Yamanuchi, Netherlands	989,5	1080,28	974,7	923	64,7	8,8
Омепразол	Omeprazol 20 mg №30 Borisovskyi Chemical and Pharmaceutical Plant, Byelorussia	54,69	59,92	57,5	44	53	1,8
Омепразол	Omeprazol 20 mg №30 production of medical preparations, RF	49,72	57	60	32,57	41,2	1,65
Омепразол	Omegast 20 mg №14 Nobel, Kazakhstan	129,36	109,75	128,8	139,5	53	9,24
Омепразол	Omez 20 mg №10 D-r Redis Lab, India	25,58	20	29,75	19,4	50	2,5

Chronicle Obstructive Pulmonary Disease

INN	Name of trade mark	Average price for the Republic	Average price in Osh oblast	Average price in Issyk-Kul oblast	Average price in Chui oblast and Bishkek City	Availability at surveyed pharmacies, %	Average price per 1 tablet (dosage, unit) for the republic
Ipratropium	Atrovent 0,25 mkg/ml 20 mk Beringer, Germany	458,3	413,83	479,8	463,4	38,22	1,3
Salbutamol	Salbutamol 100 мкg/dosage 90 dosages Moshimfarm, Russia	144,92	142,8	146,6	145	79,5	1,6
Salbutamol	Salbutamol 12 ml Altayvitaminy, Russia	120,44	117,45	124,6	108,35	82,5	1,75

Salbutamol	Ventolin 12 ml 200 doseges, Polpharma, Poland	158,3	150	164,3	158	29,5	0,8
Beklometazon	Beklazon ECO 250мkg/dosage Norton, UK	745,96	763,48	814	660	44,1	3,7
Beklometazon	Nasobek 50 мkg/dosage 200 dosages Aivex, Czech Republic	245,45	252,5	264	224,5	32,5	1,2
Ambroksol	Ambroxol 30 mg № 20 Borisovskyi Chemical and Pharmaceutical Plant, Byelorussia	51,8	50	63,83	41,83	53	2,59
Ambroksol	Ambrosan 30 mg № 20 Promed, Czech Republic	87,46	91,6	91,45	81,4	73,5	4,37
Ambroksol	Lazolvan 30 mg № 50 Beringer, Germany	340,57	349	357	318	56	6,8
Ambroksol	Ambrobene 30 mg №20 Merk, Germany	91,4	97,6	94	84,5	47	4,57

Epilepsy

INN	**Name of trade mark**	**Average price for the Republic**	**Average price in Osh oblast**	**Average price in Issyk-Kul oblast**	**Average price in Chui oblast and Bishkek City**	**Availability at surveyed pharmacies, %**	**Average price per 1 tablet (dosage, unit) for the republic**
Carbamazepine	Carbamazepine 200 mg №50 Alsipharma	73,97	89,28	73,14	61,3	64,7	1,47
Carbamazepine	Finlepsin 200mg №50 AVD, Germany	327,4	320	327,5	331	14,7	6,54
Carbamazepine	Melepsin 200 mg №50 World Medicine, Egypt	232,8	222,5	243,3	288,4	44,1	4,65
Fenobarbital	Fenobarbital 0,001 №6	9,25	15	6,9	8,75	29,5	1,54
Valproate sodium	Depakin Chrono 300 mg №100 Sanofi, France	1548	0	1557,5	1530	9	15,48
Valproate sodium	Convulex 300 mg №100 Great, Austria	715,56	635	935,33	549,33	23,52	7
Clonazepam	Clonazepam 150 mg №100	148,16	170	143	131,5	17,7	1,5
Clonfzepam	Rivotril 0,5 mg №50 Hofman la Roch, Switzerland	176	210	179	168,7	20,6	10,56
Lamotrigine	Lamotrigine 50 mg №30 Glaxosmithkline, UK	1024	0	0	1024	3	34

Antimicrobial pharmaceutical products

INN	Name of trade mark	Average price for the Republic	Average price in Osh oblast	Average price in Issyk-Kul oblast	Average price in Chui oblast and Bishkek City	Availability at surveyed pharmacies, %	Average price per 1 tablet (dosage, unit) for the republic
Amoxicillin	Amoxicillin 250 мг №20 Borisovskyi Chemical and Pharmaceutical Plant, Byelorussia	49,15	50,72	51,42	44,85	67,62	2,45
Amoxicillin	Hiconcil 250 mg №16	71,86	74	64,16	76,9	53	4,5
Amoxicillin	Baktox 125mg/5ml 60ml Innotek, France	163,3	168,6	137,6	160	44,1	27,21
Amoxiclav	Amoxiclav 375mg №15 LEK, Slovenia	349,7	340,7	374	347	47	23,31
Amoxiclav	Clavomed 312,5 mg/5ml 80ml Sedico, Egypt	302,4	310,5	303	296	56	15
Metronidazol	Metronidazol 250 mg №10 Tumen Chemical and Pharmaceutical Plant, Russia	5,66	6,1	5,9	5	97	0,56
Metronidazol	Trihopol 250 mg №20 Polphamra, Poland	75	79,5	72	74	94	3,75
Metronidazol	Clion 250 mg №20 Gedeon Richter, Hungary	103,97	102,4	112,3	97,4	56	5,2
Roxitromicyne	Roxitromicyne 150мг №10 LEK, Slovenia	257,7	259,4	251,6	261,75	67,6	25,77
Roxitromicyne	Roxibel 150 mg №10 Nobel, Kazakhstan	282,25	273	294,8	282,3	67,6	28,2
Azithromicyne	Azitromicyne 50mg №6 Santo, Kazakhstan	226,95	253,3	188,3	233	35,28	37,8
Azithromicyne	Zitrolid 250 mg №6 Valentapharm, Russia	332	332,85	350	324,3	32,5	55,3
Azithromicyne	Azitro 250 mg №6 Nimpharm, Kazakhstan	253	253,4	270	249,9	35,28	42,2
Azithromicyne	Sumamed 250 № 6, Pliva, Chroatia	614	646	0	596,4	32,5	102,3
Claritromicyne	Clabel 500 № 10	757,75	811	0	740	11,76	75,7
Doxicyclin	Doxicyclin 100 mg №10 Borisovskyi Chemical and Pharmaceutical Plant, Byelorussia	14,8	13,5	17,8	12,6	85,26	1,48
Doxicyclin	Doxiget 100 mg №10 Getz , Pakistan	22	21,3	21,5	22,64	47	2,2
Cefuroxime	Megacef 250 №10 Nobel, Kazakhstan	388	376,4	433,3	378,4	47	38,8
Ceftriaxone	Ceftriaxon 1g Sintez, Russia	46	49	43,3	45,6	64,7	46
Ceftriaxone	Rotacef 1 g Lab Torpak, Spain	273,5	289,8	156	282,5	29,5	273,5
Ceftriaxone	Cefamed 1 g Sedoci, Egypt	245	260,8	244,3	222,3	53	245
Ciprofloxacin	Ciprofloxacin 250 mg №10 Ozon, Russia	20,6	22,88	22,9	16,36	91,14	2

Ciprofloxacin	Cypronex 500 mg №10 Polpharma, Poland	151,1	200	160	141,57	29,5	7,55
Sulfatomexazol Trimetoprim	Co-trimaxazol 480 mg №20, Borisovskyi Chemical and Pharmaceutical Plant, Byelorussia	35,6	36,9	39,5	25,4	70,56	1,78
Sulfatomexazol Trimetoprim	Biseptol 480 mg №20 Pabiance, Poland	93,8	95,56	96	88,75	79,5	4,7