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TECHNICAL REPORT:

## **The Pharmaceutical Study in Ferghana Oblast, Uzbekistan**

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**June 2001  
Ferghana Oblast, Uzbekistan**



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## **I. Acknowledgements**

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## **II. Abstract**

Reduced financing in the public health system in post-Soviet countries has had a negative impact on the pharmaceutical sector. This is because budget cuts affect the purchase of drugs, and because the opening of markets has led to uncontrolled pharmaceutical consumption. Assessing the local pharmaceutical sector therefore has regional implications. This report looks at: policy, legal and financial issues; drug use; retail and primary health care facilities' drug availability and pricing; and private sector pharmaceutical activities in three pilot rayons in rural Ferghana Oblast, Uzbekistan. Using international indicators to determine the prescribing practices of local primary health care doctors and the pricing policies and availability of drugs, a number of inconsistencies and problems were observed such as: lack of oblast-wide drug policies; gaps in legislation and regulation; lack of information on nationally mandated essential drugs; availability of non-essential drugs instead of essential drugs; and outdated and non-relevant skills among pharmacists. It is hoped that lessons learned from this study will help to promote more effective drug use and be used in implementing system reforms.

### III. Executive Summary

This report results from three studies conducted in Ferghana Oblast, Uzbekistan from February to April 2001. Ferghana is a pilot site of the USAID funded ZdravPlus Program, which is providing technical assistance to the Government of Uzbekistan on restructuring of the health care system, with a focus on primary health care. The purpose of the study was to provide health managers and medical professionals with evidence, which can be used in deciding on options to solve problems of drug selection, supply and use. The main objectives of the study were:

- To review existing legal and financial documents, in order to help identify gaps in legislation and regulation that might need remedying.
- To study drug prescribing patterns in the individual primary health care units (SVA/SVP).
- To study prices in the private sector pharmacies, and drug availability in both private pharmacies and SVA/SVPS.
- To review existing documents on retail pharmacy and identify gaps that might need remedying.

#### Key Findings:

- In Ferghana Oblast though there are many regulations, there is not a comprehensive oblast drug policy to help solve pharmaceutical questions concerning selection, purchasing, distribution and use of pharmaceuticals.
- The existing legislative and statutory documents do not cover some important aspects of the pharmaceutical sector, like mandating the use of international non-licensed (generic) names. This makes it difficult to control drug prescribing and drug purchasing in the state sector.
- Current policies may be inhibiting the development of a robust market-oriented retail drug sector.
- There also is no drug formulary at the SVA/SVP level that would help encourage use of effective and safe drugs in treatment practice, specifically a list of the most cost-effective drugs.
- There is no current working mechanism for collecting or disseminating information from / to PHC practitioners on adverse drug reactions.
- Limited national currency conversion continues to affect the availability of pharmaceuticals.
- There is a lack of appropriate drug information on nationally mandated essential drugs. For example, in SVA/SVPs there are no updated editions of “The Essential Drug List of the Republic of Uzbekistan” and the “Reference Book of Essential Drugs of the Republic of Uzbekistan”. Therefore, the physicians cannot use them while prescribing medications.
- The national drug information centers under Dari Darmon only provide pricing and availability information. While this is important, it is also necessary to supply unbiased drug information to the health professionals.
- The survey of drug prices and availability in 15 retail drugstores in Kuva, Yazyavan and Beshariq rayons showed that availability of essential drugs averaged 50 percent, ranging from 30 percent to 70 percent.
- In general, the total list of emergency drugs was absent from SVA/SVPs for an average of 6.13 months per year. The range of availability of individual emergency drugs ranged from one to 12 months.

- Examination of the list of emergency drugs intended to be used in life-threatening conditions (order OUZ No 11 of 01.14.01) showed that medications which have no clinical significance in treatment practice and that are not proved to be effective (Cordiamin, Cititon, Caffeine, No-spa, Dibasol), and preparations with commercial names (Suprastine, Pipolphen, and etc.) have been included. This is concerning since scarce resources are being expended on ineffective drugs.
- In three rayons of Ferghana Oblast, the average percentage of the median international price paid by customers in the surveyed drugstores was 243 percent with a range from 64 percent to 494 percent. Interpretation of this data must be done carefully and is rather difficult. Local prices may be higher than international median prices because of many factors that may not be easily remedied.
- Prescribing of antibiotics is quite high in the three rayons studied. In 56.5 percent of the encounters that were reviewed, an antibiotic was given. The internationally expected rate is 25-40 percent
- There is no system of monitoring and evaluating drug use at the PHC level. As a result, treatment practices suffer from polypharmacy (over prescribing) leading which is expensive both for the patients and for the oblast health system. While the average encounter resulted in 2.9 prescriptions and this is similar to other countries' experiences, in some cases as many as nine prescriptions were written.
- The pharmacists have inadequate professional qualifications (business skills). Uzbekistan has a huge human and intellectual potential in the pharmaceutical sector. Yet in many cases, knowledge and skills are outdated or not consistent with new realities. Mainly, the work of pharmacists in drugstores does not differ from that of sellers in the bazaar. Lack of knowledge of marketing, ignorance of unlicensed international names of drugs, of fundamentals of the efficient use of drugs, and absence of business-plans are common, especially in rayons. It will be particularly important to involve pharmacists if the government decides to promote generics.

## **IV. Background**

One of the major problems in contemporary medical practice is centered on pharmaceuticals—lack of safety, lack of efficacy and lack of proper use. Reduced financing in the public health system, in the post-Soviet countries has had a negative impact on the adequacy of pharmacotherapy since budget cuts affect drug purchases first. At the same time, one can witness continuous growth of uncontrolled pharmaceutical consumption by the population due to the opening up of markets after independence. The situation described is not unique to Uzbekistan, which makes it an urgent necessity to carry out an assessment of its pharmaceutical sector.

Many countries have measured different aspects of the pharmaceutical sector using indicators. International Health organizations, such as the WHO Program on Essential Drugs in particular, acknowledge the necessity of standard indicators that measure existing drug deficiencies and provide information to be used in problem solving and to facilitate further improvement measures.

That is why this assessment can be helpful in promoting more effective drug use in health facilities, as well as overall system improvement. There are four main areas which were reviewed: 1) policy, legal and finance 2) drug use, 3) availability of drugs in retail and in primary health care units (SVPS), and pricing in retail pharmacies, and 4) private sector pharmaceutical activities

## V. Research Methods

### A. Study Design:

The indicators used to determine the prescribing practices of local primary health care (PHC) doctors were taken from the *Rapid Pharmaceutical Management (RPM) Assessment: An Indicator-Based Approach*, developed by Management Sciences for Health (MSH) and *How to Investigate Drug Use in Health Facilities: Selected Drug Use Indicators*, developed by WHO. These instruments were adapted for use in Ferghana, Uzbekistan to help assess the use of prescription medications in the rural primary health care sector. This study does not address drug use in hospitals or specialty polyclinics, nor in urban settings. Additional variables were added to obtain information on patient diagnoses and specifics information on each prescription. All diagnoses were coded according to ICD-9 and drugs were coded using WHO's Anatomical Therapeutic Chemical (ATC) classification index. (See Annex 8 for the *Drug Use* data collection form.)

The study also looked at drug pricing and availability. The list of drugs for this part of the study was made by ZdravPlus experts together with specialists from Ferghana Oblast. This list was then used to do a market survey to assess availability of these drugs in the PHC clinics (locally called SVPs and SVAs) and local pharmacies, and prices in the pharmacies (see Annex 3 and 4). Methods for this piece of the study were also adapted from the *RPM Assessment* and the WHO manual on *How to Investigate Drug Use*. (See Annex 6 and 7 for the *Drug Pricing and Availability* data collection forms.)

Key Informant Interviews were also conducted with policy-makers and health officials at the republican and oblast level in order to collect information on legislation and regulations affecting drug policies, registration, procurement and pricing. Drug formularies were also obtained through these contacts. The various sources of information are detailed in Annex 1.

The Ferghana Oblast Health Department supplied us with the budget and expenditures on pharmaceuticals for 1999 and 2000, including the proportion of the overall oblast health budget allocated for pharmaceuticals. The Ministry of Health provided information on other issues related to drug budgeting and financing. Dari Darmon, the main government wholesaler, was also very helpful in providing data regarding the retail and wholesale pharmacies.

Below is the list of all indicators used in this study grouped in specific general categories that allowed us to evaluate drug policy, availability and usage.

#### A. Policy, Legislation and Regulations

- Existence of a national drug policy approved by the government.
- Existence of comprehensive drug control legislation, regulations and enforcement agencies.
- Number of drugs registered.
- Law permitting generic substitution by pharmacists.
- Practice of generic substitution.

#### B. Formulary/Essential Drugs List and Drug Information

- Number of unique drug products on National Drug Formulary List.
- Existence of an official manual, based on the National Drug Formulary List, providing basic drug information to prescribers, revised and published within the last five years.

- Percentage of MOH health facilities visited with the most current edition of an official manual based on the National Drug Formulary List.
- Existence of drug information centers that provide unbiased and current information to public health decision makers, health care providers and consumers.

#### C. Ministry of Health Budget and Finance

- Oblast budget or expenditures on pharmaceuticals, US\$ per capita.
- Existence of a system for recovering the cost of drugs dispensed in MOH health facilities.
- Percentage of patients who pay a charge for drugs they receive in MOH health facilities.
- Percentage of total Oblast Health recurrent budget allocated to pharmaceuticals.

#### D. Ferghana Health Pharmaceutical Logistics

- The average percentage of time out of stock for a set of emergency drugs in SVA/SVPs' storage.

#### E. Patient Access and Drug Utilization.

- Population per functional MOH health facility that dispenses drugs.
- Population per licensed pharmacist or pharmacy technician in the public sector.
- Population per authorized prescriber in the public sector.
- Average number of drugs prescribed per curative outpatient encounter in oblast SVA/SVP.
- Percentage of drugs prescribed by generic names in MOH health facilities.
- Percentage of drugs prescribed from the National Drug Formulary List in MOH health facilities.
- Percentage of outpatients prescribed injections at MOH health facilities.
- Percentage of outpatients prescribed antibiotics at MOH health facilities.

#### F. Product Quality Assurance

- MOH drug product quality laboratory tests during the past year: (a) number of drug products tested; (b) total number of drug product quality tests performed.
- Existence of Formal systems for reporting: (a) product quality complaints, and (b) adverse drug reactions (ADRs).

#### G. Private Sector Pharmaceutical Activity

- Population per licensed private sector outlet.
- Number of licensed or registered drug retail outlets per government drug inspector.
- Percentages of drug manufacturers, distributors, and drug retail outlets inspected over a one year period.

- Total bulk of drug retail trade per capita in the private sector.
- Percentage of products on National Drug Formulary List that are currently manufactured or co-manufactured within the country.
- Percentage of international median price of selected essential drugs in private retail drug outlets.
- Average difference coefficient between minimum and maximum prices of the drugs studied in private retail pharmacies.
- Average percentage of the drugs studied available in private retail pharmacies.
- Existence of price controls for drugs in the private sector.
- Percentage of licensed drug retail outlets where an antibiotic was available without a prescription.

## **B. Methods for Assessing Drug Use (Prescribing Practices)**

### **Site and Sample Selection**

USAID/ZdravPlus has provided technical assistance on health reforms in Ferghana Oblast in conjunction with the World Bank Health Reform Project in Uzbekistan. This joint project works very closely with the Ministry of Health and the Ferghana Oblast Health Department. In this effort our first three pilot rayons (districts) within Ferghana Oblast were Yazyavan, Kuva and Beshariq. This Drug Study was conducted in these three pilot rayons.

Each rayon has approximately 15 rural PHC clinics, depending on the size of the rayon this number varies slightly. Ten rural PHC clinics were randomly selected from a list of all rural clinics in each rayon, giving us a total sample of 30 SVPs/SVAs. These 30 SVPs/SVAs were surveyed for the drug use portion of this study and to determine drug availability in the PHC clinics.

In order to obtain information on prescribing practices of the doctors in these SVPs/SVAs we abstracted information from 45 ambulatory cards (individual patient records) within each of the 30 SVPs/SVAs, giving us a total sample of 1350, or 450 per rayon. Information was abstracted from each ambulatory card on a patient's last curative visit, which resulted in at least one prescription being written. This was because anecdotally it had been reported that if the visit had no referral or no prescription written, then the visit would not be recorded at all. If the last visit was a followup visit, then the surveyor skipped back to the previous visit on the card. Patients also visit these clinics for preventive health care and to obtain health certificates that are required for some jobs and sports activities. These visits were omitted from this drug study and only data on clinical visits were used. Records were also omitted that had more than one diagnosis, as it would be difficult to determine what drugs were being prescribed for which diagnosis. Storage of ambulatory cards varied per PHC clinic. Investigators were told to first determine how and where ambulatory cards were stored in each facility. Often pediatric records were stored separately from gynecological records, which were stored separately from the general adult patient records. In a few cases these distinctions were not so clear. When these records were stored in three different locations, the investigators were told to collect data from ten pediatric cases, ten gynecological cases that were not prenatal care patients (these were considered preventive visits, not "sick" visits), and ten general adult patient records. When variations on this filing system existed the investigators consulted with the ZdravPlus Drug Study staff to come up with the best alternative to approximate this same sampling. Records were more often stored in alphabetical order in the clinics. Based on the most common alphabetical arrangement (usually records were sorted by two letters at a time, such as A-B, C-D, etc.), the investigators did a random sample within each pile of alphabetized records. This assured representation of all records within that storage location regardless if a name started with an "A" or a "Z". (Note: examples given here are with the

Latin alphabet A-Z, but in Uzbekistan the Cyrillic alphabet is still in use in these clinics at the time of this study, and was therefore used in this study for sampling purposes.) Once ambulatory patient records were identified, then data were abstracted from a total of 30 records per SVP/SVA.

### **Data Collection Methods**

Data were abstracted from individual patient ambulatory cards that included: 1) personal information, such as age, sex and birth year (birthdates are not always available); 2) diagnosis; and 3) drug information, such as dosage, times per day, and quantity. Investigators were given a copy of the Essential Drug List (EDL) for Uzbekistan. For each drug prescribed they noted if it was a generic drug, if it was an injectable drug and if it was listed on the EDL. (See Annex 8 for the Drug Use data collection form.)

Experienced Uzbek doctors were used as data collectors in the SVPs/SVAs for this portion of the study. Data were collected on hard-copy forms and transferred to Ferghana ZdravPlus office for data entry using EpiInfo.

## **C. Methods for Assessing Drug Pricing and Availability**

### **Site and Sample Selection**

Pharmacies that were surveyed for drug pricing and availability were also in the same three rayons where drug use was assessed: Kuva, Yazyavan, and Beshariq. There were 11 pharmacies each in Yazyavan and Beshariq, and 26 in Kuva. Among these, five pharmacies per rayon were selected using systematic randomized selection.

### **Method for selecting drugs assessed during the Study**

Two standard lists of control drugs were prepared – one for PHC facilities (the PHC list was taken from Prikaz 11 of the Ferghana Oblast Health Department of 14 February 2000), and the other one for private pharmacies. Additionally, these lists were reviewed by two pharmacists working on the ZdravPlus Program, as well as Oblast Health Officials and specialists. All main therapeutic classes of drugs are present in these lists. These lists of PHC drugs were then used to survey the cost of the drugs to the consumer from the local pharmacy, as part of the survey of drug availability in the local pharmacies and rural PHC clinics.

The lists were prepared using generic names. All selected drugs are part of the National List of Essential Drugs of the Republic of Uzbekistan, for the retail pharmacy survey; and the SVA/SVP drug list came from the emergency drug list of Uzbekistan. To make the process of data collection easier, ZdravPlus provided each data collector with the updated edition of the “Reference Book of Drug Synonyms”<sup>1</sup>. The List of Control Drugs is in Annexes 3 and 4.

### **Data Collection Methods**

A local pharmacist collected all the pricing and availability data from the pharmacies. The same investigators, local doctors, who collected our drug use data, also collected information on drug availability at each SVP/SVA while they were there. The data collector for the pharmacies collected all available prices for the specified drug and specified dosage, regardless of whether brand or generic. If the specified dosage was not available, the collector did not substitute another strength but instead marked not available. Package size was collected by data collectors, but the data processor calculated the per pill price. In the SVA/SVPs, the surveyor marked down if the drug was present in the facility, regardless of expiration date or quantity. If the drug was not available, then the supply record book was reviewed to see how long the drug had been out of stock.

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<sup>1</sup> G.Shashkova, V.Lepahin, G.Kolesnikova . *Reference Book of Drug Synonyms*. “Pharmedinfo” Publishing House. Moscow,1999

## **D. Collection and Processing of Data**

The data were collected during the period from 19 February to 2 March 2001. These data were analyzed using EPINFO and MS EXCEL. The results of these analyses and the pharmacy indicators are presented in summarizing tables and diagrams.

All prices from retail pharmacies were entered into EXCEL and a median price was calculated for all three rayons collectively.

## **VI. Brief Results On The Pharmaceutical Indicator Study In Ferghana Oblast**

The use of indicators makes it possible to compare the effectiveness and quality of work of health systems in different oblasts and countries. Within individual health systems, the indicators can serve as tools to measure results of reforms including training activities, policy changes, etc. The effectiveness of results is measured by comparison of a second set of data to a baseline. The data presented here may be considered as baseline. A follow-up survey is planned for the future.

This study is the first systematic investigation based on indicators that was held in Ferghana Oblast. The collected information may be used as a reference point while analyzing the pharmaceutical sector of Uzbekistan in the future and for assessment of the effectiveness of health reforms.

In this section of the report, the results of the Ferghana pharmaceutical study are presented for each surveyed indicator in the format described by the WHO manual *How to Investigate Drug Use in Health Facilities*.

### **A. Review of Collected Indicators**

#### **Policy, Legislation and Regulations**

##### *Existence of a national drug policy approved by the government*

In the Republic of Uzbekistan (RU), there is an approved national drug policy. In addition, there are individual decrees, laws and statutory acts for the national and oblast levels, which refer to different aspects of drug use and provision.

##### *Existence of comprehensive drug control legislation, regulations and enforcement agencies*

Uzbekistan has national legislation and statutory acts regulating drug control which include the Law *On Drugs* (of 25 April 1997), the Law *On the Health Protection of the People* (29 August 1996), the Decree of the Board of the Ministry of Health of RU on *The National Drug Policy of the Republic of Uzbekistan* (of 30 May 1999), the Decree of the President of the RU *On The State Program of Reforms in the Health System of the RU* (of 10 November 1998).

##### *The Type of System Containing Drug Information Registration*

At the national level, there is a computerized database of drug registration in the Department of Drug and Medical Devices Quality Control of the Ministry of Health of the RU and in the Pharmacology Committee of the RU. There is also a non-electronic information system presented in the book under the title "State Register of the Drugs Allowed for Practice" (the last complete edition is year 2000; an updated 2001 version is being prepared).

##### *Number of Drugs Registered*

At present in Uzbekistan there are 3247 registered drugs, which considerably surpasses the number of drugs available during Soviet times. This has occurred because of effects of privatization and opening of the market.

##### *Law Permitting generic Substitution by Pharmacists*

At present Uzbekistan has no law regulating this issue. The substitution of bioequivalent medication is made by a pharmacist on his/her own without prior consultation with the physician who has written the prescription. The therapeutic substitution legally can only be agreed upon with the doctor who has

prescribed the medication, though in reality since prescriptions laws are not enforced, the pharmacists are able to substitute therapeutically at will.

#### *Practice of Generic Substitution*

In Uzbekistan there is no law banning generic substitution. The practice of generic substitution depends on how knowledgeable a physician and a pharmacist might be. According to anecdotal reports, the local specialists feel that the problem lies in the fact that physicians and the pharmacists are not always familiar with the equivalent generic names and that is why they do not always offer a substitute medication.

### **Formulary/Essential Drugs List and Drug Information**

#### *Number of Unique Drug Products on National Drug Formulary List*

The National Drug Formulary List was developed in 1997 by the specialists of the Ministry of Health of Uzbekistan. The List was rewritten in 1998, 1999 and 2000. The last version has 337 names of drugs, including vaccines, totaling 750 medicinal products (counting different doses and forms).

*Existence of an official manual, based on the National Drug Formulary List, providing basic drug information to prescribers, revised and published within the last five years*

In Uzbekistan the *Drugs Reference Book* was published together with the second edition of the National Drug Formulary List in 1998.

*Percentage of MOH health facilities visited with the most current edition of an official manual based on the National Drug Formulary List.*

Not one of the thirty SVA/SVPs surveyed had the National Drug Formulary List of the RU (4<sup>th</sup> edition of year 2000). The Uzbekistan Drug Information Reference Book, based on the 1998 List was not available either.

*Existence of Drug Information Centers that provide unbiased and current information to public health decision makers, health care providers and consumers.*

The Information Center at the joint stock company “Dari-Darmon” provides the population with information concerning drugs availability and prices. About 20 percent of Ferghana pharmacies submit their data to this informational network. But in the oblast the center is not able to present overall unbiased information about the drugs. Health workers of all levels mostly use biased sources such as leaflets attached to drug packs, information from representatives of drug companies and producers, and the French reference *Vidal*, in Russian translation that is similar to the American *Physician’s Desk Reference*.

### **Ferghana Oblast Health Budget and Finance.**

The financial data collected during the survey refer to the fiscal year 2000 (January-December 2000). The exchange rate of the national currency (Uz.sum) and the \$US was as follows:

The government rate was 257.995 sums = 1 \$US (median of whole year 2000, see Annex 9). The commercial rate (or off-exchange rate) was based on the exchange rate of 675 sums = 1 \$US (constant since June 2000). The government rate was used to calculate the oblast health budget and the budgets of individual hospitals, whereas the calculation of indices of drug price indicators was based on the commercial rate. The commercial rate was used for the retail prices, since it is the one most often used by Uzbek wholesalers and pharmacists for calculating prices. Existence of multiple exchange rates of course make it very difficult to make accurate financial comparisons, so this should be taken into account when reviewing this data.

*Oblast Budget or Expenditure on Pharmaceuticals, US\$ per capita.*

In the year 2000 the oblast budget expenditure on per capita drug purchasing in the state sector was \$US 1.20 at the government rate and \$US 0.46, using a commercial exchange rate.

*Existence of a system for recovering the cost of drugs dispensed in state health facilities.*

There is no official system that allows for cost recovery of drugs dispensed in PHC facilities. According to the law, free drug provision in outpatient facilities is provided only for emergency cases. There is also a special group<sup>1</sup> in the population which has the right for free medication. According to the oblast health data for the year 2000, 105,642 patients were prescribed free medications and only 68,390 patients out of that number actually received the free drugs. In all other cases, the patients have to buy drugs at their own expense in pharmacies of the Joint Stock company “Dari-Darmon” in the rayons and in the oblast or in private retail pharmacies.

*Percentage of Health expenditure in the overall budget of Ferghana oblast.*

According to the data of the Ferghana Oblast Finance Authority, the share of state health expenditure in the overall budget of Ferghana Oblast was as follows:

1999 .	17,3%
2000	17,7%

*Percentage of drug expenditure in the overall oblast health budget.*

In the Oblast Health Authority budget, expenditure on pharmaceutical products is a protected budget item. The actual expenses for the year 2000 show that 9.5% of the overall oblast health funds were spent on drug purchasing.

### **Ferghana Health Pharmaceutical Logistics**

*The average percentage of time out of stock for a set of emergency drugs in FGP's storage .*

During the period studied the average percentage of time out of stock for emergency drugs in PHC facilities was 51% of the time. The range varied from 33% to 100%.

### **Patient Access and Drug Utilization**

*Population per functional MOH health facility that dispenses drugs.*

The population of Ferghana Oblast is 2,708,299. There are 1,219 health facilities in the oblast, with an average of 2221.7 people per one health facility. For comparison, in Karaganda Oblast, Kazakhstan, the average is 2,430 people per health facility, and in Russia, it is an average of 954 people per facility for Ryazan Oblast and 1,322 people per facility for Novgorod Oblast.

*Population per licensed pharmacist or pharmacy technician in the PUBLIC sector.*

In the public sector there are 180 pharmacists and pharmacy technicians employed. The ratio is 15,046 people per pharmacist/pharmacy technician (the comparative indices for Karaganda Oblast are 29,452 people, and for Novgorod and Pskov, 1,293 and 1,174 respectively).

*Population per authorized prescriber in the public sector.*

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<sup>1</sup> The group guaranteed free drugs by the government include war veterans, Chernobyl victims, some pensioners, children under two, or from large families, diabetics, etc.

In Ferghana Oblast there are 7,912 authorized prescribers (physicians and medical attendants). There are an average of 342.3 people per each authorized prescriber. The index for Karaganda is 4,284, and for Novgorod and Pskov it is 171 people per authorized prescriber.

*Average number of drugs prescribed per curative outpatient encounter in oblast SVA/SVP.*

The analysis of this indicator made in 30 SVA/SVP shows that the overall average number of drugs prescribed for one outpatient encounter was 2.9. This index differs by rayon (Yazyavan, Kuva, Beshariq) ranging from 2.5 to 3.5 drugs for one encounter. The SVA/SVP range is 1.9 to 4.2.

Name of the Rayon	The average number of drugs prescribed for one outpatient encounter	Range between SVA/SVP within Rayon	
		From	To
Yazyavan	3.5	2.7	4.2
Beshariq	2.8	2.2	3.3
Kuva	2.5	1.9	3.1

The number of prescribed drugs for any one outpatient encounter in any SVA/SVP varied from 1 to 9. The average of 2.9 per outpatient encounter is similar to results from other countries.

*Percentage of drugs prescribed by generic names in MOH health facilities.*

The average percentage of drugs prescribed by generic names in the 30 SVA/SVPs studied was 37.8%. This indicator varied by rayon (Yazyavan, Kuva, Beshariq), ranging from 34.6% to 45.0%. The SVA/SVP range was 22.5% to 75.3%. This rate of generic drug use was low compared to other countries' experiences.

Name of the Rayon	Average % of drugs prescribed by generic names	Range between SVA/SVP within Rayon	
		From	To
Yazyavan	34.6%	22.5%	46.7%
Beshariq	35.5%	27.9%	42.6%
Kuva	45.0%	22.8%	75.3%

*Percentage of drugs prescribed from the National Drug Formulary List in MOH health facilities.*

The number of drugs from the National Drug Formulary List comprised 78.3% of the total number of drugs prescribed. This rate is similar to most countries.

*Percentage of outpatients prescribed injections at MOH health facilities.*

The survey that covered the sample from 30 SVA/SVP shows that the average percentage of outpatients who were prescribed injections was 57%, ranging from 51.3% to 67.1%. The SVA/SVP range was 28.9% to 82.2%. This rate of injection use was very high compared to most other countries.

Name of the Rayon	Average % of patients in SVA/SVP who were prescribed injections	Range between SVA/SVP in Rayon	
		From	To
Yazyavan	58.7%	28.9%	80%
Beshariq	67.1%	37.8%	82.2%
Kuva	51.3%	40%	57.8%

*Percentage of outpatients prescribed antibiotics at MOH health facilities.*

The analyses of the sample shows that the average percentage of outpatients who were prescribed antibiotics in 30 SVA/SVP was 56.5%, and ranged from 50.4% to 64.9%. The SVA/SVP range was 24.4% to 84.4%. The rate of antibiotic use was considerably higher than is found in other countries. The expected rate is between 25-40%.

Name of the Rayons	Average % of patients in all SVA/SVP who were prescribed antibiotics	Range between SVA/SVP within Rayon	
		From	To
Yazyavan	64.9%	46.7%	77.8%
Beshariq	50.4%	35.6%	64.4%
Kuva	54.2%	24.4%	84.4%

### Product Quality Assurance

*MOH drug product quality laboratory tests during the past year: (a) number of drug products tested; (b) total number of drug product quality tests performed.*

Both ready-made and medicinal forms prepared by local pharmacies undergo quality control. In the year 2000, 15,618 drugs and medical items were analyzed; out of this number 558 medicinal products were recognized as not meeting standards.

*Existence of formal systems for reporting : (a) product quality complaints, and (b) adverse drug reactions (ADRs).*

The Main Department for Drug and Medical Devices Control of the Ministry of Health should inform all the oblast branches of the state Joint Stock company Dari Darmon about the inadequate quality of drugs. Nevertheless this information does not reach the practitioners. At the official level there is a Center for Side Effects Studies at the Main Department for Drug and Medical Devices Control of the Ministry of Health. The information to this center is mainly provided by central clinics. Physicians from SVA/SVPs do not actively participate in this work. In the rayons studied, practitioners do not know about the existence of this center, that is why they do not report claims concerning the quality and side effects of drugs.

### Private Sector Pharmaceutical Activity

*Population per licensed private sector outlet.*

The population served by one licensed private sector outlet is 8,997.6. At the time of the survey, the oblast had 301 functioning private pharmacies and outlets.

*Number of licensed or registered drug retail outlets per government drug inspector.*

There is a special commission at the Oblast Health Authority called "Sifat Nazorat" which deals with the inspection of pharmacies of different forms of ownership. However, it was not possible to get reliable information about the number of state inspectors.

*Percentage of drug distributors and drug retail outlets inspected during a one-year period.*

During the year 2000 there were 119 joint inspections by "Dari Darmon", the Inspection Board of the MOH, "Sifat Nazorat", Internal Revenue Service, oblast Sanitary and Epidemiological Station and the Prosecutor's Office.

Type of objects	Number of objects	Number of inspected objects	Percentage of inspected objects
Wholesale drug trade	8	0	0%
Retail drug outlet	316	119	37.7%

In Ferghana Oblast, the percentage of objects that were inspected within the one year period was equal to 37.7% for retail drug outlets and to 0% for wholesale trade. As the results of the inspections held in 2000, the Ministry of Health cancelled the licenses of 12 pharmacies. 45 pharmacy managers were fined by SES, 17 pharmacy managers got administrative warnings, the inspection results of nine pharmacies were sent to the Revenue Committee and of those five were sent to law enforcement bodies. The inspections are held in compliance with the plan of the Steering Committee.

*Total bulk of drug retail trade per capita in the private sector.*

The data was not available anywhere in the oblast. Private enterprises submit financial information to the Revenue Inspection only and consider it to be a commercial secret.

*Percentage of products on the National Drug Formulary List that are currently manufactured in the oblast.*

The National Drug Formulary List does not contain any drugs of the pharmaceutical enterprises of Ferghana Oblast. The National Essential Drug List contains 6.8% of drugs of Uzbek manufacture.

*Percentage of international median price for control group drugs in private drug retail outlets.*

The prices of the drugs studied were collected in 15 pharmacies. Retail drug prices on average were 243% of the international median price, with a range from 64% to 494%. The commercial exchange rate used was 675 soms to the US dollar. This shows that substantial savings could occur if generic products were more widely available.

*Average difference coefficient between minimum and maximum prices of the drugs studied in private retail pharmacies.*

The average difference in the coefficient between minimum and maximum prices of the drugs studied in the retail pharmacies is 1.99, ranging from 1.02 to 5.0. The implication of this finding was that consumers may have to shop around to obtain the best price.

*Average percentage of the drugs studied available in private retail pharmacies.*

Fifteen pharmacies provided the data. At the time of the survey there was approximately 50 percent of the study drugs available, with a range from 30 percent to 70 percent.

*Drugs price control in the private sector.*

The policy of state drug price control applies to Ferghana Oblast as well. Drug prices are regulated by several statutory documents. These are: the Decree of the Cabinet of Ministers of the RU N 19 "On Regulation of Drugs and Other Medical Items Trade" of 14, January 1999, and two interdepartmental prikazes (decrees) issued by the Ministries of Finance and Health by the consent of the Revenue Committee "The Mark Up Regulation for Drugs and Other Medical Items Trade" N 642 of 19 February 1999 and "How to Use the Mark Up for Drugs and Other Medical Items Trade" N 974 of 9 October 2000.

*Percentage of licensed drug retail outlets where antibiotics are dispensed / sold without prescription.*

Though there are certain regulations for drug dispensing by prescription, their implementation is not controlled. The antibiotics were dispensed without prescription in all of the pharmacies studied.

## **VII. Review of the Health Care System Structure: Policy, Legal, Finance**

### **A. Health System Structure**

In Ferghana Oblast, the following governmental organizations exist which play important roles in the provision of pharmaceuticals to the population.

#### **Oblast (“Province”) Administration (Hokimyat)**

The Hokimyat plays an important role in the development of the pharmaceutical sector: it approves the oblast health care budget, controls its financing and manages the activity of the Oblast Health Department. It also helps in solving problems with money conversion for purchasing drugs.

It creates legal framework for providing the population with medications in accordance with normative-legal documents of the Cabinet of Ministers of RU, and it controls the implementation of this legislation.

#### **Oblast Health Department (OHD)**

The main task of the OHD is to manage and coordinate the activities of health care institutions in the oblast.. These activities are managed by the following divisions:

1. Medical division and division of motherhood and childhood (includes all chief specialists) controls the activities of specialty health facilities and target programs performed within those facilities.
2. Division of economic planning and accounting is responsible for working out the health care budget and allocation of resources between health facilities.
3. Personnel division handles paper flow and personnel related issues.
4. Control inspectorate of MOH of RU in Ferghana Oblast controls the utilization of budgetary funds, activities of health facilities in the oblast, controls the provision of population and health facilities in the oblast with medications.

There is also a “Sifat nozorat” Commission within the Oblast Health Authority that conducts examinations of drugstores selling medications to the population, and health care facilities of the oblast (SVA and SVP).

#### **State Owned Joint-Stock Company “Dari-Darmon”**

“Dari-Darmon” is authorized to test the quality of drugs in their own laboratories, to issue certificates for medications, to perform pharmaceutical inspections in retail drugstores and wholesale warehouses, and to advise the oblast Hokimyat and OHD regarding pharmaceutical issues during inspections of drugstores.

#### **Hospitals/health facilities**

The system of medical and health facilities in Ferghana Oblast is a multilevel one; based on a territorial principle, which considers the number and type of population, both rural and urban. There are two tertiary hospitals in Ferghana City, capital of the oblast, which deliver inpatient care to the population of the oblast in general. They are the Oblast Clinical Hospital and the Oblast Children’s Hospital. In addition, there are specialized health facilities in Ferghana. Eight of them are at oblast level, and are located in Ferghana (Oncological Center, Dermatological and Venereal Diseases Dispensary, Cardiological Center, Narcological Center and others).

510 polyclinics (urban, consulting and diagnostics ones), 109 SVA, including 83 SVPs deliver outpatient health care in the oblast. SVAs and SVPs are both PHC facilities, but the SVPs are new or renovated

facilities. As a rule, health centers (dispensaries) delivering both outpatient and inpatient care are located in the largest cities. FAP (first aid facilities) are the most numerous types of health care facilities, totaling 430.

The following table summarizes the data on the number and types of health organizations in Ferghana Oblast.

**Types of health organizations in Ferghana Oblast:**

	Name	Number
	<i>Health facilities</i>	
1	Total number of health organizations *	1,219
2	Hospitals, in total:	124
	Including private –	18
3	Polyclinics, in total:	510
	Including private –	128
4	Urban SVA, in total:	None
	Including private –	None
5	Rural SVA in total:	109, including 83 SVP
	Including private –	None
6	Rural district (catchment area) hospitals	20
7	FAP	430
8	Central Rayon Hospitals	15
9	Dispensaries (specialized outpatient/inpatient health facilities)	11
	Total number of health organizations and enterprises:	1,219
	Including those which are authorized to sell drugs:	510

\*Note: Health facilities include Blood transfusion stations (3); First Aid Stations (20 total, 2 independent and 18 under health facilities); Infectious diseases hospitals (17); Oncological hospitals (2); Infants' centers (2); Sanatoriums (6).

**B. Legal Framework**

The following are legal documents of the Republic of Uzbekistan on the pharmaceutical sector, which regulate issues of production of pharmaceuticals, registration and licensing, procurement and distribution, importing and exporting, quality control, promotion and sales of medications, as well as the issues of protecting rights of patients.

Area of application	Name of document	Department, responsible for implementation
I. General Laws	<ul style="list-style-type: none"> <li>- Interdepartmental Order “<i>National Medicinal Policy of the Republic of Uzbekistan</i>”, of May 30, 1999.</li> <li>- Laws of the Republic of Uzbekistan On Medications and Pharmaceutical Activities, of April 25, 1997 (with amendments and addenda of April 15, 1999)</li> <li>- Law of the Republic of Uzbekistan on people’s health protection of August 29, 1996. (Excerpt with amendments and addenda of April 15, 1999)</li> <li>- Law of the Republic of Uzbekistan “<i>On the Protection of Consumers’ rights</i>” of April 26, 1996.</li> <li>- Law of RU “<i>On drugs and psychotropic substances</i>” of August 19, 1999.</li> </ul>	Ministry of Health
II. Development of pharmaceutical services	- Decree of the President of the Republic of Uzbekistan “ <i>On establishing the State Joint-Stock Concern “Uzfarmanoat”</i> ” of June 2, 1993.	Ministry of Health

Area of application	Name of document	Department, responsible for implementation
III. Production of medications	- Resolution of the Cabinet of Ministers of the Republic of Uzbekistan “ <i>On measures for the state support to the development of medical and pharmaceutical industry in the Republic of Uzbekistan</i> ” of August 14, 1996, No 283.	Ministry of Health
IV. Registration of medications	- Instruction, procedure of experts’ examination, clinical tests, registration and re-registration of drugs and medications from foreign countries and CIS, of August 3, 1998.	Ministry of Health, Pharmacological Committee
V. Licensing of pharmaceutical activities	- Law of the Republic of Uzbekistan “ <i>On licensing some kinds of activities</i> ”, of May 25, 2000. - Order of Ministry of Health of RU “ <i>On improving the performance of the commission for issuing licensing on pharmaceutical activities</i> ”, of March 9, 2000, No 624. - Order of Ministry of Health of RU “ <i>On improving the performance of the Central Commission of MOH on issuing licensing</i> ”, of March 9, 2000, No 102.	Ministry of Health
VI. Procurement and distribution of medications	- Order of Ministry of Health “ <i>On strengthening control over receipt, distribution and use of articles received as humanitarian aids</i> ”, of February 11, 1992, No 86. - Order of Ministry of Health “ <i>On supplementing the Order No 87 of February 11, 1992 “On strengthening control over receipt, distribution and use of articles received as humanitarian aids”</i> ”, of March 12, 1992, No 157. - Decree of the President of RU “ <i>On additional measures on filling the domestic market with medications and medical produce</i> ”, of November 8, 1994, No 985. - Resolution of the Cabinet of Ministers of RU “ <i>On immediate measures of improving supply and distribution of medications and medical produce in the Republic</i> ”, of August 6, 1994, No 404.	Ministry of Health
VI. Procurement and distribution of medications	- Resolution of the Cabinet of Ministers of RU “ <i>On streamlining the sales of medications and medical produce</i> ”, of January 14, 1999, No 19. - Resolution of the Cabinet of Ministers of RU “ <i>On establishing the Republican tendering commission for medications and medical produce</i> ”, of January 14, 1999, No 63. - Resolution of the Cabinet of Ministers of RU “ <i>On the exportation, importation and transit of narcotics, psychotropic substances and precursors through the territory of RU</i> ” of July 31, 2000, No 293. - Resolution of the Cabinet of Ministers of RU “ <i>On additional measures of providing the domestic market with medications and medical produce</i> ” of August 5, 2000, No 307. - Resolution of the Cabinet of Ministers of RU “ <i>On measures of improving tendering processes</i> ” of November 21, 2000, No 456.	Ministry of Health
VII. Control over quality of medications	- Law of the Republic of Uzbekistan “ <i>On certification of goods and services</i> ” of December 28, 1993. - Sanitary rules and standards (SRS) of drugstores selling ready-made medications. SRS No0075-97 of September 17, 1997. - Sanitary rules and standards for the equipment and utilization of drugstores. SRS No0075-97 of January 16, 1998. - Order of Ministry of Health of RU “ <i>On improving the quality of medications</i> ” of March 15, 1997, No 163. - Order of Ministry of Health of RU “ <i>On the life period of medications and medical produce</i> ” of March 10, 2000, No 109. - Order of Ministry of Health of RU “ <i>On improving the quality of medications produced in drugstores</i> ” of April 21, 2000, No 195. - Order of Ministry of Health of RU “ <i>On streamlining the circulation of narcotics, psychotropic substances and precursors</i> ” of August 21, 2000, No 456. - Order of Ministry of Health of RU “ <i>On storing, accounting and issuing</i> ”	Pharmacopoeia Committee, Republican basic laboratory on standardization and control over medications.

Area of application	Name of document	Department, responsible for implementation
	<p><i>Tramadolum in drugstores and medical facilities</i> of December 14, 2000, No 635.</p> <p>- Order of Ministry of Health of RU <i>“On control over the quality of medications exported from abroad”</i> of December 14, 2000, No 636</p> <p>- Temporary instruction <i>“On the procedure of destroying unusable medications and medical produce”</i> of February 8, 2000.</p> <p>- Interdepartmental Order <i>“On preventing importation of counterfeit medication into the territory of the Republic of Uzbekistan”</i> of August 25, 2000, No962.</p> <p>-</p>	
VIII. Sale of medications	<p>- Order of Ministry of Health of RU <i>“On lists and standards of medications and medical produce sold under privileged prescriptions”</i> of March 5, 1999, No 134 (of June 4, 1999 with amendments No 363)</p> <p>- Order of Ministry of Health of RK <i>“On approving the list of medications to be sold without prescriptions”</i> of March 15, 1999, No 164.</p> <p>- Decree of the President of RU <i>“On streamlining the sale of medications in the Republic”</i> of July 14, 1994, PF-016</p> <p>- Resolution of the Cabinet of Ministers of RU <i>“On measures for the development and strengthening the off-exchange currency market”</i> of June 29, 2000, No 245.</p> <p>- Resolution of the Cabinet of Ministers of RU <i>“On making amendments to the rules of selling medications and medical produce in drugstores”</i> of July 18, 2000, No 276.</p>	Ministry of Health
IX. Medications advertising	- Law of the Republic of Uzbekistan <i>“On advertising”</i> of April 25, 1998.	Ministry of Health

### General Comments on legal framework:

1. **General Laws** are vague and do not contain a program of activities that would provide access of the population to the essential drugs. However, some resolutions of the Government provide for real mechanisms for improving access of the population to medications (Decree of the Cabinet of Ministers of the RU, N 307 of 5 August 2000, abolition of the 20% VAT for the import of pharmaceutical products, etc.), while physical and economic accessibility are still one of the main existing problems.
5. **Pharmaceutical production.** Currently, only a limited number of medicines are produced in Uzbekistan. The Republican List of Essential Medications includes 23 domestically produced medicines. Uzbekistan plans to develop the domestic pharmaceutical industry. However, there are two dangers: First, normative documents do not sufficiently emphasize the necessity for local manufacturers to comply with the accepted international quality standards for drugs (GMP certification scheme, pharmacopoeia standards). Second, the absence of a clear definition of a *“domestic manufacturer”* provides additional advantages to the companies that are engaged in re-packing of imported drugs, as the Government pursues its policy of encouraging procurement of drugs from domestic manufacturers, which is stipulated in the normative documents for the procurement of medications. Such local procurement may substantially increase prices.
6. **Registration of medications.** Information on newly registered medications is regularly sent to the Joint-Stock Association *“Dari Darmon”*. However, practicing physicians at SVA and SVP do not have access to the information on registered drugs, since there is no dissemination mechanism.

7. **Licensing of pharmaceutical activities** including sale of medications is the responsibility of the Ministry of Health, which does not have branches in each oblast. However, the MOH is authorized by the law to make pharmacy organizations observe state standards after the issuance of licenses.
8. **Procurement of medications** is regulated by the Resolutions of the Cabinet of Ministers of RU, according to which “medications for delivering emergency health care are to be purchased according to the list approved by the Ministry of Health of RU”, “importation of medications for public needs should be carried out through open tendering”, and “vaccines, serums, medications for anesthesia and narcotic substances are to be purchased through closed tendering”. Domestically manufactured medications and medical produce must be procured under direct contracts. The use of restricted tendering with pre-qualification of suppliers may assure quality without affecting prices.

The protection of the domestic market is one of the important elements involved in drugs procurement, provided that domestic production conforms to GMP standard.

9. **Control over the quality of medications** is regulated by a number of normative acts at the national level. The oblast Joint-Stock Association “Dari Darmon” has a database for medications, but not a single act, however, sets forth mechanisms of medications’ quality data distribution and use by practicing physicians of SVP.
10. The **procedure of selling medications** to people is clearly set forth in public documents, but its implementation is not controlled. According to the national rules for selling medications, antibiotics are to be sold only with prescriptions from physicians. However, in 100 percent of examined drugstores antibiotics were sold without prescription.
11. **Advertising of medications.** Article 22 of the Law of RU “On advertising” is dedicated to the advertising of medications, medical produce, cosmetics and household chemicals. The law says that the permission for advertising medications is to be issued by the Ministry of Health, however; on analyzing implementing regulations we could not find one that would regulate advertising.

### **Problems related to the legal framework**

The following problems relate to the legal framework:

- Policy on health care issues and medications is developed at the national level, and regions are responsible for its financing and implementation. However, despite the utilization of local resources and funds, there are marginal norms of payments from the budget for health care purposes set at the national level that essentially limit the capacity of oblasts to adequately finance health care.
- Laws and implementing regulations on medications do not set forth mechanisms of enforcing and controlling the use of drugs according to the Republican List of Essential Drugs.
- The National List of Essential Drugs is approved at the level of the Ministry of Health of the Republic of Uzbekistan. However, there are no laws providing for the establishment of a national official committee or any other body that would be responsible for regular update of the List by adding or deleting drugs in a fully transparent manner. The existing set of legal and normative documents does not cover some of the fields that are important for the pharmaceutical sector. For example, not ensuring use of international unlicensed (generic) hampers the control over drug prescribing, and drug procurement in the governmental sector. Promoting generic substitution would reduce costs to consumers.

## C. Financing

Many curative and preventive measures in medicine depend on medications. However, significant economic interests are involved in the field of medications as well.

In 1995, there was a decrease in actual GDP in Uzbekistan, and general expenditures for health care, as a percentage of GDP, dropped to 3.6%, which is indicative of an essential decrease in actual expenditures for health care.<sup>2</sup>

### Expenditures for health care<sup>3</sup>

	1994	1995	1996	1997	1998
As % of GDP	3.5	3.6	3.7	3.3	3.3
As % of the state budget expenditures	10.5	9.4	9.3	10.0	9.6
Actual expenditures per capita (1990=100%)	52	55	49	49	51

Total expenditures for health care in Ferghana Oblast were worth 18% of the total oblast budget last year.

It is worth noting that although the share of total expenditures for health care tend to decrease, expenditures for primary health care in pilot rayons of Ferghana Oblast increased from 13 percent in 1997 to 20.5 percent in 2001.

Expenditures for medications are protected items of health care budget. Provision of pharmaceuticals ranks second in the state health care budget following wage-and-salary disbursements.

Actual expenses in 2000 show that expenditures for medications were worth 9.5 percent of the total health care budget of Ferghana Oblast, including the network of inpatient facilities.

The oblast budget expenditure in the year 2000 for the procurement of pharmaceutical products per capita in absolute numbers was \$1.20 U.S.<sup>4</sup> by the state exchange rate, and \$0.46 US dollars, using the the commercial rate.

According to WHO, 50 percent of the health care expenditures of a family are spent for purchase of drugs<sup>5</sup>. Looking at the Ferghana public sector funding for drugs, it may be concluded that a significant portion of family drug purchases are “out of pocket”.

Financing of pilot primary health care facilities of Ferghana Oblast is based on four main budget lines:

1. Salary and monthly allowances,
2. Payments of employers (taxes and fringe)
3. Capital investments, and
4. Other expenses, including expenditures for medications, public utilities and other current expenses.

Expenditures for medications at primary health care facilities in pilot rayons of Ferghana Oblast before the health reform experiment averaged 5% of the total budget. In 1999 (the first year of operation under new

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<sup>2</sup> World Bank report. Uzbekistan: Review of social and structural reforms, August 25, 1999.

<sup>3</sup> World Bank report. Uzbekistan: Review of social and structural reforms, August 25, 1999.

<sup>4</sup> Due to the limited currency conversion, there are three exchange rates in Uzbekistan now: 1) government rate: 257.995 Soums = 1 US\$ (calculated as median of the official exchange rate for the whole 2000); commercial: 675 Soums=1 US\$; black market rate: 990 Soums=1 US\$.

<sup>5</sup> World Health Organization, *Report on World Health*, Geneva, WHO, 2000

conditions) it amounted to 10%; and in 2000 actual expenditures for medications dropped again to 6.5% of the budget as opposed to the planned 9.5% of expenditures and 8.8% of financing.

The main reasons for this situation are as follows: (1) inadequate legislation that regulates procurement of drugs at the level of primary health care facilities (tendering and etc.) and physical unavailability of drugs at rayon drugstores; (2) uneven financing of primary health care facilities over the fiscal year.

Thus there was uneven procurement of medications over the year 2000, and by the end of it, 30 percent (7,262,000 soms including funds that were not used in 1999) of funds allocated for the procurement of medications were not utilized by primary health care facilities. The resources were transferred by primary health care facilities to Organizations' Development Funds.

It is worth noting that according to the Resolution of the Cabinet of Ministers of RU No 100, 1999, and appropriate regulatory documents of MOH of RU (Orders No 169 and No512, 1999), expenditures for medications for the 'vulnerable' groups of people are not included in the current expenses of primary health care facilities, hence, this is not taken into consideration while calculating the capitated financing. These expenditures were not stipulated for in the 1999-2000 budgets of primary health care facilities, and they were covered at the expense of rayon budgets at the central rayon hospitals, (CRH).

However, according to the Order of the Oblast Health Department of February 26, 2001, primary health care facilities transferred money from the Organization's Development Funds to rayon drugstores as a payment of debts to the CRH for medications for vulnerable groups of people in 1999-2000. These payments were made without formal account payable by primary health care facilities to drugstores, which is not consistent with the Resolution of the Cabinet of Ministers of RU No 414, 1999, which sets forth the procedure of expending resources of the Organization's Development Funds.

#### **Problems related to financing**

- Uneven financing of primary health care facilities over the year (were not fully financed in the first quarter, and payment of all liabilities was done at the end of the fourth quarter).
- Absence of a clear legal framework regulating size and procedure of procurement of medications by primary health care facilities.
- Absence of some classes of drugs in drugstores, and inadequate financial mechanisms for supplying SVA and SVP with medications for emergency care.
- Lack of experience and skills of physicians and managers in use of financial resources allocated for the procurement of medications for primary health care.

## VIII. Drug Use Study

Each patient in this study had only one diagnosis recorded for the clinic visit for which data was abstracted, with an average of approximately 2.9 drugs prescribed per patient for each visit. Fifty-six percent of the study population had three or more drugs prescribed (Table 1). In Beshariq, 55% have three or more drugs prescribed, in Kuva only 40 percent had three or more drugs prescribed, and in Yazyavan 74 percent of cases had three or more prescriptions for one diagnosis at one visit.

**Table 1: Frequency and percent of the total amount of drugs prescribed per patient by rayon.**

# Drugs Prescribed	All 3 Rayons		Beshariq		Kuva		Yazyavan	
	# Pts. (n=1350)	%	# Pts. (n=450)	%	# Pts. (n=450)	%	# Pts. (n=450)	%
1	195	14.4%	60	13.3%	103	22.9%	32	7.1%
2	395	29.3%	145	32.2%	167	37.1%	83	18.4%
3	393	29.1%	133	29.6%	119	26.4%	141	31.3%
4	210	15.6%	74	16.4%	40	8.9%	96	21.3%
5	86	6.4%	25	5.6%	14	3.1%	47	10.4%
6	40	3.0%	8	1.8%	6	1.3%	26	5.8%
7	28	2.1%	5	1.1%	1	0.2%	22	4.9%
8-9	3	0.2%					3	0.7%

There was no real difference in the average number of drugs prescribed between SVPs and SVAs, males and females, different age groups; only a slight variation was visible among rayons (Table 2).

**Table 2: Average number of drugs prescribed per study patient by demographic characteristics and by rayon.**

Demographic Characteristics	All 3 Rayons	Beshariq	Kuva	Yazyavan
Average # of drugs prescribed	2.9	2.8	2.4	3.5
SVA	3.0	2.7	2.2	3.5
SVP	2.7	2.8	2.5	4.0
Female	2.8	2.7	2.3	3.5
Male	3.0	2.9	2.5	3.5
Age				
<1	2.8	2.6	2.4	3.3
1-5	2.7	2.8	2.3	3.5
6-14	2.9	2.5	2.7	3.6
15-19	2.9	2.8	2.4	3.3
20-34	2.9	2.9	2.4	3.6
35-49	2.7	2.8	2.3	3.4
50+	3.0	2.9	2.5	3.5

Fifty-seven percent of the population was prescribed at least one injectable drug (Table 3). Beshariq had the highest rate of injectables (61.1%), and Kuva the least (51.3%). Eighteen percent of all cases were prescribed three or more injectables, ranging per rayon from 11 to 27 percent.

**Table 3: Amount of injectables prescribed per patient by rayon**

# Of Injectables	All 3 Rayons (#of patients=1350)	Beshariq (#of patients = 450)	Kuva (#patients=450)	Yazyavan (#patients=450)

	# of Pts.	%						
0	580	43.0%	175	38.9%	219	48.7%	186	41.3%
1	335	24.8%	118	26.2%	120	26.7%	97	21.6%
2	190	14.1%	84	18.7%	60	13.3%	46	10.2%
≥3	245	18.1%	73	16.2%	51	11.3%	121	26.9%

Antibiotics were prescribed for 56.5 percent of all patients, ranging from 50.5 percent to 64.9 percent per rayon (Table 4). About 15 percent of total cases were prescribed two or more antibiotics, with Yazyavan rayon's overall rate being the highest, at 23 percent.

**Table 4: Amount of antibiotics prescribed per patient by rayon**

# of Antibiotics	All 3 Rayons (#of patients=1350)		Beshariq (#of patients = 450)		Kuva (#of patients = 450)		Yazyavan (#of patients = 450)	
	# of Pts.	%	# of Pts.	%	# of Pts.	%	# of Pts.	%
0	587	43.5%	223	49.6%	206	45.8%	158	35.1%
1	564	41.8%	187	41.6%	189	42.0%	188	41.8%
≥2	199	14.7%	40	8.9%	55	12.2%	104	23.1%

Below is a list of the diagnoses for which prescriptions were written (Table 5). Almost half of all patients seen were diagnosed with a respiratory problem. This may be partly due to the fact that data were abstracted on the last visit shown in the patient's ambulatory medical records during the winter. Regardless, it appears to be a significant medical problem. It is important to note that only curative visits were abstracted for this study, therefore neither prenatal visits nor child check up visits were included in this study.

**Table 5: Frequency and percent of categories of diagnoses by rayon.**

Categories of Diagnosis	All 3 Rayons		Beshariq		Kuva		Yazyavan	
	# Pts. (n=1350)	%	# Pts. (n=450)	%	# Pts. (n=450)	%	# Pts. (n=450)	%
Respiratory	630	46.7%	148	32.9%	217	48.2%	265	58.9%
Urinary Tract	124	9.2%	22	4.9%	62	13.8%	40	8.9%
Anemia	115	8.5%	48	10.7%	51	11.3%	16	3.6%
Musculoskeletal System	87	6.4%	44	9.8%	15	3.3%	28	6.2%
Digestive System, incl. Diarrhea	86	6.4%	45	10.0%	19	4.2%	20	4.5%
Skin	66	4.9%	43	9.6%	10	2.2%	13	2.9%
Hypertension	45	3.3%	19	4.2%	7	1.6%	19	4.2%
Central Nervous System	42	3.1%	15	3.3%	11	2.4%	16	3.6%
Female Genital	32	2.4%	4	0.9%	28	6.2%		
Minor Injury	13	1.0%	9	2.0%	1	0.2%	3	0.7%
Thyroid, including Goiter	13	1.0%	8	1.8%	4	0.9%	1	0.2%
Otitis Media	12	0.9%	11	2.4%			1	0.2%
Peripheral Nervous System	10	0.7%	2	0.4%	3	0.7%	5	1.1%
Circulatory	9	0.7%	1	0.2%	1	0.2%	7	1.6%
Heart Disease	9	0.7%	6	1.3%	3	0.7%		
Psychiatric	9	0.7%	4	0.9%			5	1.1%
Eye Disorders	5	0.4%	1	0.2%	4	0.9%		
Mumps	5	0.4%			3	0.7%	2	0.4%
Burns	2	0.1%	1	0.2%	1	0.2%		

Categories of Diagnosis	All 3 Rayons		Beshariq		Kuva		Yazyavan	
	# Pts. (n=1350)	%	# Pts. (n=450)	%	# Pts. (n=450)	%	# Pts. (n=450)	%
Pregnancy Complications	1	0.1%			1	0.2%		
Other or Missing Diagnosis	35	2.6%	17	3.7%	9	2.0%	9	2.0%

The following tables (6-10) show measures for the three most frequently diagnosed conditions: respiratory, urinary and anemia; plus two additional conditions: digestive disorders and hypertension, which were also included as these are problems that can often be managed in the primary healthcare facility. Also shown in these tables is the mean average age by condition. For respiratory problems, the median age is also noted as it differs from the mean age, showing that the midpoint of the range of all ages of all patients seen was younger than the mean age. When compared to the results for all diagnosed conditions that are shown in *Section VI, Brief Results*, it can be seen that the percent of generic drugs prescribed for respiratory illnesses is about 10 percent higher overall, and that the use of antibiotics is much higher in all sites for patients diagnosed with a respiratory illness. The rates of generic drugs prescribed for anemia is also 20 percent lower than the rate that is given for all disease categories. Antibiotic prescriptions for digestive, including diarrhea, disorders is 26 percent lower compared to the summary data in the above section.

**Table 6: Study patients with Respiratory Illnesses.**

Code	Description	Total	Beshariq	Kuva	Yazyavan
	Mean/Median Age	18 / 13	21 / 15	18 / 7	17 / 13
F4	Average number of drugs per visit	3.1	3.1	2.5	3.7
F5	Percent generic drugs prescribed	47.3%	45.7%	62.7%	39.7%
F6	Percent EDL drugs prescribed	83%	67.4%	66.8%	84%
F7	Percent patients prescribed injections	54.8%	67.6%	52.5%	49.4%
F7	Percent patients prescribed antibiotics	78.9%	85.8%	68.2%	83.8%

**Table 7: Study patients with diseases of the Urinary Tract.**

Code	Description	Total	Beshariq	Kuva	Yazyavan
	Mean / Median Age	30 / 30	32 / 35	31 / 30	27 / 26
F4	Average number of drugs per visit	2.9	3.3	2.3	3.7
F5	Percent generic drugs prescribed	38.3%	34.3%	50.7%	28.1%
F6	Percent EDL drugs prescribed	78.5%	100%	63.9%	82.2%
F7	Percent patients prescribed injections	79.8%	77.3%	77.4%	85%
F7	Percent patients prescribed antibiotics	93.5%	95.5%	96.8%	87.5%

**Table 8: Study patients with Anemia.**

Code	Description	Total	Beshariq	Kuva	Yazyavan
	Mean / Median Age	24 / 24	20 / 18	29 / 29	21 / 18
F4	Average number of	2.2	2.4	1.9	2.3

	drugs per visit				
F5	Percent generic drugs prescribed	17.9%	28.2%	5.2%	18.9%
F6	Percent EDL drugs prescribed	60.6%	100%	5.2%	81.1%
F7	Percent patients prescribed injections	32.2%	39.6%	20.3%	37.5%
F7	Percent patients prescribed antibiotics	1.7%	0%	2%	6.3% *(1 case)

**Table 9: Study patients with Hypertension.**

Code	Description	Total	Beshariq	Kuva	Yazyavan
	Mean / Median Age	58 / 60	60 / 61	54 / 47	57 / 58
F4	Average number of drugs per visit	3.1	2.9	2.2	3.6
F5	Percent generic drugs prescribed	16.7%	16.4%	13.3%	18.5%
F6	Percent EDL drugs prescribed	79%	100%	0%	83%
F7	Percent patients prescribed injections	68.9%	47.4%	57.1%	94.7%
F7	Percent patients prescribed antibiotics	2.2% *(1 case)	0%	0%	5.3% *(1 case)

**Table 10: Study patients with digestive diseases, including Diarrhea**

Code	Description	Total	Beshariq	Kuva	Yazyavan
	Mean / Median Age	28 / 28	30 / 32	24 / 24	28 / 28
F4	Average number of drugs per visit	2.5	2.5	2.2	3
F5	Percent generic drugs prescribed	18.8%	16.2%	31.7%	15%
F6	Percent EDL drugs prescribed	79.4%	100%	41.5%	60%
F7	Percent patients prescribed injections	47.7%	48.9%	36.8%	55%
F7	Percent patients prescribed antibiotics	30.2%	27.7%	26.3%	40%

## **IX. Availability and Pricing of Medications in Pharmacies; and Availability in the SVA/SVPs**

### **Availability**

One of the goals of the pharmaceutical sector reform is to improve the access of medications to patients. Availability of these medications directly affects the quality of care, and has significant political and social meaning. Availability also allows improvement of the practice of prescribing drugs by doctors, since it is not realistic for doctors to provide consistent rational treatment when the drug selection and supply varies greatly.

At this moment, many people in Ferghana Oblast have no adequate health care due to the inaccessibility of principal kinds of medications. Accessibility of medications seems to be decisive as it plays an important role in the efficiency of health care. For a patient, the situation depends on how much money he can spend from his income on health care. Economic problems of the majority of the population explain why many people cannot afford to buy quality medications. From a patient's perspective, less accessibility to medications means less accessibility to health care.

Examination of availability of products and their prices in 15 retail drugstores in Kuva, Yazyavan and Beshariq rayons revealed the inaccessibility of essential medications. The average accessibility of the studied medications was 50 percent, and ranged from 30 percent to 70 percent (Annex 5).

Some groups of medications are absent in private drugstores (for example oral contraceptives, iron sulfate), perhaps since these medications are often supplied as humanitarian aid.

All pharmacies have a list of drugs with fixed prices that constitute the 20 compulsory drugs that should be in stock. This list of drugs contains "Ferramidae", a medication that contains iron and is produced by local manufacturers.

On average, emergency drugs were absent from SVA/SVP for six months, when the total list of emergency drugs is considered. The range of availability of individual emergency drugs ranged from one to 12 months (Annex 4).

Examination of the list of emergency drugs intended to be used in life-threatening conditions (order OUZ No 11 of 01.14.01) showed that medications which have no clinical significance in treatment practice and that are not proved to be effective (Cordiamin, Cititon, Caffeine, No-spa, Dibasol), and preparations with commercial names (Suprastine, Pipolphen, and etc.) have been included. This is of concern since scarce resources are being expended on ineffective drugs.

### **Price formation and regulation:**

In three rayons of Ferghana Oblast, the average percentage of the median international price paid by customers in the surveyed drugstores was 243 percent with a range from 64 percent to 494 percent (See Annex 6). Interpretation of this must be carried out carefully and is difficult. Local prices may be higher than international median prices due to many factors that may not be easily remedied. These issues are discussed below.

High prices for medications is a complex and multi-factored problem. On one hand, the pricing policy is an integral part of the economic policy of the country; on the other hand, the issue of prices for medications has political, social and moral aspects. Therefore public regulation is an important tool for restraining the increase in prices for medications. However, with regard to the pricing issue, it is difficult to choose and substantiate an appropriate pricing method that would ensure stable supply of medications under high rates of inflation in an unstable economy. The method must be based on compensating or market pricing approaches as opposed to limiting principles of price regulation that are currently being used.

In order to reduce prices and improve accessibility of medications, as well as for the efficient use of budgetary resources at all levels, the Government of Uzbekistan enacted the Resolution “On streamlining the sale of medications and medical produce” of January 14, 1999. Intergovernmental Order No 642 “Procedure of applying trade allowances in selling medications and medical produce” was enacted on February 19, 1999. According to the order, wholesale trade allowances shall be up to 20 percent, and retail trade allowance shall be up to 25 percent. However, the main goal of “transparency” in pricing for medications was not achieved.

Various methods can be used regarding price regulation, e.g. from liberalization (complete release of prices) to a strict administrative-bureaucratic control (strict regulation of prices for the whole range of registered medications). In Europe, price regulation is closely related to regulating the compensation of their value. In general, countries with the percentage principle of value compensation have stronger pricing policies for medications, for example: France, Belgium, Italy, Hungary; and, in countries with the principle of limited compensation of value there is a milder procedure of price regulation (Sweden), or there is no regulation at all (Denmark, Germany). In all countries, the government regulates trade allowances for pharmaceutical wholesale and drugstores. There is a clear distinction between trade allowances for pharmaceutical wholesalers and those for drugstores. The trade allowances tend to become less dependent on the value. There is no correlation between the methods and intensity of price regulation and consumption of drugs per capita. For example, in France with its strict price regulation policy, there are higher expenditures for drugs per capita than in Germany where there is open pricing. In spite of the aforementioned absence of clear correlation, regulation of prices and expenditures in some countries tend to become stronger, mainly due to political requirements or introduction of stronger regulation of prices for medications.

Another important point about price regulation is that the free market best regulates generic drug prices provided that there are no artificial barriers to entry of the product such as high registration fees. For brand name products only available from a single provider, price controls may be necessary. The best method of price control is probably the method used in Australia called therapeutic value pricing. In this system, prices are determined according to the efficacy of the drug in treating a condition.

The following points should be carefully considered before considering price controls.

- There is no universally applicable pricing system. Therefore, it is not possible to simply copy, for example, the Swedish or any other model in Uzbekistan.
- The wholesale trade allowance can significantly vary from country to country. So, in Uzbekistan it should be based on the peculiar features of the distribution system.
- In the European Union and in the USA there is a stable economy and low rates of inflation, which affects the formation of trade allowances for wholesale and other trade networks. For example, the rate of inflation in the USA in year 2000 was two percent, but it is 28.2 percent in Uzbekistan according to official data.
- Retrospective analysis of the efficiency of governmental control over prices for medications implemented by a number of experts in pharmaceutical markets of Europe showed that there is some positive effect within the first year after their introduction, but this diminishes during the second, and can become negative later on. This needs to be considered.
- The government can only practically regulate prices for those medications for which it pays or compensates (normally, privileged type or free medications from the list of vital medications).
- It is important to carefully review the list of registered drugs in the country to ascertain whether the quantity and type of drugs being registered can meet the needs of the market. Otherwise price controls still may have no effect.

### **Problems related to the availability and pricing of medications**

- Limited national currency conversion continues to be a problem. Issues of money conversion are a global problem, and they hinder the development of reforms in the pharmaceutical sector. Like all Central Asian countries, Uzbekistan is a consumer of imported drugs, and the Government issues quarterly permits (quotas) to convert national currency into hard currency. For private pharmaceutical companies, the quarterly quota ranges from \$50,000 to \$600,000 US, and it is \$660,000 US for the Joint-Stock Association “Dari-Darmon”. As a matter of comparison, the same amount is only a month’s worth turnover of a middle-size pharmaceutical company in Kazakhstan. Ferghana Oblast state-owned JS Company “Dari-Darmon” has no quota at all.
- One of the priority tasks of the governmental price regulation is the economic accessibility of medications. However, if medications are not physically available, it is difficult to solve problems of economic accessibility. The government should regulate prices for medications only when the market is rich in drugs and there are high prices or there is no competition in the market. Second, governmental interference may not be desirable when there is actual competition at the wholesale market. Under current economic situation, interference of governmental bodies in price regulation is only possible for the drugs, which are compensated by the government.

## **X. Pharmaceutical Activities of the Private Sector**

According to the Resolution of the Cabinet of Ministers No. 132 of November 3, 1994 “On denationalization and privatization of drugstores of MOH of the Republic of Uzbekistan”, and to the Order of the State Property Committee No 381K-PO of June 24, 1994, the Ferghana Oblast Production Association “Farmatsiya” was transformed into a Joint-Stock Association of the open type “Ferghana Dari-Darmon”.

The Ferghana Oblast Production Association “Farmatsiya” supervised 248 drugstores, including 13 drugstores within hospitals. The supervision was delegated to the Oblast Health Department, and two drugstores were transferred under the supervision of independent funds, “Soglom avlod uchun” and “Ekosan”.

At the time of this study, there were 316 drugstores in Ferghana Oblast, including 282 private ones. Only eight drugstores are engaged in the wholesale of medications, five of them are in Ferghana, and the others are located in Margelan, Kokand and in Uchkuprik Rayons.

Pharmaceutical activities are regulated by legislative acts, orders and sanitary standards and rules. However, some retail drugstores do not conform to sanitary rules and standards. In 2000, specialists of the Oblast branch of “Dari-Darmon” jointly with inspectors of the National Tax Inspectorate, Oblast SES and Prosecutor’s Office carried out 119 inspections of retail spots.

Inspections in the year 2000 resulted in the termination of licenses from the MOH for 12 drugstores, and the imposition of fines by SES on 45 drugstore heads; seventeen heads of drugstores were rebuked, and for nine drugstores, the results of inspection were sent to the tax inspectorate, and for five drugstores the results were sent to the enforcement agencies. However, many retail drugstores and wholesale companies were not inspected. In many countries, drugstores, manufacturing companies and wholesalers are inspected at least once a year.

Many pharmacists lack management skills, as they were not required to have them under the centrally controlled drugs supply system. Many drugstores face difficulties in preserving their economic vitality while transitioning to the local management of retail drugstores from the centralized system of drugs supply.

Demand of the majority of outpatients in medications is satisfied through the network of retail drugstores. However, private drugstores prefer selling industrially manufactured drugs, and do not produce medications under individual prescriptions. They partially serve patients of privileged categories, as the aforementioned services are work-intensive and not cost-effective.

Some other kinds of activities related to the private sector are described in section II, Review of the Health care system structure: policy, legal, finance.

### **Problems related to pharmaceutical activities**

- Absence of real mechanisms for the development of retail trade in medications.
- Inadequate professional qualifications (business skills) of pharmacists. Uzbekistan has a huge human and intellectual potential in the pharmaceutical sector. Yet in many cases, knowledge and skills are outdated or not consistent with new realities. Mainly, the work of pharmacists in drugstores does not differ from that of sellers in the bazaar. Lack of knowledge of marketing, ignorance of unlicensed international names of drugs, of fundamentals of the efficient use of drugs, and absence of business-plans is common, especially in rayons. It will be particularly important to involve pharmacists if the government decides to promote generics.

## XI. Annexes

### Annex 1: Contact persons

**Table 1: Contact persons collaborating with ZdravPlus**

Organization/Institution	Name	Position
Ministry of Health (MOH)	Marat Khydaikulovich Khodjibekov	Deputy Minister of Health
	Akhmat Nigmatovich Yunuskhodjaev	Head of the Main Control Department for Quality of Medications and Medical Equipment
Oblast Health Care Department (OHCD)	Khamrakhon Kholmiraevna Khodjirakhmatova	Head of the Oblast Health Care Department
	Shavkat Yuldashevich Khusanbaev	Deputy Head of the Oblast Health Care Department
	Gulyam Burkhanovich Zaylbidinov	Deputy Head of the Oblast Health Care Department
	Margarita Georgievna Kuzmina	Head of the Economic Planning Department
Joint-Stock Association (JSA) "Dari-Darmon"	Mukhamadamin Abdulvasievich Tursunov	Chairman of the Board of Directors of Ferghana JSA "Dari-Darmon"
	Khabiba Mamatupaimovna Oripova	Head of the Oblast Control and Analytical Laboratory
Independent Fund "Soglom ablod uchun", wholesale enterprise	Kamaliddin Abdukunduzovich Umurzakov	Director

## Annex 2: Data Collection Group

**Table 2: Data collection group**

	Name	Institution	Position
1.	L.K. Muratova	JSA "Dari Darmon"	Pharmacist-inspector
2.	M. Kasimov	NGO "Xamrad"	NGO Leader
3.	S. Yldashev	Red Crescent Society	Doctor at RCS
4.	X. Mansurov	-«-	-«-

## Annex 3: List of Surveyed Drugs

**Table 3: List of surveyed drugs in the retail pharmacies**

№	Name of medication	Dosage	Form
1	Amoksicillinum	250 mg	Tablets
2	Ampicillinum trihydrate	250 mg	Tablets
3	Ferric sulfate	20 mg	Tablets
4	Acetylsalicylic acid	500 mg	Tablets
5	Ko-trimoxasolum	480 mg	Tablets
6	Benzatin benzylpenicillin	2.4 ml	Injection
7	Bromhexin chlorid	8 ml	Tablets
8	Gentamycin	4%-2 ml	Injection
9	Rehydron		Powder
10	Digoxin	0.25 mg	Tablets
11	Indometacin	25 mg	Tablets
13	Clonidine	0.15 mg	Tablets
14	Glibenclamid	5 mg	Tablets
15	Metronidazol	250 mg	Tablets
16	Nitroglycerin	0.5 mg	Tablets
17	Nifedipin	10 mg	Drops
18	Papaverine	2% 2 ml	Injection
19	Paracetamol	500 mg	Tablets
20	Prednisolon	5 mg	Tablets
21	Propranolol	10 mg	Tablets
22	Salbutamol	200 doses	Spray
23	Sennade		Tablets
24	Erythromycin	500 mg	Tablets
25	Furosemid	40 mg	Tablets
26	Cimetidin	200 mg	Tablets
27	Noretisteron	200 mg/ml	Tablets
28	Ethinylestradiol+ levonorgestrel	30mcg+150mcg	Tablets
29	Ethinylestradiol + levonorgestrel	30mcg+50mcg	Tablets

## Annex 4: List of Surveyed Drugs

**Table 4: List of drugs surveyed to review the availability of medications for emergency care in SVA and SVP**

Nº	Generic name	Dosage	Form	Average months in a year not available
1	Adrenaline	1 mg	Injec.	4.5
2	Atropine sulfate	0.1%-1.0	Injec.	6.87
3	Strophanthin	0.05% 1 ml	Injec.	2.3
4	Platyphyllin hydrotartrat	1mg	Injec.	3.8
5	Papaverine hydrotartrat	0.25%-1.0	Injec.	4.8
6	Dibasol	0.5-2.0 ml	Injec.	1.7
7	No-Spa	2.0 ml	Injec.	3.6
8	Aminophylline	2.4%-10 ml	Injec.	1.13
9	Caffeine	10%-1.0	Injec.	10.07
10	Cordiamin	25%-1.0	Injec.	9.4
11	Cititon	1.0 ml	Injec.	11.2
12	Sodium chloride isotonic solution	0.9%-400 ml	Injec.	4
13	Furosemid	2 ml	Injec.	4.8
14	Dimedrol	1%-1.0 ml	Injec.	0.9
15	Suprastine	2%-1.0 ml	Injec.	7.73
16	Pipolphen	2,5%-1.0 ml	Injec.	12
17	Prednisolon	1.0 ml	Injec.	2.93
18	Hydrocortisone	5.0 ml	Injec.	11.6
19	Dexamethasone	1.0 ml	Injec.	10.47
20	Calcium chloride	10%-10, ml	Injec.	4.87
21	Magnesium sulfate	25%-10.0 ml	Injec.	4
22	Pentamin	1.0 ml	Injec.	11.8
23	Aminazine	2.5%-1.0 ml	Injec.	11.6
24	Sodium oxybutyrate	20%-10.0 ml	Injec.	12
25	Thiopental-Sodium	10%-10,0 ml	Injec.	12
26	Glucose	40%-20.0 ml	Injec.	4.07
27	Glucose	5%-400.0 ml	Injec.	2.77
28	Polyglucine	400 ml	Injec.	7.97
29	Reopolyglucine	400 ml	Injec.	12
30	Gemodez	200 ml	Injec.	3.23
31	Tincture of iodine	5%-400 ml	Flask	0.7
32	Brilliant green	1%-15 ml	Flask	1.27
33	Potassium permanganate acid	3.0 mg	Flask	0.8
34	Tincture of Valerian	25 ml	Flask	4.93
35	Ethyl alcohol	70%-50 ml	Bottle	1
36	Ethyl alcohol	86%-50 ml	Bottle	11.8
	<b>Average</b>			<b>6.13</b>

## Annex 5: Retail Prices at Drugstores in Ferghana Oblast

Commercial Exchange rate was 675 som to the US dollar:

**Inspection of retail drugstores:** number of inspected drugstores - 15

1. The average availability of control medications: **50%** at the range from **30%** to **70%**
12. Average percentage of median international price paid by customers at the inspected retail drugstores: 243% at the range from 64% to 494%
13. Average difference factor between minimum/maximum prices for control medications: **1,99** at the range from **1,02** to **5,00**

**Table 5: Retail prices at drugstores in Ferghana Oblast**

No	International Unlicensed Names of Medications	Dosage	Form	Local median price per piece (\$)	International median price per piece (\$)	% of international median	Minimum price (sum)	Maximum price (sum)	Min/max prices difference factor
1	Amoksicillinum	250 mg	Tablets	0,04938	0.02380	207%	30.4	46.83	1,54
2	Ampicillinum trihydrate	250 mg	Tablets	0,03704	0.02350	158%	20	30	1,50
3	Acetylsalecylic acid	500 mg	Tablets	0,00889	0.00290	307%	4.8	9.2	1,92
4	Ko-trimoxasolum	480 mg	Tablets	0,05926	0.0120	494%	21.25	42	1,98
5	Benzatin benzylpenicillin	1 ml	Injec.	0,12593	0.19550	64%	75	100	1,33
6	Gentamycin	4%-2ml	Solution for injections	0,12963	0.06630	196%	70	180	2,57
7	Regydron		Powder	0,05926	0.07200	82%	80	80	1,00
8	Digoxin	0.25 mg	Tablets	0,02222	0.00600	370%	5	25	5,00
9	Indometacin	25 mg	Tablets	0,01235	0.00300	412%	7.5	10	1,33
10	Glibenclamid	5 mg	Tablets	0,01605	0.00410	391%	8.3	13	1,57
11	Metronidazol	250 mg	Tablets	0,02667	0.00600	444%	15	55	3,67
12	Nitroglycerin	0.5 mg	Tablets	0,00926	0.00550	168%	1.88	6.25	3,32
13	Nifedipin	10 mg	Drops	0,04444	0.01650	269%	30	30.5	1,02
14	Papaverine	2% 2 ml	Injec.	0,06667	0.07200	93%	32	65	2,03
15	Paracetamol	500 mg	Tablets	0,01481	0.00380	390%	7.5	12.5	1,67
16	Prednisolone	5 mg	Tablets	0,02667	0.00900	296%	10	20	2,00
17	Propranolol	10 mg	Tablets	0,01333	0.00970	137%	8	10	1,25
18	Salbutamol	200 doses	Spray	2,74074	1.70000	161%	1750	2800	1,60
19	Sennade		Tablets	0,00889	0.00760	117%	3.8	6	1,58
20	Erythromycin	500 mg	Tablets	0,08074	0.09230	87%	30	79	2,63
21	Furosemid	40 mg	Tablets	0,01481	0.00570	260%	7.8	14	1,79

<b>№</b>	<b>International Unlicensed Names of Medications</b>	<b>Dosage</b>	<b>Form</b>	<b>Local median price per piece (\$)</b>	<b>International median price per piece (\$)</b>	<b>% of international median</b>	<b>Minimum price (sum)</b>	<b>Maximum price (sum)</b>	<b>Min/max prices difference factor</b>
22	Cimetidin	200 mg	Tablets	0,04889	0.01230	397%	28	40	1,43
23	Condoms with spermicide or without it			0,04444	0.0490	91%	25	50	2,00
24	Ferric sulfate*	20mg	Tablets	None	0.00320	None	None	None	None
25	Noretisteron *	200 mg/ml	Oily solution	None	None	None	None	None	None
26	Ethinylestradiol + levonorgestrel*	30 mcg + 150 mcg	Tablets	None	None	None	None	None	None

## Annex 6: Form for data collection

**Table 6: Form for data collection; for comparison of prices and availability of drugs studied in pharmacies**

№	International Unlicensed Names of Medications	Dosage	Form	Quantity of pieces in the package	Price 1	Price 2	Price 3	Price 4	Price 5
1	Amoksicillinum	250 mg	Tablets						
2	Ampicillinum trihydrate	250 mg	Tablets						
3	Acetylsalecylic acid	500 mg	Tablets						
4	Ko-trimoxasolum	480 mg	Tablets						
5	Benzatin benzylpenicillin	1 ml	Injec.						
6	Gentamycin	4%-2ml	Injec						
7	Regydron		Powder						
8	Digoxin	0.25 mg	Tablets						
9	Indometacin	25 mg	Tablets						
10	Glibenclamid	5 mg	Tablets						
11	Metronidazol	250 mg	Tablets						
12	Nitroglycerin	0.5 mg	Tablets						
13	Nifedipin	10 mg	Drops						
14	Papaverine	2% 2 ml	Injec.						
15	Paracetamol	500 mg	Tablets						
16	Prednisolone	5 mg	Tablets						
17	Propranolol	10 mg	Tablets						
18	Salbutamol	200 doses	Spray						
19	Sennade		Tablets						
20	Erythromycin	500 mg	Tablets						
21	Furosemid	40 mg	Tablets						
22	Cimetidin	200 mg	Tablets						
23	Condoms w/ or w/o spermicide								
24	Ferric sulfate*	20mg	Tablets						
25	Noretisteron *	200 mg/ml	Oily solution						
26	Ethinylestradiol + levonorgestrel *	30 mcg + 150 mcg	Tablets						
27	Baktrim	480mg	Tablets						
28	Bromgexine	8mg	Tablets						
29	Clonidine(Clopheline)	0.15mg	Tablets						
30	Ethinylestradiol + levonorgestrel	30mcg+50mcg	Tablets						

## Annex 7: Form for Emergency Drug Availability

**Table 7: Form for Emergency Drug Availability in SVA/SVP**

No	Generic name	Dosage	Form	Availability at the time of inspection	Time out of stock
1	Adrenaline	1 mg	Injec.		
2	Atropine sulfate	0.1%-1.0	Injec.		
3	Strophanthin	0.05% 1 ml	Injec.		
4	Platyphyllin hydrotartrat	1mg	Injec.		
5	Papaverine hydrotartrat	0.25%-1.0	Injec.		
6	Dibasol	0.5-2.0 ml	Injec.		
7	No-Spa	2.0 ml	Injec.		
8	Aminophylline	2.4%-10 ml	Injec.		
9	Caffeine	10%-1.0	Injec.		
10	Cordiamin	25%-1.0	Injec.		
11	Cititon	1.0 ml	Injec.		
12	Sodium chloride	0.9%-400 ml	Injec.		
13	Furosemid	2 ml	Injec.		
14	Dimedrol	1%-1.0 ml	Injec.		
15	Suprastine	2%-1.0 ml	Injec.		
16	Pipolphen	2,5%-1.0 ml	Injec.		
17	Prednisolon	1.0 ml	Injec.		
18	Hydrocortisone	5.0 ml	Injec.		
19	Dexamethasone	1.0 ml	Injec.		
20	Calcium chloride	10%-10, ml	Injec.		
21	Magnesium sulfate	25%-10.0 ml	Injec.		
22	Pentamin	1.0 ml	Injec.		
23	Aminazine	2.5%-1.0 ml	Injec.		
24	Sodium oxybutyrate	20%-10.0 ml	Injec.		
25	Thiopental-Sodium	10%-10,0 ml	Injec.		
26	Glucose	40%-20.0 ml	Injec.		
27	Glucose	5%-400.0 ml	Injec.		
28	Polyglucine	400 ml	Injec.		
29	Reopolyglucine	400 ml	Injec.		
30	Gemodez	200 ml	Injec.		
31	Tincture of iodine	5%-400 ml	Flask		
32	Brilliant green	1%-15 ml	Flask		
33	Potassium permanganate acid	3.0 mg	Flask		
34	Tincture of Valerian	25 ml	Flask		
35	Ethyl alcohol	70%-50 ml	Bottle		
36	Ethyl alcohol	86%-50 ml	Bottle		

## Annex 8: Form for Drug Use Analysis

Date: d\_\_\_\_ \ m\_\_\_\_ \ y\_\_\_\_

Data collector \_\_\_\_\_

Health Facility: [SVA] [SVP]

Rayon: [Kuva] [Yazyavan] [Beshariq]

Kishlak: \_\_\_\_\_

Last name: \_\_\_\_\_

First name: \_\_\_\_\_

Date of birth: \_\_\_\_\_

Date of encounter d\_\_\_\_ \ m\_\_\_\_ \ y\_\_\_\_

Diagnoses: \_\_\_\_\_

ICD: [ ][ ][ ][ ]

N	Medication	Mg\ 1 dosage	How many times a day	Number of days	Injections	Generic	Antibiotic	EDL
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
Total								

## Annex 9: Exchange rates in the Republic of Uzbekistan (RU)

- A) Commercial Exchange Rate since July 2000 was 675 som to one US Dollar
- B) Government (official) exchange rate for Som in US Dollars in the RU in the year 2000

Month	Date of change	\$ US
January	4.01	140,46
	11.01	140,93
	18.01	141,40
	25.01	141,88
February	1.02	142.34
	8.02	142.80
	15.02	143.27
	22.02	143.73
	29.02	144.19
March	7.03	144.93
	14.03	145.67
	21.03	146.40
	28.03	147.15
April	4.04	147.70
	11.04	148.25
	18.04	148.82
	25.04	149.38
May	1.05	231.00
	9.05	232.20
	16.05	235.42
	23.05	237.65
	30.05	237.65
June	1.06	242.05
	13.06	246.48
	20.06	250.93
	27.06	255.40
July	4.07	260.59
	11.07	265.82
	18.07	271.07
	25.07	276.35
August	1.08	278.93
	8.08	281.53
	15.08	284.14
	22.08	286.76
	29.08	289.40
September	5.09	291.83
	12.09	294.28
	19.09	296.74
	26.09	299.21
October	3.10	300.81
	10.10	302.41
	17.10	304.02
	24.10	305.63
	31.10	307.25

November	7.11	309.48
	14.11	311.73
	21.11	313.99
	28.11	316.25
December	5.12	318.43
	12.12	320.61
	19.12	322.80
	26.12	325.00