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**RYAZAN OBLAST
RATIONAL PHARMACEUTICAL
MANAGEMENT PROJECT
RUSSIA PHARMACEUTICAL SECTOR
ASSESSMENT**

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Table of Contents

INTRODUCTION	1
SECTION ONE	
SUMMARY OF FINDINGS OF THE RYAZAN ASSESSMENT	1
I RPM ASSESSMENT METHODOLOGY	1
A Assessment Personnel	1
B Data Collection Tools and Tracer Drugs	2
C Data Collection Methodology	6
D Description of the Assessment Process	7
II OBLAST ADMINISTRATION HEALTH DEPARTMENT CONCERNS RELATED TO PHARMACEUTICAL MANAGEMENT	18
III ACTIVITIES OF OTHER DONORS AND INTERNATIONAL AGENCIES IN RYAZAN	19
IV GAPS AND POSSIBLE RPM ASSISTANCE	20
A Product Selection and Formulary List Development	20
B Procurement and Tender Management	22
C Drug Information Development	24
SECTION TWO	
FINDINGS OF THE RYAZAN ASSESSMENT	29
V PUBLIC SECTOR DRUG SUPPLY SYSTEM	31
A The National Drug Supply System Under the Soviet Union and Today	31
B Structure and Organization of the Ryazan Drug Supply System	34
C Public Health Facility Staffing	41
VI FINANCE	43
A Funding Public Sector Drug Purchases in Ryazan Oblast	44
B Oblast Budget and Expenditures	48
C Pharmacia Financial Information	50
D Kiritsy Financial Information	54
E Oblast Hospital Financial Information	55
F Financial Debt in the Pharmaceutical System	56
G Pricing Policy	58
H User Fees	58
I Exempt Patients	61
J Insurance Medicine	61
K Decree # 890	63
L Areas of Concern Related to Finance	67

VII	DRUG PROCUREMENT	69
	A Procurement Decisions and Responsibilities	69
	B Drug Procurement by Ryazan Pharmacia	71
	C Pharmacia Sales to Clients	76
	D Drug Procurement by Kiritsy	79
	E Private Wholesale Distributors	81
	F Procurement By Health Facilities From Other Suppliers	82
	G Donations of Drugs	83
	H Areas of Concern Related to Drug Procurement	84
VIII	THE DRUG DISTRIBUTION SYSTEM	90
	A Ryazan Pharmacia	91
	B Kiritsy Warehouse	96
	C Oblast Hospital	99
	D Other Health Facilities	106
	E Areas of Concern Related to Drug Distribution	108
IX	COMMUNITY PHARMACY SYSTEM	110
	A Regulation and Inspection	111
	B Prescriptions and Dispensing	112
	C Recordkeeping	114
	D Generic and Therapeutic Substitution	114
	E Operations	114
	F Education	116
	G Community Pharmacy Survey in the Assessment	116
	H Infrastructure and Equipment	119
	I Areas of Concern Related to Community Pharmacy	123
X	DRUG CONTROL LEGISLATION	124
XI	DRUG UTILIZATION AND DISEASE PATTERNS IN THE OBLAST	128
	A Treatment Protocols	140
	B Areas of Concern Related to Drug Utilization and Disease Patterns in the Oblast	142
XII	QUALITY CONTROL TESTING AND INSPECTIONS	145
	A Areas of Concern Related to Quality Control	149
XIII	DRUG INFORMATION	151
	A Pharmacia	151
	B Ryazan Oblast Scientific Medical Library	154
	C Central Resource Bureau	158
	D Ryazan Medical University Library	160
	E Oblast Hospital	162
	F Industry-Sponsored Activities	163
	G Formulary Manuals	163
	H Drug Information Specialists	164
	I Areas of Concern Related to Drug Information	164

XIV	UNIVERSITY AND POST GRADUATE TRAINING IN PHARMACY AND MEDICINE	165
A	Role of the Pharmacology Department	165
B	Curriculum for Pharmacist Students	167
C	Curriculum for Medical Students	168
D	Post Graduate Training of Physicians and Other Medical Personnel in the Oblast	169
E	Areas of Concern Related to Training	171
ANNEXES		173
	Annex One List of Acronyms	175
	Annex Two Documents Reviewed	179
	Annex Three Persons Met	183
	Annex Four Data Collectors and Facilities	191
	Annex Five Ryazan Oblast Health Facilities and Community Pharmacies Surveyed	195
	Annex Six Russian Essential Drug List	199
	Annex Seven Therapeutic Classification Scheme for Russian Drugs	203
	Annex Eight Network of Medical Establishments in Regions of Ryazan Oblast in 1993	207
	Annex Nine Appendix 1 and 2 to the Russian Federation Government Decree of 11 December, 1992, #970	217
	Annex Ten List of Drugs Out of Stock at Pharmacia for Over a Month	227
	Annex Eleven Selected Standard Treatment Guidelines, Ryazan Oblast Hospital 1993	233
	Annex Twelve Ryazan Medical University Catalog of Books on Drugs	239
	Annex Thirteen Pharmacology Curriculum 3rd and 4th Year Pharmacist School, Ryazan Medical University	253
	Annex Fourteen Pharmacology Curriculum 3rd year Medical School, Ryazan Medical University	259
	Annex Fifteen 5th Year Medical School Curriculum	265

INTRODUCTION

The Rational Pharmaceutical Management (RPM) Project was developed by the United States Agency for International Development (USAID) to work in the pharmaceutical sector in several host countries world-wide. RPM is composed of two centrally funded cooperative agreements with USAID G/Health: one is with Management Sciences for Health (MSH) and the other is with the United States Pharmacopeia Convention, Inc. (USP). This project is being carried out through the MSH component of RPM.

Management Sciences for Health is a non-profit organization with 190 full-time technical staff. Areas in which the organization provides assistance world-wide include pharmaceutical management, management information systems, health financing, health policy, management training, maternal and child health, population, and occupational and environmental health. MSH has provided assistance in these areas to over 70 countries.

The RPM Project is being carried out through the Drug Management Program (DMP) of MSH. DMP staff and consultants have experience and expertise in conducting pharmaceutical assessments, policy analysis and dialogue, rationalization of drug procurement and inventory management, drug management information systems, drug finance and budgetary reform, promotion of rational drug use, development of drug information systems, and development of training programs.

RPM has core funding to work in three major technical areas:

- Strengthening and automating drug registration procedures,
- Rationalizing drug procurement and inventory management, and
- Promoting rational drug use/strengthening drug information

The dissolution of the Soviet Union, and the shift from command to market economies, have disrupted pharmaceutical supply systems of former Soviet Republics. In order to help facilitate reform, the MSH Cooperative Agreement of the RPM Project received additional funding, through the NIS Add-on, for work in Russia and one other country from the Newly Independent States (NIS).

Specifically, the program of activities for the NIS Add-on includes:

- 1 **Reconnaissance visits** to Russia and one other NIS country likely to be involved in long term projects,
- 2 **Pharmaceutical sector assessments and policy option analyses** to be carried out in the two target countries,
- 3 **Workshops** on "Current Priorities in Pharmaceutical Management," to be held in the two target countries and

- 4 **Technical assistance in formulary management/product selection, procurement and tender management, and drug information development**, to be provided within one demonstration oblast¹ in the Russian Federation, with the intention that RPM work produces concrete outputs that may be used in other Russian oblasts or NIS countries during follow-on projects

Pharmaceutical sector reform will be encouraged through the technical assistance component, which will include training courses, consultant visits, and provision of equipment, such as computer hardware and software

Two RPM reconnaissance visits were conducted at the outset of the project. During the first visit, RPM met with USAID/Moscow, and the Russian Ministry of Health (MOH)², to brief them on the project. On the recommendation of the MOH, RPM began a collaborative relationship with Pharmedinfo, the Moscow-based Russian Center for Pharmaceutical and Medical-technical Information. Pharmedinfo was instrumental in recommending possible demonstration oblasts, and briefing RPM staff on the status of the Russian pharmaceutical sector.

RPM and USAID/Moscow developed the following criteria for selection of the demonstration oblast, based on technical activities proposed under the add-on:

- Interest, receptivity and capability on the part of policy and operations level personnel to developing reformed pharmaceutical procurement programs,
- Policies in place to facilitate international procurement,
- Logistics feasibility in terms of working with the MOH and bringing high-level U S consultants to the site,
- Potential for developing a replicable demonstration project in procurement, formulary management and drug information, and
- Presence of a Medical/Pharmacy School capable of becoming an on-going training center and base for drug information activities

Following visits to Saint Petersburg, Perm, Kaluga and Ryazan oblasts, Ryazan (population of approximately 1.3 million persons, and located three hours south-east of Moscow by automobile) was chosen as the site for the demonstration project. In addition to meeting all established criteria, during the RPM visit, Ryazan officials expressed strong interest in assistance in:

- improving availability of essential drugs,
- improving prescribing practices,

¹ A Russian oblast is comparable to a United States state. Oblasts are divided into rayons, comparable to districts or counties. There are 86 oblasts in the Russian Federation.

² The official name of the Russian Ministry of Health is "Ministry of Health and Medical Industry of the Russian Federation." In this report, "Ministry of Health" or "MOH" will be used.

- modifying the drug pricing structure,
- obtaining foreign drugs at lower prices,
- assuring drug quality,
- improving access to drug information, and
- development of standard treatment guidelines

Additionally, the oblast has access to local funds for drug procurement, and interest in implementing competitive procurement techniques. The presence of a prominent Medical University made Ryazan a particularly promising site for the training aspects of the demonstration activity.

The pharmaceutical sector assessment, conducted from 16 May-11 June, 1994, was preceded by a week-long planning meeting at the MSH office in Washington. The meeting, attended by RPM staff and Ryazan officials, was used to develop the assessment instrument and formulate the assessment plan.

Following the field portion of the assessment, two Washington meetings, attended by Ryazan and Moscow officials were used to analyze data and prepare the draft report.

This report presents assessment findings, identifies gaps that may be amenable to RPM activities, and suggests possible courses of action to correct problems. It will serve as the basis for a workshop to be held in Ryazan in November 1994, where RPM, local, and national level participants will decide on a specific program of technical activities and the implementation timeline.

Based on assessment findings, some technical activities that may be carried out in Ryazan over the next year include:

- a quantification of oblast drug needs, using computer software developed by MSH and modified for use in Ryazan,
- revision of priority drug lists and treatment protocols,
- improvement of drug management information systems,
- introduction of competitive procurement techniques,
- assistance with financial reform efforts, including the development of drug pricing models, and addressing privatization issues,
- training in general and financial management for managers in the pharmaceutical system.

We wish to express our appreciation to all those individuals who helped plan and conduct the assessment, allowed themselves to be interviewed, and supplied data. A list of persons who participated in the assessment is included as an annex. In particular, we would like to thank Mr. Tony Boni, Dr. Jack Lesar and Dr. Nikita Afanasiev of USAID, Mrs. Galina Shashkova of Pharmedinfo, as well as Mr. Andrei Tarasov, Dr. Dmitri Voronkov, Mrs. Valentina Grechenko, Mr. Valentin Dykin, and Mrs. Natalia Popova, from Ryazan Oblast, for their considerable support and involvement in planning and conducting the assessment.

The following individuals also should also be recognized for their valuable contributions

Valentina Makarova
Victor Okorokov
Nikolai Selezenev
Gennadi Kotov
Svetlana Koutchkovskaya
Alexander Uzdenikov
Oleg Levin

Special thanks are also extended to Dr Eugen Stroev, Rector of the Ryazan Medical University, for providing the highly qualified data collectors that participated in the assessment, and Mr Gennadi Merkulov, Head of Ryazan Oblast Administration, without whose cooperation this activity would not have been possible. Finally, thanks to Denisha Trouard and Julie McFadyen for their considerable contributions in processing assessment data and producing this report.

Producing a report, such as this one, that is to be read by both Russian and English-language readers, with varying knowledge of pharmaceutical sector concepts and terminology, presented a significant challenge. What may initially appear to be excessive use of definitions, explanations and descriptions was felt by the authors to be necessary in order to make the report understandable to a diverse group of readers.

SECTION ONE
SUMMARY OF FINDINGS OF THE RYAZAN ASSESSMENT

I RPM ASSESSMENT METHODOLOGY

The Ryazan assessment has the following objectives

- The USAID Mission will get an understanding of pharmaceutical sector problems encountered in a typical Russian oblast. Findings will be useful in developing a longer-term strategy for the Russian Federation
- Ryazan officials will be provided with a comprehensive report of the status of the local pharmaceutical sector, and an options analysis to address problems identified in the assessment
- RPM will identify opportunities for future technical activities in formulary management/product selection, procurement and tender management, and drug information development, in Ryazan Oblast, using NIS Add-on funds
- The assessment will serve as the basis for a Ryazan Policy Options Workshop, to be held in November, 1994, in which RPM, USAID, and local and national health officials and specialists will develop an implementation plan for addressing pharmaceutical system problems in Ryazan

A Assessment Personnel

The study team included the following members

Anthony Savelli	MSH/Washington, RPM Core Staff Member/NIS Add-on Project Manager
Jean-Pierre Sallet	MSH/Washington, RPM Core Staff Member/Management Information Systems Coordinator
Hilbrand Haak	Therapeutics/Formulary Advisor
Olya Duzey	Community Pharmacy/Drug Information Advisor
Andrei Zagorski	MSH/Moscow, RPM Coordinator/Logistics Advisor/Interpreter/Translator
Denisha Trouard	MSH/Washington Senior Program Assistant

Data collectors consisted of pharmacists and epidemiologists, provided by the Ryazan Medical University, the Pharmaceutical Committee, and Pharmacia. Their role was to conduct assessments of health facilities and community pharmacies in four of Ryazan's 24 rayons. The names and backgrounds of data collectors can be found in Annex Four.

B Data Collection Tools and Tracer Drugs

The data collection tools used in Ryazan were developed by modifying those used in earlier RPM assessments. Four representatives from Ryazan attended a meeting at the MSH office in Washington D C to review and revise the document, to choose tracer drugs for health facilities/warehouses and community pharmacies, and to choose health facilities and pharmacies to be included in the survey. The resulting assessment tool contained the following elements:

Oblast Survey

- 1 Oblast Administration Questionnaire
- 2 Oblast Administration Health Department Questionnaire
- 3 Pharmaceutical Committee Questionnaire
- 4 Community Pharmacy Administrative Questionnaire

Pharmacia³/Kiritsy Survey

- 1 Pharmacia/Kiritsy Questionnaire
- 2 Pharmacia/Kiritsy Physical Inventory and Stock Records Information Form
- 3 Pharmacia/Kiritsy Procurement/Price Analysis Form
- 4 Pharmacia/Kiritsy Tracer Drug List
- 5 Generic⁴ Equivalency List

Rayon Survey

Hospital/Health Facility

- 1 Hospital/Health Facility Questionnaire
- 2 Hospital/Health Facility Physical Inventory and Stock Records Information Form
- 3 Hospital/Health Facility Procurement/Price Analysis Form
- 4 Prescribing/Dispensing Indicator Form
- 5 Hospital/Health Facility Tracer Drug List
- 6 Generic Equivalency List
- 7 Availability of Antibiotics Without Prescription Form

³ State Enterprise Pharmacia of Ryazan Oblast (Pharmacia) is a public sector organization formed in 1993 through the merger of the administrations of Ryazan Pharmacia and the Oblast Pharmaceutical Warehouses. It is responsible for purchasing pharmaceuticals for public health facilities using oblast funds.

⁴ The generic name is "the official name of a drug, regardless of the manufacturer" (*Managing Drug Supply*, MSH, 1989). A drug may have several trade names, but only one generic name. In Russia, drugs are more frequently referred to by trade names- the name given to a drug by the manufacturer. Generically equivalent drugs are referred to as "synonyms" in Russia.

Community Pharmacy

- 8 Community Pharmacy Questionnaire
- 9 Community Pharmacy Physical Inventory and Stock Records Information
- 10 Community Pharmacy Procurement/Price Analysis
- 11 Prescribing/Dispensing Indicator Form
- 12 Community Pharmacy Tracer Drug List
- 13 Generic Equivalency List

Lists of tracer drugs⁵ can be found on the following page

The generic names of drugs were used in the lists, rather than trade names. For example, the name "cimetidine," found in both tracer drug lists, describes a well-known anti-ulcer drug used in Russia. Cimetidine is the generic name of the drug, and is not related to a particular drug manufacturer. (The generic name is usually the International Nonproprietary Name (INN), recommended by the World Health Organization)

Many different manufacturers produce products containing cimetidine, and each company assigns its own trade name to these products. In the 1993 edition of *Pharmaceutical Agents* (Mashkovsky, M D), over 20 different trade names, such as Tagamet, Histodil, and Ulcimet, are listed as synonyms (generic equivalents), of cimetidine.

When a drug is prescribed under one of these trade names, in many instances the implication is that the prescriber is requiring, or, at least, recommending that the cimetidine product produced by one particular manufacturer be dispensed or used, regardless of cost. If the same physician prescribed "cimetidine," the dispensing pharmacist could use any cimetidine product available. Promotion of generic prescribing is, therefore, of particular importance in Russia, to assure that the least expensive generic product available be dispensed.

⁵ Tracer drugs make up a limited list of drugs, suggested by local specialists, as being important to their health system, for which data are collected to assess the effectiveness of procurement systems and logistics management.

Community Pharmacy Tracer Drug List

GENERIC NAME	STRENGTH	DOSAGE FORM/ROUTE OF ADMINISTRATION
Gentamicin	80 mg	Injection
Indomethacin	25 mg	Tablet
Phenobarbital	15 mg	Tablet
Ampicillin	250 mg	Tablet
Pilocarpine	1%	Eye Drops
Paracetamol	500 mg	Tablet
Antihemorrhoidal Suppository		
Nifedipine	10 mg	Tablet
Clonidine	0.15 mg	Tablet
Digoxin	0.25 mg	Tablet
Furosemide	40 mg	Tablet
Senna		Tablet
Salbutamol	200 dose/10 ml	Metered Inhaler
Multiple Vitamin		Tablet
Hydrocortisone	1%/3 gram	Cream
Drotaverine		Tablet
Papaverine	2%/2 ml	Injection
Pancreatin		Tablet
Bucarban	500 mg	Tablet
Cimetidine	200 mg	Tablet
Insulin		(All types)
Sulfadimidine	500 mg	Tablet
Pyracetamum	400 mg	Tablet
Bromhexine	80 mg	Syrup
Amiodarone	200 mg	Tablet
Nitroglycerine	2.6 mg	Tablet
Cotrimoxazole	400/80-100 ml	Syrup
Heparin	2,500 units/25 grams	Ointment
Tetracycline	100 mg	Tablet
Glibenclamide	5 mg	Tablet

Pharmacia/Kiritsy & Health Facility Tracer Drug List

GENERIC NAME	STRENGTH	DOSAGE FORM/ROUTE OF ADMINISTRATION
Ketamine	50 mg/10 ml	Injection
Prednisolone	30 mg	Injection
Gentamicin	80 mg	Injection
Cefotaxime	1 gram	Injection
Heparin	10,000 u/5 ml	Injection
Furosemide	20 mg/2 ml	Injection
Aminophylline	240 mg/ml, 10 ml	Injection
Chlorpromazine	0.025 mg/2 ml	Injection
Pilocarpine	1%	Eye Drops
Epinephrine	1 mg	Injection
Diphenhydramine	10 mg/1 ml	Injection
Lidocaine	2%/2 ml	Injection
Drotaverin		Injection
Papaverine	2%/2 ml	Injection
Vitamin K	10 mg	Injection
Vincristine	0.5 mg	Injection
Vinblastine	5 mg	Injection
Ampicillin	250 mg	Tablet
Indomethacin	25 mg	Tablet
Phenobarbital	15 mg	Tablet
Antihæmorrhoidal		Suppository
Nifedipine	10 mg	Tablet
Clonidine	0.15 mg	Tablet
Digoxin	0.25 mg	Tablet
Amitriptyline	25 mg	Tablet
Pancreatin		Tablet
Cimetidine	200 mg	Tablet
Salbutamol	200 dose/10 ml	Metered Inhaler
Hydrocortisone	1%/3 gram	Cream
Paracetamol	500 mg	Tablet
Insulin		All Types
Tetracycline	100 mg	Tablet
Glibenclamide	5 mg	Tablet

C Data Collection Methodology

The assessment involved two main types of surveys, an oblast survey, and a rayon survey. The format for the two surveys is presented below.

Oblast Survey

In Ryazan Oblast, members of the study team conducted interviews with representatives of

- Oblast Administration
- Oblast Administration Health Department
- Pharmaceutical Committee
- Ryazan Pharmacia
- Federal Warehouse at Kiritsy
- Ryazan Medical University
- Ryazan Oblast Hospital
- Private sector pharmaceutical firms

Team members also conducted interviews with officials in the Skopinski and Korablinski rayons to gain general knowledge of the pharmaceutical sector in rayons.

Oblast information was obtained through

- Interviews, using the following questionnaires
 - * Oblast Administration Questionnaire
 - * Oblast Administration Health Department Questionnaire
 - * Pharmaceutical Committee Questionnaire
 - * Community Pharmacy Administrative Questionnaire
 - * Pharmacia/Kiritsy Questionnaire
- Assessment of conditions and equipment in institutions
- Data collection from documents and records

Rayon Survey

At health facilities (hospitals and clinics), and community pharmacies, data collectors

- completed general questionnaires, by interviewing appropriate physicians and/or pharmacists
- collected data on tracer drugs used to analyze the availability of drugs, and the effectiveness of procurement, and inventory control activities. Different tracer drug lists were used in health facilities and community pharmacies
- observed and collected data on prescribing and dispensing practices

A complete list of health facilities and pharmacies visited can be found in Annex Five. Data collectors also collected stock level, procurement, and inventory control data for tracer drugs at Pharmacia and the Pharmaceutical Warehouse at Kirsy.

Rayon information was obtained through

- Interviews, using the following questionnaires
 - * Hospital/Health Facility Questionnaire
 - * Community Pharmacy Questionnaire
- Assessment of conditions and equipment at selected institutions
- Data collection from records
- Observation of health worker-patient interactions

The assessment team collected data in the following rayons

- Ryazanski
- Korablinski
- Spasski
- Skopinski

Classroom training for data collectors was conducted in the use of Hospital/Health Facility and Community Pharmacy questionnaires on the premises of the Oblast Hospital. Ryazan city hospitals and community pharmacies were used for practical training.

D Description of the Assessment Process

Planning Meeting

An assessment planning meeting was held in Washington D C May 9-13, 1994. The following individuals participated in the meeting:

- Jim Rankin, MSH RPM Director
- Tony Savelli, MSH NIS Add-on Project Manager
- David Lee, MSH Drug Information Specialist
- Andrei Zagorski, MSH/Moscow Logistics Coordinator
- Dmitri Voronkov, Chief Physician, Ryazan Oblast Hospital
- Gennadi Kotov, Head of Automation Department of Ryazan Pharmacia
- Valentina Grechenko, Head of the Ryazan Oblast Pharmaceutical Committee

Valentina Makarova, First Deputy Rector of the Ryazan Medical University, and Oleg Levin, Head of the Automation Division of Pharmedinfo, were also invited, but were unable to attend.

The purpose of the meeting was to

- review and revise the assessment tool in preparation for production of the English and Russian-language versions,
- select 20-30 tracer drugs for study in
 - * warehouses, hospitals, health centers and polyclinics
 - * community pharmacies,
- select approximately 40 health facilities, including hospitals, polyclinics, health centers, and community pharmacies, to be surveyed as part of the assessment process,
- select oblast officials to be interviewed during the assessment, and
- discuss logistics arrangements, such as ground transportation and accommodations

Field Work

An assessment advance team, consisting of Jim Rankin and Tony Savelli met Andrei Zagorski in Russia on 16 May, to

- brief USAID/Moscow and Pharmedinfo on the assessment,
- brief Ryazan oblast and rayon officials on the assessment,
- distribute Russian language versions of the assessment document,
- select and train data collectors,
- finalize tracer drug lists, and
- request additional oblast morbidity data from Oblast Administration

Data collectors began work on 23 May. Remaining assessment team members arrived on 23 May, and 30 May. A rayon survey debriefing session was held on 3 June, in which RPM team members reviewed and clarified submitted data with data collectors. Final assessment debriefings were held with oblast officials on 8 June, and with USAID/Moscow and Pharmedinfo on 9-10 June. The team departed Russia on 11 June.

Summary of Findings- Pharmaceutical Indicators⁶

At the core of the RPM assessment process is the use of "indicators " An indicator is a question that can be answered with a quantifiable response, or numerical value, which provides insight into the status of an area being investigated For example, an indicator in the pharmaceutical sector might be "In a sample of 30 patients, what percentage received an antibiotic?" In this example, a clinic may decide that 20% is a critical level- if the percentage of patients receiving antibiotics is greater than this level, a prescribing problem **may** exist, and the situation should be investigated further

Indicators are routinely used in United States hospitals as a means of evaluating patient care and services in quality assurance programs In these situations, acceptable responses to indicator questions are established prior to the use of the indicator Although the term "indicators" is used in this report, it should be noted that "standard measurements" is a more accurate description since "acceptable responses" for measurement of RPM indicators have not been established

Four general criteria used to develop indicators are

- Importance-indicators should reflect an important dimension of performance
- Measurability-indicators should be measurable, within constraints of time and resources available for data collection
- Reliability-indicators should be reliable over time and with different observers
- Validity-indicators must allow for consistent and clear interpretation

Taken alone, a given indicator provides limited information, therefore, there are two on-going efforts directed at developing sets, or matrices, of indicators which will measure the status of public-sector pharmaceutical systems The World Health Organization (WHO) Drug Action Programme (DAP) is developing a large set of indicators which can be used by member countries for self-assessment The other effort is by USAID, through the Latin American and Caribbean/Health and Nutrition Sustainability Contract (LAC/HNS) In this work, 32 indicators were tested in Guatemala, Ecuador, and Jamaica In addition, through the RPM Project, the indicators were field-tested in Ghana, the Eastern Caribbean, El Salvador, Nepal and Mozambique In March 1994, the list was revised, resulting in 42 indicators This assessment represents the first field-test of the new indicators developed by RPM

The drug utilization indicators used in the RPM/LAC-HNS matrix were developed by the International Network for Rational Use of Drugs (INRUD) to quantify drug utilization in outpatient health facilities These indicators have been adopted and published by the WHO Drug Action Programme

⁶ Indicators are elements or standards used to monitor and compare pharmaceutical systems

The full set of indicator results from Ryazan are presented below, with the indicators identified by italics. The meaning of individual indicator results are discussed in appropriate sections of the report. The data collection methodology for each indicator can be found in the manual, *Pharmaceutical Indicators: A Methodology for Rapidly Assessing Key Aspects of Drug System Performance*. This manual has been translated into Russian.

Policy, Legislation and Regulation

Existence of a National Drug Policy Approved by Government

Russia does not have a National Drug Policy containing guidelines pertaining to areas such as import of drugs, labeling, advertising, or prescribing. However, as shown below, virtually all of these areas are addressed in a number of separate decrees, laws, and regulations written by the MOH of the USSR and the Russian Federation.

Existence of Comprehensive Drug Control Legislation and Regulations

Comprehensive federal legislation and regulations exist governing drug control in Russia, including the 1993 *Law Concerning Basics of Legislation of Public Health Protection of the Population*. This law outlines responsibilities at state and local levels in providing public health services, including the functions of different types of health facilities. The *Federal Law on Medical Insurance* addresses general issues in filling the needs of the population for drugs. Other regulatory documents cover drug prescribing, dispensing, imports, exports, manufacturing, distribution, storage and sale of drugs, and protection of patient rights. Individual oblasts do not have the authority to issue laws on these subjects, but can issue regulations.

Presence of Unregistered Drug Products in a Sample of Private Sector Sales Outlets

The study team was unable to collect data for this indicator.

Information Retrieval from Drug Registration Information System

At the federal level there is a computerized drug registration database. A computerized database of drugs registered in Russia was purchased by Ryazan Pharmacia from Rospharmacia, and is available at Pharmacia. The version currently used by Pharmacia is from 1993.

A manual information system exists in the form of a *Register of Drugs in Russia* (ed. Y. F. Krylov, 1993). Pharmacia has a copy of this document, but the system was not tested during the assessment. The register contains drug names, manufacturers, and their dates of registration. Registration expiration dates are not included. It is unknown how often the register will be published, but it was updated in 1994. Copies of the register are available in the Oblast Scientific Medical Library, pharmacies, and health facilities. At the federal level, there is a *State Register of Drugs Permitted to be Used in Medical Practice and Production*, but this is not disseminated to the oblast level.

Law Regarding Generic Substitution

A procedure, established by the MOH of the USSR, allows for generic substitution by pharmacists when a drug is prescribed by proprietary name, without consulting the prescribing physician, unless the prescribing physician specifies that substitution should not be done

In practice, physicians rarely prescribe drugs by generic name, and patients usually request that prescriptions be filled as written

*Formulary/Essential Drugs List**Number of Drugs on National Formulary List⁷*

Russia does not have a National Formulary List which defines drugs which can be legally prescribed

Existence of a Sub-set Essential Drugs List

Ryazan Oblast currently uses two *Essential Drugs Lists*, drafted for different purposes

- 1 *The 1992 Essential Drugs List*, modeled after the WHO EDL, to be used for prioritizing domestic production and procurement needs
- 2 *Order #16, 1993- List of Essential Drugs to be Sold at 50% Discount*, contains 241 products This list, included in Annex Six, is primarily used by pharmacies when dispensing drug, and at the administrative level, to determine drug budgets for exempt patients

In 1994, the Head of Ryazan Oblast Administration issued a decree on "Rationalization of Drug Sales in Ryazan Oblast," including a subset *Essential Drugs List* containing approximately 300 drugs that should be present in all pharmacies

Existence of a National Drug Formulary Manual Providing Basic Drug Information for Prescribers, Revised Within the Last Five Years

As stated above, Russia does not have a National Formulary List Similarly, a manual does not exist

⁷ A formulary list is a list containing all drugs approved for use in public sector facilities" (*Pharmaceutical Indicators A Methodology for Rapidly Assessing Key Aspects of Drug System Performance* MSH, 1994) It should be noted that the concept of "formulary" is not widely understood in Russia A formulary *manual* provides information beyond a list of drugs, such as utilization guidelines

Presence in Public Sector Health Facilities of an Edition of the National Formulary or Essential Drugs List Manual

The Russian *Essential Drugs List* was found in 71% of public health facility dispensaries surveyed during the assessment

Existence of a Drug Information Center which is Officially Recognized by the Ministry of Health

Within Ryazan Oblast, Pharmacy #137 is officially recognized as a drug information center for **Ryazan City**. It should be noted that in the local context, "drug information" refers primarily to the *availability* of drugs, and not to dissemination of clinical information

Generally, large hospitals in Russia have a Drug Information Pharmacist⁸ (Provisor Informator)

Public Sector Budget and Finance

Public Sector Budget or Expenditures on Pharmaceuticals, \$ US Per Capita

In January 1994, the 1994 ruble drug budget for Ryazan Oblast was set at 20,357 million rubles (\$10,178,500). Additionally, \$ US 1,067,000 has been budgeted for hard currency drug purchases. Based on a population of 1,336,000 persons, total per capita expenditures budgeted for 1994 are \$ US 8.41

In 1993, 3,082 million rubles (\$ US 2,568,333), and \$ US 2,500,000 in hard currency were spent on drugs, or \$ US 3.79 per capita

Lower Ryazan drug expenditures in 1993 than 1994 is consistent with the rest of Russia. Exact expenditures for other oblasts, and for the whole Russian Federation, are not available

Existence of a System of Recovering Costs of Drugs Dispensed in Public Sector⁹

Hospital patients receive drugs free of charge. Patients receiving prescriptions at public health clinics generally have them filled at community pharmacies, where patients pay for drugs, with the exception of exempt patients. The schedule for exemptions is discussed in detail later in the report. In the community pharmacy system, patient payments for prescriptions are retained at the pharmacy level, and used to cover operating expenses and drug procurement

⁸ In the English text of this report, the word "pharmacist" will be used for the Russian "provisor", and "pharmacy technician" will be used for the Russian "pharmacist", unless otherwise noted. A pharmacist in Russia completes five years of higher education

⁹ Defined as "any system which supports drug supply costs by charging patients for all or part of the costs of the drugs dispensed to them (*Latin American and Caribbean Health and Nutrition Sustainability Pharmaceutical Indicators: A Methodology for Rapidly Assessing Key Aspects of Drug System Performance*)"

Percentage of Patients Paying a Charge for Drugs in Public Sector Health Facilities

In 31 surveyed community pharmacies, 53.8% of the patients observed contributed to payment of prescriptions. One pharmacy (Pharmacy #1) estimated that 25-30% of all prescriptions filled are dispensed at no charge.

Percentage of Total Government Recurrent Budget Used for Ministry of Health

In 1993, the total oblast budget was 137,114 million rubles. Expenditures on oblast health were 27,996 million rubles (20.4% of the total oblast budget).

Percentage of Total MOH (Oblast Administration Health Department) Recurrent Budget Used for Pharmaceuticals

The Oblast Administration Health Department estimates that 10% of their budget is used for the purchase of pharmaceuticals. In 1993, 27,996 million rubles (\$ US 23,330,000) were spent on health, including personnel. The amount spent on drugs using the ruble budget, was 3,082 million rubles (\$ US 2,568,333), or 11% of the health budget. It should be noted that, additionally, \$ US 2,500,000 in hard currency was spent on drugs, but these funds were provided from the Oblast Hard Currency Fund, which is not part of the health budget. Total expenditures for drugs was \$ US 5,068,333.

Public Sector Pharmaceutical Procurement*Existence of Policy Limiting Public Sector Pharmaceutical Procurement to the National Formulary List*

As there is no National Formulary List, such a policy does not exist. Russian law states that only drugs registered in Russia may be purchased. Ryazan Pharmacia uses the *1992 Russian Essential Drugs List* to prioritize procurement, although it does not follow specific guidelines in doing so.

Coverage by a Centralized System for Routine Procurement of Public Sector Drugs

Within Ryazan Oblast, a centralized system exists for the routine procurement of drugs for public sector facilities, through Pharmacia. The percentage of total public sector procurement done by Pharmacia was not available.

Percentage of Average International Price Paid for a Set of Tracer Drugs Used to Treat Common Diseases

For the 18 tracer drugs for which Pharmacia procurement information was available, the average issue unit cost for the last procurement of each drug was 96% of costs found in the *1993-94 International Drug Price Indicator Guide*.

Percentage of MOH Drugs Centrally Purchased Through Competitive Tender¹⁰

Competitive tenders have not been used for drug procurement to date in Ryazan Oblast. Purchases are generally made by negotiating prices directly with suppliers.

Public Sector Pharmaceutical Logistics

Percentage of Inventory Variation in the Stock Record Keeping System

The accuracy of two Pharmacia stock record keeping systems (manual ledger and computer) were assessed by comparing actual inventory levels of tracer drugs to the most recent figures found in the record keeping systems. Average variation using the ledger system was 0.07%. The computer system was less accurate, with 5.0% variation.

Percentage of Stock Records that Correspond with Physical Count

Actual and stated inventory levels were identical for 87% of tracer drugs using the ledger, and 97% using the computer system.

Availability in Public Sector Health Facilities of a Set of Tracer Drugs Used to Treat Common Diseases

In community pharmacies, 30% of the tracer drugs were in stock. In health facilities, 33% of the tracer drugs were in stock.

Average Percentage of Time Out of Stock of a Set of Tracer Drugs

In 1993, tracer drugs were out of stock 9% of time in community pharmacies and 8% of the time in health facilities.

Number and Value of Expired Drug Products in Stock

Two expired drugs were found in the survey of public health facilities and community pharmacies. The total value of the expired drugs was \$ US 6.15.

Drug Utilization and Patient Access

Population Per Public Health Facility which Dispenses Drugs

With a population of 1,336,000 million people, and 1,401 public health facilities that dispense drugs, the population per public health facility that dispenses drugs is 954. It should be noted, however, that the Russian healthcare network contains many highly specialized facilities, many of which do not carry a wide range of drugs.

¹⁰ "The procedure by which competing bids are solicited for a particular contract" (*Managing Drug Supply*, MSH, 1989)

Average Number of Drugs Prescribed Per Curative Encounter

In the community pharmacy survey of 31 facilities, the average number of drugs prescribed per curative encounter was 1.96

Percentage of Drugs Prescribed by Generic Name

In the community pharmacy survey, 42.8% of drugs were prescribed by generic name

Percentage of Patients Receiving Injections

The percentage of patients receiving injections in the community pharmacy survey was 34.9%

Percentage of Patients Receiving Antibiotics

The percentage of patients receiving antibiotics in the community pharmacy survey was 26.6%

Percentage of Prescribed Drugs Which Are Dispensed

One of the best indicators of the effectiveness of a pharmaceutical supply system is the availability of drugs at the patient level. In the community pharmacy survey, 69.6% of drugs prescribed were actually dispensed.

*Product Quality Assurance**Number of Drug Products Tested by Ministry of Health in Ryazan Oblast, During the Past Year (1993)*

The Ryazan Oblast Quality Control Laboratory (Pharmcontrol) performed 8,031 tests during the past year, although, the exact number of drug products tested is unknown. Most tests were done on products compounded in pharmacies. The exact breakdown of the types of tests conducted can be found in the section on Quality Control.

Use of WHO Certification Scheme

The WHO Certification Scheme is not used in Ryazan Oblast.

Existence of a Functioning System for Reporting Product Quality Complaints

An MOH form exists for reporting product quality problems. Forms are forwarded from oblasts to the State Quality Control Inspection of the MOH. This organization has the authority to take actions such as ordering the closure of drug manufacturing facilities, and initiating drug recalls.

Private Sector Pharmaceutical Activity

Population Per Private Sector Drug Sales Outlet

With an oblast population of 1,336,000, and 27 registered private sector drug outlets, the population per outlet is 49,481

Number of Drug Outlets Per Government Drug Inspector

Ryazan Oblast has 20 drug facility inspectors, and 27 registered private sector facilities where drugs are dispensed, for an average of 1.3 outlets per inspector

Number of Inspections Made in One Year Period for Manufacturers, Distributors and Retail Outlets

Since its inception in November, 1993, the Pharmaceutical Committee made twenty inspections of private sector facilities, in approximately seven months

Value of Total Private Sector Pharmaceutical Sales, \$ US Per Capita

The value of private sector pharmaceutical sales in Ryazan Oblast is unknown

Total Value of Drug Market, Public and Private Sector, \$US Per Capita

The total value of the drug market is unknown

Percentage of Products on National Formulary List Currently Manufactured in Country

Russia does not have a National Formulary

Prices of Tracer Drugs in Private Sector

Data on private sector drug prices was not collected

Existence of Price Controls for Drugs

Price controls exist for both domestically¹¹ produced and imported drugs. At the time of the assessment, the following regulations were in effect, for domestically produced drugs, the producer's selling price could not be greater than 30% above the production cost. The total markup above the manufacturers selling price could not exceed a total of 50%

¹¹ Drugs produced in republics of the Former Soviet Union are considered to be domestic, if they are produced using technology developed within the Soviet Union

For imported drugs, the purchasing company was restricted in setting a selling price within Russia by the Ministry of Finance and the State Committee on Prices. After the first selling price within Russia was established, total markup could not exceed 50% of this price.

New legislation introduced in August 1994, changes this mark-up structure. The changes are explained in the section on Finance.

Availability of Antibiotics Without Prescription

In 19 surveyed community pharmacies, antibiotics could be purchased without a prescription in 17 pharmacies (89.5%).

II OBLAST ADMINISTRATION HEALTH DEPARTMENT CONCERNS RELATED TO PHARMACEUTICAL MANAGEMENT

During the first RPM visit to Ryazan in February, 1994, Mr Valentine Dykin, Head of the Ryazan Oblast Administration Health Department, and Mr Andrei Tarasov, Deputy Head of Ryazan Oblast Administration, identified the following pharmaceutical sector problems areas being considered by health officials in the oblast

- Availability of essential drugs,
- Inappropriate prescribing,
- The need to modify the drug pricing structure,
- High prices being paid for foreign produced drugs,
- Procurement of drugs of poor quality, and
- Receipt of drug donations without adequate drug information

Relative to possible RPM technical activities, Mr Dykin expressed interest in RPM assistance in the following areas during the assessment

- Develop Standard Treatment Protocols through a careful study of oblast morbidity statistics
- Create a Drug Information Center to improve access to information on drugs
- Create regulations that permit procurement of drugs of acceptable quality at the lowest possible price
- Examine the current system of drug distribution to public health facilities through community pharmacies and determine if this system can be improved, or if an alternate system can be adopted
- Improve the training of physicians in drug use, particularly for foreign drugs
- Enhance the role of clinical pharmacologists in the delivery of health care by changing educational policies

III ACTIVITIES OF OTHER DONORS AND INTERNATIONAL AGENCIES IN RYAZAN

Other than the RPM Project, there are no major donor technical assistance projects in the health sector in Ryazan Oblast. USAID will send 18 representatives from Ryazan to a series of "Pharmaceutical Security" courses in the United States during 1994.

The Russian Red Cross has provided drugs to the oblast in the form of humanitarian assistance shipments. The Red Cross is also involved in carrying out a program that provides health care to the elderly. In 1993, humanitarian assistance, in the form of drugs, vitamins, and medical equipment, was received in Ryazan from various religious groups and organizations from the United States, Sweden, Japan, and Germany. The value of donated drugs was not known, but the Oblast Administration Health Department reported that the figure was negligible compared to 1993 expenditures for drugs.

Ryazan Oblast has an ongoing relationship with the city of Munster, Germany. In 1989, a Protocol of Intention was signed by the mayors' offices of Ryazan and Munster, to collaborate in the areas of education, medicine, and culture. Within the framework of the Ryazan-Munster partnership, Ryazan Oblast Hospital, and the Oblast Children's Hospital receive donations of anti-leukemic drugs. The Munster Hospital also provides educational programs for physicians from the Oblast Hospital.

The World Bank, and the European Economic Community have made loans available to Russia for the procurement of pharmaceuticals. Pharmimex, a wholesale company and importer operating at the national level, has managed the procurement with these funds, and has provided drugs to Ryazan Pharmacia through its warehouse network, however, Ryazan receives no special preference or attention in such programs.

IV GAPS AND POSSIBLE RPM ASSISTANCE

As outlined in the NIS Add-on Project proposal, RPM is expected to work in the following technical areas in Ryazan

- formulary management/product selection,
- procurement and tender management, and
- drug information development

The RPM NIS Add-on will address these areas through skills transfer to local counterparts, and provision of equipment, with training, if appropriate. The exact program of activities will be determined during the Ryazan Policy Options Workshop, during which RPM will discuss report findings with local, national, and international specialists, and local policy makers.

This section will summarize gaps in the Ryazan pharmaceutical system, and present an illustrative program of activities in each area. The suggested activities are intended to serve as a point of departure for discussions at the workshop, rather than concrete recommendations.

Each section contains an overview of why the technical area is important to the drug supply system, followed by related problems identified in Ryazan Oblast. An illustrative program of activities to correct identified problems is then presented.

A Product Selection and Formulary List Development

A critical first step in reducing drug costs and maximizing the therapeutic benefit of public sector expenditures on drugs is rational selection of drug products. This process may be termed "formulary management" (or in some contexts, development and use of an "essential drugs list"). The formulary management process has been refined in the United States over the past 25 years, in public and private sector pharmaceutical programs. One reason for the implementation of formulary systems in western countries is the development and marketing of expensive new drugs that frequently offer only small advantages over less expensive, older products. The introduction of new cephalosporin and thrombolytic drugs have particularly drawn attention to the need for restrictive formularies, and the effectiveness of the formulary process in reducing costs without sacrificing the quality of patient care.

In the international arena, the concept has been developed under the rubric of essential drugs lists since the early 1980's. No matter what the terminology, the essence of cost-effectiveness in pharmaceutical procurement and use involves restricted procurement, based on limited lists of the most cost-effective drug products in each therapeutic category. Cost-effectiveness encompasses not only the procurement price of the drug, but the selection of drugs that are efficacious and appropriate for the morbidity profile of the target population. The formulary management process should include drug use review, adverse drug reaction monitoring, and the establishment of therapeutic substitution guidelines. A formulary list is the starting point for the development of a formulary manual that provides prescribers, pharmacists and nurses with basic drug information on drugs approved for use in the oblast.

Russian Essential Drugs List, while useful in prioritizing procurement, are not restrictive. Likewise, the Ryazan subset *Essential Drugs List* stipulates drugs that **should** be present in pharmacies, but does not restrict procurement. Neither effort will ensure cost-effective procurement, as defined above.

The formulary development process must, in order to be effective and sustainable, involve practitioners at all levels of the system, and clearly communicate the need and rationale to providers and patients.

Findings Indicating the Need for Reform in Product Selection and Formulary Development

- Ryazan Oblast does not have a locally developed formulary list or manual that restricts drug procurement and use and provides basic drug information.
- Some drugs currently used in the oblast are of unproven efficacy. Others are probably not the most cost-effective therapeutic choices.
- The availability of rubles and hard currency for drug procurement is limited. Termination of current federal government subsidies will result in higher drug prices at the oblast level, increasing the need for cost-effective procurement.
- There are currently 37 private sector wholesale drug companies in Ryazan Oblast, which represents a substantial increase in the last year, and has resulted in the introduction of many products which were previously unknown in Ryazan.
- The rapid introduction of new drug products has created a gap between the need for drug information by prescribers, and the availability of unbiased sources of information. The formulary process helps to ensure that the introduction of new drugs is accompanied by the provision of necessary information, training and education.

Possible Program of Activities

- 1 Familiarize local decision makers with formulary management concepts and establish a locally appropriate formulary list.
- 2 In cooperation with the Pharmaceutical Committee, identify appropriate committees and working groups for formulary development and management, and work with those counterparts to
 - a Expand access to and use of, current western drug information
 - b Identify priority therapeutic needs through examination of local morbidity/mortality statistics as well as past utilization patterns
 - c Identify a list of drugs to address basic needs, while also identifying drugs now in use which are not suitable for inclusion based on world-wide experience

- d If appropriate, provide computer(s), software and training for use in developing and maintaining an oblast formulary list
- e Assist as necessary in promoting official adaptation of the formulary list
- f Establish mechanisms for requesting and obtaining non-formulary drugs needed for specific patients
- g Launch a program of adverse drug monitoring, and incorporate and modify current drug use review efforts for inclusion in the formulary maintenance process
- h Establish, and regularly review and revise approved therapeutic substitutions, based on drug availability and cost
- i Establish mechanisms to ensure that health professionals are updated on formulary changes, including the provision of information, or education needed to properly utilize new drugs

B Procurement and Tender Management

Under the former Soviet system, planning and carrying out drug procurement was a centralized function in which drugs were acquired largely from domestic or East European manufacturers. Oblast Pharmacia dealt primarily with designated manufacturers in the USSR. Consequently, current managers at Pharmacia, the Pharmaceutical Warehouse in Kiritsy, health facilities and pharmacies, have limited management experience in such critical tasks as accurately estimating order quantities, using competitive procurement techniques such as tendering, and monitoring supplier performance. Additionally, these managers are not familiar with options for national or international procurement.

Findings Indicating the Need for Reform in Procurement and Tender Management

- The oblast "Commission for Drug Needs Estimation in Purchasing" works on an ad-hoc basis. The process of determining drugs and quantities to buy involves the use of consumption and morbidity data, but the process is done manually and without the use of standard formulas.
- Drug purchases by Pharmacia are made through negotiation with drug distributors and manufacturers. Competitive tendering procedures have not been utilized.
- Unexpected drug purchases from private sector suppliers by pharmacies could potentially result in overstock situations at Pharmacia.
- Establishment of a routine procurement cycle by Pharmacia is not possible, due to the unpredictable receipt of funds.
- Prepayment of orders from domestic and international suppliers leaves Pharmacia little recourse if problems occur with shipments.

- The computer system available at Pharmacia is not used to monitor orders placed for drugs from suppliers, or as a tool to monitor supplier performance
- Under current regulations, receipt of drugs by Pharmacia without an invoice causes unnecessary delays in distribution
- Some drugs received with quality certificates are subject to testing by the Oblast Quality Control Laboratory, for which Pharmacia must pay
- With high inflation, sale of drugs by Pharmacia and pharmacies, based on purchase price, rather than replacement cost, may not generate sufficient funds for procurement and operating expenses
- For the top 50% (by value) of domestic and imported drugs purchased by Pharmacia from 1 October 1993, through 1 April 1994, 71 out of 73 (97%) were out of stock at the beginning of the reporting period. Twelve of 73 (16%) were out of stock at the end of the period. At the time of the assessment, 24 of 33 (73%) of tracer drugs were in stock. This data is an indication that buffer stocks are not being achieved
- Clients report long delivery times in getting drugs from Pharmacia

Possible Program of Activities

To help overcome these deficiencies, RPM can collaborate with local counterparts to transfer basic procurement skills through training and technical assistance

- 1 Identify options to promote rational and competitive domestic and international procurement practices for drugs, given existing financial constraints. Domestic options may include procurement within Ryazan Oblast, and other parts of Russia
- 2 Establish a selection and quantification system which employs ABC analysis, VEN analysis, international price lists, and quantification methodologies based on consumption and morbidity. Determine the exact role of the *Russian Essential Drugs List* in prioritizing procurement, after careful analysis of its content
- 3 In cooperation with local counterparts, conduct a quantification of oblast drug needs, using the MSH-developed Drug Estimation and Monitoring System (DEM) software, after modification based on local needs. Conduct training in the use of the software
- 4 Establish a system for tendering and screening for quality control of products using an optimal mix of manual and computerized tracking systems. Assist in developing forms and documents necessary to monitor domestic and international procurement. These documents may include Tender Announcements, Vendor Registration forms, Supplier Evaluation and Monitoring forms, Tender Lists (with instructions for tenderers), Adjudication forms, and Procurement Contracts

- 5 Provide computer(s) and install suitable microcomputer based software such as INVEC (procurement and inventory management) and/or ECPRO (centralized procurement), developed for use in other projects
- 6 Assuming that local officials decide to introduce competitive procurement techniques, RPM can assist as follows
 - a Help to publish notifications of impending tender, to begin the process of supplier selection Provide detailed instructions for providing Vendor Registration forms in response to inquiries
 - b Assist with qualifying domestic producers, and identifying and qualifying international pharmaceutical vendors, based on documented performance and proper completion of Vendor Registration forms, and based on ability to work within financial mechanisms available
 - c Assist with completing tender documents, and mailing the documents to qualified vendors Assure system is in place to receive and manage tender submissions from vendors
 - d After tenders are received, help evaluate and adjudicate the tender, and place orders for pharmaceuticals Put systems in place to monitor order status and follow-up with problems encountered
 - e Provide a summary report describing results of the procurement effort, along with recommendations for follow-up technical assistance which may be needed to sustain improved procurement management systems

C Drug Information Development

A main goal of improved drug information services is to improve the prescribing and use of drugs The use of drugs of questionable efficacy can also be prevented or reduced by providing unbiased drug information Availability of up-to-date information on drugs, in formats appropriate to local situations, is a precondition to success in such key activities as the selection of cost-effective products, formulary development and management, and procurement from international sources

It is not, however, realistic to only translate existing English-language drug information monographs and distribute them with the expectation that this material will be useful to all audiences or cover the drugs applicable to Ryazan

Local experts in drug information were identified during the assessment, as well as several possible venues for a future drug information center In the technical activity phase, an overall framework for conveying drug information must be defined, including the different audiences that require such information, as well as the formats and technical content appropriate for each

audience RPM, local contractors and counterparts may then work together to modify the USP drug information database to fit local requirements, and to translate the material into Russian, again in a manner suitable for local needs. Drug information development priorities will be based on the revised formulary list developed with RPM assistance. During the process, local capacity to adapt and update required drug information will be created and sustained. This will include providing the necessary computer equipment and software, and training for local staff.

The most highly developed system in Ryazan for providing information to practitioners is the Oblast Scientific Medical Library system. The institution is government-funded, resulting in a relatively stable organization that is likely to survive this period of uncertainty. Several staff members are computer-literate and could adapt to technological innovation.

Publications produced by the library provide hospitals with information through satellite libraries. Most drug information activities seem to be aimed at physicians. It is not known to what extent pharmacists or other health professionals have access to new information. Pharmacists are at a particular disadvantage without current information, since they must make substitution recommendations and decisions. Provision of information to pharmacists would enhance their role in promoting rational drug use.

At Pharmacia, the Provisor Informator coordinates provision of drug information, including a quarterly "Information Day on Drugs" for physicians. However, financial constraints in recent years have resulted in reduced access to current written information, and a decrease in services.

The Central Resource Bureau provides information on the availability of drugs in the oblast, but it is not a ready source of clinical information to professionals or patients. Financial constraints have also threatened the viability of this resource center.

The Ryazan University Medical Library is the largest source of drug information, but is mainly a resource for academics and students.

Findings Indicating Need for Improvement in Drug Information Development

- The Central Resource Bureau functions primarily as a center for information on drug *availability*. As the oblast drug supply situation stabilizes, emphasis can be placed on the provision of *clinical* drug information. This facility comes the closest to the US concept of a drug information center, in that it is a site where interested parties can obtain information by telephone from a specialist with access to a body of current information assembled for that purpose.
- Drug manufacturer representatives appear to be a frequent presence in the oblast providing biased information on their products to procurement decision makers and prescribers.
- Ryazan Oblast does not have a formulary **manual** that provides basic information to prescribers, and many prescribers do not have ready access to accurate and current information.
- There are very limited drug information activities aimed at patients.

- Funds for procurement of new drug references and periodicals are not readily available
- There is limited access to Russian translations of foreign literature on drugs
- Access to current, unbiased drug information is necessary in developing Standard Treatment Guidelines

Possible Program of Activities

The MSH RPM Add-on does not include funding to carry out a comprehensive program to develop drug information services in Ryazan. MSH can conduct necessary preliminary investigations to define information needs, in concert with drug selection activities described above. Further activities, such as extensive translation of English-language drug information references, or establishment of a drug information center, are contingent on funding being provided to the USP cooperative agreement. MSH can assist local counterparts to do the following:

- 1 Identify appropriate local counterparts to form a drug information advisory group, and develop a work plan for drug information development
- 2 Compile profiles of current drug use practices, using tools such as the RX software and the WHO-DAP/INRUD methodology
- 3 Assess resources currently available and define local drug information needs for all levels of the system, based on input from local experts
- 4 Identify a list of drugs on which information is most urgently needed, based on an oblast formulary list

A USP program of activities has been proposed that continues these first steps:

- 5 Adapt existing U S Pharmacopeia drug information monographs and develop new monographs to suit local needs
- 6 Translate completed monographs into Russian
- 7 Provide Russian translation of USP DI in CD-ROM format

- 8 Produce a drug formulary **manual**, for use by Ryazan physicians, pharmacists and nurses as a ready source of information, using the drug information material developed throughout the process
- 9 Develop standardized treatment protocols for the oblast morbidity pattern by adapting available national guidelines
- 10 Develop drug utilization review guidelines, using the USP DI Drug Utilization Review framework, and launch a Drug Utilization Review (DUR) program designed to help ensure that selected drugs are prescribed, dispensed, and administered properly, including
 - recently introduced drugs,
 - frequently used drugs,
 - drugs that have been identified with problems in the past, such as drugs with significant side effects,
 - drugs routinely used for high risk patients such as children and the elderly, and
 - expensive drugs
- 11 Establish a central oblast drug information center by
 - Identifying the most appropriate site for the center,
 - Selecting and securing equipment for the center,
 - Providing necessary training to staff
- 12 Establish secondary oblast drug information centers, after successful implementation of the main center
- 13 Develop a strategy for the provision of drug information to consumers and patients

As stated above, implementation of the USP program of activities is contingent upon receipt of USAID funding

SECTION TWO: FINDINGS OF THE RYAZAN ASSESSMENT

V PUBLIC SECTOR DRUG SUPPLY SYSTEM

A The National Drug Supply System Under the Soviet Union and Today

In order to understand the current drug supply situation in Ryazan Oblast, it is necessary to review the national system, both as it existed prior to the break-up of the Soviet Union, and today. The review will be divided into the supply of domestically produced and imported drugs.

Domestic Drug Supply in the USSR

Prior to the break-up of the Soviet Union, the Soviet drug supply system was under the control of two ministries: the MOH of the USSR, and the Ministry of Medical Industry of the USSR. Overall management and supply of drugs was controlled by the Pharmacy Department of the USSR, within the MOH of the USSR. Each USSR republic had a Pharmacy Department, which controlled the system of pharmacies and warehouses through a system of Oblast Pharmacy Departments.

The Ministry of Medical Industry of the USSR controlled the network of drug manufacturers in the USSR.

Oblast Pharmacy Departments calculated drug requirements every November and December for the twelve month period beginning in 12-13 months. For example, in November 1980, drug requirements for 1982 were calculated. It was common for oblasts to "overestimate" needs by as much as 25% in order to receive what was actually needed. Drug requirement data was forwarded to the republic Pharmacy Department in the form of an "application." The application was designed using an official therapeutic classification scheme, adopted in 1970. The scheme is still in use today, and can be found in Annex Seven. In the scheme, each drug is included in only one category. Republic Pharmacy Departments summarized all oblast applications during March and April, and forwarded summary applications to the MOH of the USSR by May.

During May, the MOH of the USSR summarized all republic applications, evaluated data, adjusted figures if necessary, and submitted figures on drug requirements to the Ministry of Medical Industry. Oblasts were permitted to submit one revised estimate in July or August.

The Ministry of Medical Industry calculated raw material requirements and negotiated production requirements with various manufacturers in the USSR. After figures were finalized, funds were allocated to republics for drug procurement, and republics were notified of yearly drug budgets. Funds were actually distributed to republics in October and November. During November and December, funds were distributed to Oblast Pharmacy Departments.

Once funds were fully distributed, Oblast Pharmacy Departments made direct agreements with *designated* manufacturers, including the exact terms of supply. Drugs were shipped directly from manufacturers to Oblast Pharmacies.

Drug prices were fixed at all levels, with prices remaining in effect for several years. Economic planners generally assumed that there was no inflation within the USSR.

It was estimated by central level officials that during Soviet times, 100% of actual needs were satisfied under this system although statistics showed lower figures, due to overestimation. Reserve stocks of drugs were required at all levels of the supply system to accommodate emergencies and fluctuations in consumption.

Imported Drug Supply in the USSR

Drugs imported by the USSR were divided into two groups

- drugs purchased from Comecon¹² countries, using rubles, and
- drugs purchased from non-Comecon countries, using hard currency

All contracts for imported drugs were negotiated by Medexport, the only institution in the USSR permitted to spend hard currency, located within the Ministry of Foreign Trade.

Hard currency drug procurement by the USSR began only in 1975, when Medexport began to deal with manufacturers in India, Yugoslavia, and Finland. In subsequent years, several international drug companies opened manufacturing facilities in India for the purpose of entering the Russian drug market.

Oblast requirements for imported drugs were entered in a special request book, and were forwarded and summarized in a manner similar to the domestic drug system described above. The Pharmacy Department of the USSR requested hard currency and rubles for drug imports from the State Planning Committee for Imported Drugs, which had final decision making authority on drugs to be imported.

Only 5-8% of imported drugs required hard currency. The majority were purchased from Comecon countries, with rubles. The decision to buy drugs with hard currency was made primarily based on the availability of drugs from national manufacturers. In 1990, 1,200,000,000 rubles were allocated for all imported drugs (equivalent to \$ 2,000,000,000 at an exchange rate of 60 kopeks/\$ 1 US). The value of these rubles was fixed at a rate 30% higher than the normal market value.

Of the 3,000 drug products used in the USSR, 500-600 (17-20%) were imported. Distribution of imported drugs from non-Comecon countries was done through five federal warehouses, located in Kiritsy, Reutovo, Leningrad Sverdlovsk, and Kostroma. These warehouses had quality control laboratories for testing drugs as they were received. Imported drugs from Comecon countries were shipped directly from the manufacturer to the ordering Pharmacia.

¹² The "Council of Mutual Economic Assistance" was a vehicle used to promote economic integration of eastern bloc countries with the USSR (*Soviet Foreign Policy Since World War II*, Rubinstein, A., 1985).

The breakdown of domestic and imported drug purchases, by product and value, by the Soviet Union, follows

By Drug Product			By Value	
	Injections	Tablets	Injections	Tablets
Domestic	70%	75%	55%	50%
Imported	30%	25%	45%	50%

Procurement of imported drugs has decreased in recent years from \$ US 850 million in 1990 to \$ US 200 million in 1994

The Drug Supply Situation Today

With the break-up of the Soviet Union, the drug supply system described above ceased to exist. SoyuzPharmacia (later renamed Pharmimex), a state owned company, was formed. At the same time, the Pharmacy Department of Russia was renamed Rospharmacia. Both organizations assumed responsibility for drug procurement, and had similar functions.

A number of key events and changes in the drug supply system in Russia occurred during 1992

- Coordination of national drug requirements ended, while the system of forwarding drug requests to the federal level was still being followed by oblasts
- Pharmimex and Rospharmacia divided both property and responsibilities. Pharmimex assumed responsibility for procurement of imported drugs, and Rospharmacia for procurement of domestic drugs
- The federal government canceled foreign trade monopolies, creating the potential for competition with Pharmimex
- The system of central funding of oblasts for drug procurement ended, despite the fact that oblast systems for raising funds through taxation were not yet in place
- A Law on Enterprises and Entrepreneurship was passed, allowing drug manufacturers to contact purchasers mainly Oblast Pharmacias, directly. Oblasts were given the authority to deal with any manufacturers, not only ones designated under the former system

Two other remnants of the old supply system, Medexport, and Zdravexport, still exist, and like Pharmimex and Rospharmacia, function as wholesale drug companies. All of these enterprises have drug warehouses, except for Zdravexport.

All of these organizations have displayed reluctance to purchase drugs with their own funds, as opposed to using state funds, having been financed completely by the state in the past, and being permitted to charge the government a 2% service fee

The current Minister of Health formed the Federal Foreign Trade Organization for the Import of Drugs and Medical Supplies (FIDEM), within the MOH. This relatively small organization (seven employees) purchased drugs valued at \$ US 10-20 million in 1993. In the future, it is felt that FIDEM will become the MOH purchasing agent for drugs.

Pharmimex, Medexport, Zdravexport, Machexport, FIDEM, and a few other enterprises formerly received subsidies in the form of favorable hard currency exchange rates. For example, in 1992, Pharmimex purchased \$ US for drug imports, at the rate of 100 rubles/\$ US while the official rate of exchange was 500 rubles/\$ US. Pharmacias paid Pharmimex prices that were based on the favorable exchange rate, creating artificially low prices with which non-subsidized private wholesale companies could not compete. These favorable exchange rates have now been discontinued.

FIDEM will use federal funds for the procurement of drugs to be used in emergencies, and will be permitted to charge a fee to the government. For 1994, FIDEM has been allocated \$ US 120,000,000 for drug procurement.

Vaccine Procurement

The state-owned company Immunogen is responsible for the control of vaccine production. Immunogen works directly with the MOH to determine vaccine requirements, and satisfies approximately 95% of need. The remaining 5% are purchased from abroad by the MOH or the State Sanitary Epidemiological Committee. Oblasts also have the authority to purchase vaccines directly from producers.

B Structure and Organization of the Ryazan Drug Supply System

The Russian Federation is subdivided into administrative units called oblasts (analogous to a United States state). There are 86 oblasts in Russia. Oblasts are further subdivided into rayons (analogous to a United States county). The health system, including the pharmaceutical sector, is organized using this system. Thus, Ryazan Oblast has an Oblast Administration Health Department, and budget, as do each of its 25 rayons. The city of Ryazan is considered a separate unit in the organization of health care.

In Ryazan Oblast, the public sector departments and organizations most involved in the administration and delivery of pharmaceutical services are

- Oblast Administration
- Oblast Administration Health Department
- Pharmaceutical Committee
- Ryazan Medical University
- Pharmacia
- Health Facilities
- Community Pharmacies

Oblast Administration

The primary role of the Oblast Administration in the pharmaceutical sector is to finance and supervise the activities of the Pharmaceutical Committee (responsible for the Oblast Quality Control Laboratory), and to enforce all regulations involving pharmacy, through its inspection process. The Head of Oblast Administration (analogous to a United States governor) has the authority, as determined by federal law, to issue regulations affecting the pharmaceutical sector.

Oblast Administration Health Department

The main goal of the Oblast Administration Health Department is to coordinate public health activities, through the work of its five divisions:

1. The Inspection and Health Programs Division is responsible for licensing and supervising health facilities, and implementing of federal and oblast programs, such as federal immunization programs, and Children of Chernobyl.
2. The Planning and Finance Division is responsible for preparing the oblast health budget, and distributing funds to 32 "oblast important" facilities.
3. The General Division is responsible for areas such as personnel, record keeping and Oblast Health Building maintenance activities.
4. The Special Task Division is responsible for handling emergency situations, such as radiation emergencies, natural and industrial disasters, and for the management of an emergency drug stock.
5. The newly formed Medical Insurance Division is responsible for the transition to a system of insurance medicine.

Staffing for the Oblast Administration Health Department, by department, is as follows:

Department	Staff Members
Administration	6
Inspection and Health Programs Department	9
Planning and Finance Department	4
General Department	6
Special Task Department	5
Medical Insurance Department	3

Pharmaceutical Committee

The Pharmaceutical Committee, created in November 1993, consists of seven pharmacists, and two economist/inspectors. The main responsibilities of the Committee are to

- 1 quantify oblast needs for essential drugs,
- 2 compile the list of essential drugs to be purchased with oblast funds, control procurement and manage drug distribution,
- 3 identify companies in the oblast able to purchase drugs if Pharmacia is unable to do so because of lack of funds,
- 4 define a list of vital drugs for a future oblast emergency reserve,
- 5 on a case by case basis, attempt to obtain drugs not available through the normal supply system, through the use of the oblast emergency reserve, target purchases from community pharmacies, or MOH reserve,
- 6 as requested by Oblast Administration, analyze use of the drug budgets provided to medical facilities,
- 7 ensure compliance by community pharmacies with government pharmaceutical sector standards in the areas of sanitary conditions, rules of drug dispensing, pricing, and other activities stipulated by a given license, and
- 8 ensure that proper procedures are followed in health facilities regarding use of narcotic and narcotic-like drugs

The Pharmaceutical Committee has drafted several documents which were reviewed and approved by Oblast Administration

- *Statute of the Oblast Quality Control Laboratory (Pharmcontrol)*
- *Statute of the Licensing Commission of Pharmaceutical Activities in Ryazan Oblast*
- *Statute of the Pharmaceutical Committee*
- *Decree of the Head of Oblast Administration Regulations of Drug Distribution in Ryazan Oblast, including the Annex, Obligatory Minimal Assortment of Drugs*
- *Order of the Head of Oblast Administration Launching Oblast Emergency Reserves of Vital Drugs and Medical Supplies*

From November 1993 through June 1994, the Pharmaceutical Committee carried out a total of 207 inspections, including inspections of all 186 existing and 21 newly opened pharmacies, resulting in 68 licenses being issued to legal entities, and 141 branch locations

While the Pharmaceutical Committee does not correspond exactly to a single organization in the United States healthcare system, responsibilities 7 and 8 above encompass vital functions of the State Departments of Health, State Boards of Pharmacy, and State Drug Enforcement Agencies

The main constraints identified by the Pharmaceutical Committee in carrying out its responsibilities include

- 1 lack of a computerized data base to monitor the status of drug procurement in the oblast, and for better coordination of vital drug distribution,
- 2 lack of proper methodologies for drug testing by the Oblast Quality Control Lab for new and imported drugs,
- 3 absence of an enforcement system to deal with pharmacies that fail to comply with existing regulations, and
- 4 lack of transportation for efficient inspection and control of the pharmacy network

Ryazan Medical University

The Ryazan Medical University, which is nationally known, is located in Ryazan city. The university has five schools: Medical, Stomatological, Pharmaceutical, Medico-prophylactic, and the School of Continuing Education for Physicians and Pharmacists. Education of physicians and pharmacists at the university is discussed in detail in the section on University Training in Pharmacy and Medicine. The university is an important component of the Ryazan health system. The most important functions of the university, as it relates to RPM are

- 1 The Medical University trains medical physicians, pharmacists, dentists, and physicians in environmental health (hygiene physicians)
- 2 The Department of Continuing Education for Pharmacists provides post-graduate training to pharmacists in management, technical areas, and laboratory science
- 3 The university operates a 50-hectare botanical garden, where students of the Pharmaceutical Department have practical rotations, and where medicinal herbs are grown for packaging and sales
- 4 The university conducts scientific research activities (both budgeted and non-budgeted), on preventive and diagnostic methods, therapy, and development of new drugs that are later patented by the university

- 5 The university publishes informational and methodological materials for use by students, pharmacists and physicians in the areas of drug usage, standardization, evaluation of the quality of domestic and imported drugs, and in the creation of "directional drugs" (drugs used for very specific indications) The concept of directional drugs is not commonly understood in western countries
- 6 The Specialized Board of Scholars awards M D and Ph D degrees to specialists in pharmaceutical chemistry and pharmacognosy

Pharmacia

Pharmacia is the state owned agency responsible for the procurement, storage and distribution of drugs, vaccines and medical supplies for the public health system in Ryazan Administrative offices are located approximately two kilometers from the Oblast Administration Health Department offices The warehouse is located approximately five kilometers from the Oblast Administration Health Department The role of Pharmacia in the procurement and distribution of drugs is described in detail in other sections of the report The organization has 263 employees, including 39 pharmacists

Health Facilities

The network of Medical and Prophylactic establishments in Ryazan Oblast includes general and specialty hospitals outpatient facilities including polyclinics and rural clinics, first aid stations, and several types of specialty facilities, such as a maternity advice bureau

There are two tertiary care hospitals serving the entire oblast one for adults and the other for children Both are located in Ryazan city Each rayon has a Central Regional Hospital, and all but two rayons have one or more district hospitals All 14 polyclinics are located in Ryazan city, and 14 rayons have rural outpatient clinics The most prevalent type of health facility is the Nurse station, with 916 in the oblast

There are a total of 1,401 public health facilities in the network

The most prominent health facility in the oblast is the Ryazan Oblast Hospital (1,040 beds, 18,373 admissions in 1993) The hospital was completed in 1982, and is located in the city of Ryazan It is an important facility not only for its size, but because

- eleven medical university departments have practical rotations at the Oblast Hospital
- the Oblast Consulting and Diagnostic Polyclinic is attached to the hospital,
- the hospital launched a department responsible for responding to oblast emergency disasters,
- the National Department for Monitoring Chernobyl Victims is located there,
- morbidity data for the entire oblast is maintained at the hospital,

-
- the Magnetic Diagnostic Department has a Magnetic Resonance Imaging Unit—one of the few in Russia. The department is a demonstration site for this region of Russia,
 - scientific research based on methodologies developed for the Russian space program is carried out in the Diagnostic Center, and
 - the automated Hospital Drug Procurement Program developed at the hospital has been installed in several regions in Russia and Belarus

A summary of the number and type of health facilities in the oblast can be found on the following page. Facility information for each rayon, and a map showing the location of the rayons can be found as Annex Eight.

NUMBER AND TYPE OF HEALTH FACILITIES IN RYAZAN OBLAST

Number	Facility
1	Oblast hospital for adults
1	Oblast hospital for children
12	Municipal hospitals
1	First aid hospital
1	Hospital for Patriotic War Veterans
1	Infectious hospital for adults
1	Infectious hospital for children
1	TB hospital for adults
25	Central regional hospitals
7	Regional hospitals
67	District hospitals
5	Mental hospitals
3	Maternity hospitals
10	Prophylactic hospitals
14	Polyclinics
7	Children's polyclinics
27	Rural outpatient clinics
1	Consultancy/diagnostic center for children
1	Center for family planning and reproduction
1	Maternity advice bureau
7	Dental polyclinics for adults
1	Dental polyclinics for children
6	Hospitals of other departments
10	Medical room staffed with doctors
267	Feldsher station
916	Nurse station
4	Sanatoriums
2	Infant home
1	Blood transfusion station
1401	TOTAL

As an indicator of the size of oblast inpatient facilities, the average number of hospital beds in all facilities surveyed was 298.5 (The average *without including* the Oblast Hospital is 214.46). Drugs are dispensed at 2,549 facilities, including community pharmacies.

C Public Health Facility Staffing

Planned and Actual Total Oblast Staffing in Public Health Facilities (not including Oblast Hospital or Community Pharmacies)

Position	Planned	Actual	Ryazan Population per
Physician	6,898	5,643	237
Nurse	9,669	8,296	161
Midwife	893	700	
Pharmacist	N/A	7	190,857
Pharmacy Technician	N/A	5	267,200
Feldsher	1,494	1,200	1,113

Staffing for Oblast Hospital

Position	Planned	Actual
Physician	445	325
Pharmacist	12 75	11
Pharmacy Technician	8 25	8

Staffing for Polyclinics

Position	Planned	Actual
Physicians	3,226	3,113
Nurses	3,652	3 579
Ancillary Personnel	791	752

Reportedly, Chief Physicians are reluctant to report vacancies, due to fears of budget cuts and mandated staff reductions

To a western observer, the lack of pharmacists and pharmacy technicians in hospitals is notable, and Russian hospitals often do not have formal pharmacy departments. Facilities with pharmacies operate on a ward stock distribution system, rather than dispensing drugs to individual patients. In Korablino Rayon, there is no pharmacist at the 300 bed Central Rayon Hospital.

The opposite situation exists for physicians, as shown in the table below.

	Population per Physician
World-wide	3,980
United States	420
Russia	210
Ryazan Oblast	233

(World Development Report, 1993, World Bank)

VI FINANCE

Russia has experienced a significant problem with the devaluation of the ruble in recent years, as can be seen in the table below, for 1993 and 1994

1993-94 Actual Rubles/ 1 US \$ Exchange Rates

Date	Rate	% Change
January 1993	417	
February 1993	572	37 17
March 1993	593	3 67
April 1993	684	15 34
May 1993	823	20 32
June 1993	994	20 78
July 1993	1060	6 64
August 1993	989	-6 70
September 1993	992	0 03
October 1993	1169	17 84
November 1993	1186	1 45
December 1993	1231	3 79
January 1994	1247	1 30
February 1994	1542	23 66
March 1994	1657	7 46
April 1994	1753	5 79
May 1994	1820	3 82
June 1994	2000	9 89
16 October 1994	2850	42 5

From January 1993 to June 1994, the average monthly devaluation of the ruble was 9 56%

In the report, unless noted otherwise, ruble to dollar conversions will be made using the following conversion rates

- 400 rubles/ 1 US \$ for 1992
- 1,200 rubles/ 1 \$ US for 1993
- 2,000 rubles/1 \$ US for 1994

A Funding Public Sector Drug Purchases in Ryazan Oblast

The overall oblast budget is formed from federal and oblast taxes, most of which are collected quarterly. The main federal taxes include

- Profit Tax
- Value Added Tax
- Individual Income Tax
- Alcohol Taxes
- Federal Road Tax

Oblast taxes include

- Property Tax
- Transport Tax
- Local Road Tax
- Police Tax
- Education Tax
- Stamp Duties
- Excise Duties

The Oblast Administration Department of Finance prepares the following- year budget in September, which is presented to the Ministry of Finance. An inflation factor of 1.4 is used in calculating budgets.

All oblast taxes remain in the oblast. A portion of Federal taxes are sent to the federal level, and a portion remains in the oblast, as follows

Percentage of Taxes Remaining in the Oblast

Tax	Federal %	Oblast %
Profit Tax (35% of profit)	13	22
Value Added Tax	75	25
Income Tax	0	100
Excise Duty for Beer	0	100
Excise Duty for Vodka	50	50

Approximately 45% of tax revenues sent to the federal level are eventually returned to the oblast in the form of federally funded programs. However, in 1994, federally funded programs received only 25% of anticipated funds. In 1994, of all taxes that should remain in the oblast, it is estimated that only 75% will be collected, due to non-payment by individuals and enterprises.

The oblast health budget is formed beginning at the health facility level. Individual facility budgets are forwarded to Rayon Administration Finance Departments. Each rayon forwards a summary budget to the Oblast Administration Health Department. This method of budget formation was established during Soviet times. The 32 facilities that report directly to the Oblast Administration Health Department ("oblast important" facilities) submit budgets directly to the department.

Health budgets are divided into 18 categories:

- 1 Wages: calculations are based on the exact number of medical personnel in the oblast as of the end of previous fiscal year, plus new planned positions. The average salary for each level (physicians, nurses, etc.) is then estimated and multiplied by the number of workers in each of the groups. For 1994, a 4.5 inflation factor was used.
- 2 Charges for wages: this includes social insurance tax of 39% of the wages fund, pension fund, etc.
- 3 Office expenses and utilities: office expenses are based on previous consumption, multiplied by the inflation rate. Requests for computers present problems, in that there is usually not a "previous consumption." For utilities, facilities contact utility companies to get estimated rate increases.
- 4 Trip expenses: are based on continuing education plans, and rail-road tariffs - the latter is coordinated with the Ministry of Railways.

5,6,7,8 These category numbers are not used in the health system.

-
- 9 Food for in-patients norms have been established per hospital bed. Calculations are made based on factors such as bed occupancy rates, food consumption per bed (grams of bread, butter, sugar, etc), to arrive at a figure which is multiplied by the total number of hospital beds in the oblast, and by the inflation rate for food (for 1994, the rate was 4.0). The inflation rate for 1994 was underestimated, requiring a request to the oblast for additional funds.
 - 10 Drugs for exempt and in-patients calculations are based on previous consumption, the number of specialty beds, average need per each disease case, census data (number of war veterans, children, Chernobyl victims), etc.
 - 11 This category number is not used in the health system.
 - 12 Purchases of medical equipment hospitals are required to specify needs, but frequently receive no funds for this category.
 - 13 This category number is not used in the health system.
 - 14 "Soft stock" pillows, blankets, gowns, etc for hospitals based on norms per hospital bed, plus depreciation.
 - 15 Capital construction investments provided in the city budget, but does not exist in the public health budget.
 - 16 Capital repairs.
 - 17 This category number is not used in the health system.
 - 18 Other expenses dental prosthetics, pediatric nutrients, medical aviation corps, bacterial preparations (for labs, vaccines, etc), expenses for in-patient treatment outside of the oblast, (e.g. when they send patients to hospitals in Moscow) in most cases money comes via federal programs.

The Oblast Administration Health Department spends an estimated 90% of staff time revising the health budget throughout the year. When budgeted funds are depleted, typically at mid-year, additional funds are requested from the Oblast Department of Finance. Because of the high priority placed on public health, funds are raised by decreasing the budget from another sector, such as agriculture, or by imposing new taxes. The reverse process has also occurred in 1993, 4.1 billion rubles were taken from the health budget for an agriculture sowing campaign.

Funding for the purchase of pharmaceuticals in the oblast, for the public sector, comes from two main sources

- the oblast system of taxation, (described above) used for ruble drug purchases, and
- the Oblast Hard Currency Basic Account,

Oblast Hard Currency Basic Account

According to federal regulation, all enterprises are required to provide a specified percentage (the exact percentage was not available to the assessment team) of hard currency revenues to the Oblast Hard Currency Basic Account, at the Prio-Vneshtorgbank in Ryazan. Revenues are collected quarterly.

In 1993, in addition to the annual ruble budget, \$ 2.5 million in hard currency was made available by Oblast Administration to Pharmacia on a credit basis, without interest. Revenues generated from sales of drugs were used to repay the loan, as stipulated in a contract between Oblast Administration and Pharmacia.

For 1994, it is estimated that \$ 3.5 million in hard currency will be available, of which \$ US 2.6 million will be used for public health. Of this \$ US 2.6 million, \$ US 1.067 million will be used for drugs. Oblast Administration advises Pharmacia when hard currency is available for drug purchases. After Pharmacia negotiates contracts with suppliers, hard currency funds are transferred directly from the hard currency account to drug producers or wholesalers.

Presently, the only Ryazan Oblast enterprise that provides hard currency funds is a local oil refinery.

B Oblast Budget and Expenditures**1994 Budget (As of March 1994)**

	Rubles	\$ US (2,000 rubles/\$ US)
Total Oblast Yearly Budget	762,554 million rubles	\$ US 381,277,000
Total Oblast Health Budget	146,799 million rubles (19% of oblast total)	\$ US 73,399,500
Total Oblast Health Personnel Budget	36,451 million rubles (4% of oblast total)	\$ US 18,225,500
Approved Ruble Drug Budget	20,357 million rubles (2% of oblast total)	\$ US 10,178,500
Hard Currency Budget for Drugs (not part of the Oblast Health budget)		\$ US 1,067,000

1993 Actual Expenditures

	Rubles	\$ US (1,200 rubles/\$US)
Total Oblast Recurrent Expenditures	137,114 million	\$ US 114,261,667
Total Oblast Health Expenditures	27,996 million (20% of oblast total)	\$ US 23,339,000
Total Oblast Health Personnel Expenditures	10,038 million (7% of oblast total)	\$ US 8,365,000
Ruble Drug Expenditures	3,082 million (2% of oblast total)	\$ US 2,568,333
Hard Currency Drug Expenditures (not part of the Oblast Health budget)		\$ US 2,500,000

Per capita expenditures on drugs in 1993 were \$ US 3 79 Planned expenditures for 1994 are \$ US 8 41

1992 Expenditures

	Rubles	\$ US (400 rubles/\$US)
Total Oblast Recurrent Expenditures	11,397 million rubles	\$ US 28,492,500
Total Oblast Health Expenditures	2,853 million rubles	\$ US 7,132,500
Total Oblast Health Personnel Expenditures	752 million rubles	\$ US 1,880,000
Drug Expenditures	257 million rubles	\$ US 642,500

The value of drug donations is negligible compared to total oblast purchases

Drug budgets are made based primarily on previous year drug requirements. The following are also considered

- the number of hospital beds in the oblast
- occupancy rate of hospital beds
- the number of outpatient visits
- population shifts
- morbidity patterns

The main problems identified with the drug budgeting process are high inflation, and devaluation of the ruble

C Pharmacia Financial Information

For 1993, in addition to realizing revenues from the sale of drugs, Pharmacia received a one year, \$ US 2,500,000, no interest credit from Oblast Administration. As per the contract with the oblast, after one year, a 4% monthly "fine" was imposed.

Bank loans, which carry up to 180% interest rates, are no longer an option for financing drug purchases.

1993 Pharmacia Financial Information

1993	Rubles	\$ US
Net Profit from all activities as of January, 1994	267,649,000	214,634 at 1,247 rubles/\$ US
Net Profit from drug sales as of January, 1994	247,390,000	198,388 at 1,247 rubles/\$ US)
Value of drugs issued at no charge, 1993	N/A	N/A
Drug Inventory (December 31, 1992)	54,244,000	130,081 at 417 rubles/\$ US
Drug Inventory (December 31, 1993)	979,228,000	785,267 at 1247 rubles/\$ US
Value of Drug Purchases, 1993	4,701,004,000	3,917,503
Sale value of drugs sold, 1993	3,776,020,000	3,146,683
Mark-up Value	553,717,000	461,431

Pharmacia Expenses for 1993 were as follows

1993 Pharmacia Expenses

Category	Rubles	\$ US
Personnel	123,564,000	102,970
Utilities and depreciation costs	23,612,000	19,677
Bank Interest for credits	43,708,000	36,423
Supplier mark-ups, transportation costs	51,827,000	43,189
Other expenses (pension and employment funds, local taxes)	63,616,000	53,013
TOTAL	306,327,000	255,272

The following information is for 1 January- 30 June, 1994

1994 Pharmacia Financial Information

1994	Rubles	\$ US
Net Profit from drug sales	(99,780,000)	(49,890)
Value of drugs issued at no charge	N/A	N/A
Drug Inventory (December 31, 1993)	979,228,000	785,267 at 1247 rubles/\$ US
Value of Drug Purchases	4,396,868,000	2,198,434
Sale value of drugs sold	3,609,602,000	1,804,801
Mark-up Value	474,535,000	237,267

Pharmacia Expenses for 1 January-30 June, 1994 were as follows

1994 Pharmacia Expenses

Category	Rubles	\$ US
Personnel	162,027,000	81,013
Utilities and depreciation costs	24,284,000	12,142
Bank Interest for credits	87,554,000	43,777
Supplier mark-ups, transportation costs	179,044,000	89,522
Other expenses (pension and employment funds, local taxes)	121,506,000	60,753
TOTAL	574,315,000	287,157

The following table shows the breakdown of some Pharmacia purchases, based on 1,800 rubles/ \$ US

Pharmacia Purchases 10/1/93 through 4/1/94

Distributor	Supplier-Location	Purchases (rubles)	Purchases (\$ US)	% of Total
Rospharmacia	Raskat - Kolomna	4,442,601	2,468	0 07%
Rospharmacia	Warehouse - Velikiye Luki	1,319,985	733	0 02%
Rospharmacia	Warehouse - Reutovo	14,313,605	7,952	0 22%
Sub-Total (Rospharmacia)		20,076,191	11,153	0 31%
Pharmimex	Pharmsnabsbyt - Reutovo	413,116,264	229,509	6 46%
Pharmimex	Ortat - Kostroma	44,660,726	24,811	0 70%
Pharmimex	Warehouse - Kiritsy	9,874,545	5,486	0 15%
Sub-Total (Pharmimex)		467,651,535	259,806	7 31%
	<u>Biosynthes - Penza</u>	68,715,500	38,175	1 07%
	Akrichkin - Kupavna	25,691,970	14,273	0 40%
	Factory- Khabarovsk			0 04%
	October - Saint Petersburg	38,291,071	21,273	0 60%
	Organica - Novokuznetsk	58,308,713	32,394	0 91%
	Vitamin Factory - Belgorod	32,039,789	17,800	0 50%
	Factory - Voronezh	37,305,749	20,725	0 58%
	Factory - Nizhny Novgorod	15,110,963	8,395	0 24%
	Biochemic - Saransk	43,694,461	24,275	0 68%
	Factory - Chelyabinsk	10,247,931	5,693	0 16%
Sub-Total (listed purchases only)		819,495 442	455 275	
Total Purchases 10/01/93 to 04/01/94		4 683 923,000	2 602,179	100%

D Kiritsy Financial Information

The following information is for 1993

	Rubles	\$ US
Goods received from Pharmimex/Moscow	106,214,890,000	88,512,408 at 1,200 rubles/\$ US
Revenues from drug sales to health facilities	5,088,000	4,240 at 1,200 rubles/\$ US
Inventory at the beginning of FY 1993	304,525,000	730,276 at 417 rubles/\$ US
Inventory at the end of FY 1993	2,015,836,000	1,616,548 at 1,247 rubles/\$ US
Current debt to suppliers	28,748,187,000	14,374,093 at 2,000 rubles/\$ US
Current debt from clients	13,930,061,000	6,965,030 at 2,000 rubles/\$ US
Administrative costs	30,602,000	15,301 at 2,000 rubles/\$ US

Drugs are sold to most clients on a consignment basis one client prepays Nothing is issued free of charge to clients or staff

When shipments are received, stock already on hand is sold based on the original acquisition price New stock is sold at the new price Upon request, a price list is sent to the clients

Issues and revenue records are reconciled twice a year by the internal audit department, and quarterly by the tax inspectors They also check the calculation of selling prices are calculated The last audit was performed during the assessment (June 94) Quarterly financial reports are sent to the oblast tax inspector and to the Oblast Statistical Board

The Kiritsy staff get incentives from the sales according to the value of the sales This can amount to over 100% of their salary

E Oblast Hospital Financial Information

All Oblast Hospital pharmacy drug purchases are made using funds provided through the oblast budget process. For 1994, the hospital, and drug budgets are

	Rubles	\$ US
Total Hospital Budget	8 262 billion	4,131,000
Total Drug Budget	1 43 billion (17.3% of hospital budget)	715,000

For 1993, budget, and actual expenditures were

	Rubles	\$ US
Total Drug Budget	266,000,000 (15.3% of hospital budget)	221,667
Total Drug Purchases	271,452,910	226,211
Pharmacia	253,301,898	211,085
Other Suppliers	18,151,012	15,126

The value of drugs issued to inpatients in 1993 was 97,156,409 rubles (\$ US 75,140)

The drug inventory in the pharmacy in March of 1993, and 1994 was as follows

Date	Rubles	\$ US
March 1993	1 441,240	2,430 at 593 rubles/\$ US
March 1994	93,202,590	56,248 at 1,657 rubles/\$ US

The Oblast Hospital purchases drugs from several private suppliers. A summary of private sector purchases made from January-May 1994 follows

Company	Location	Value (rubles)	Value (\$ US)
Spray	Ryazan	1,778,000	889
Medservice	Ryazan	4,842,683	2,421
MMM	Ryazan	2,109,872	1,055

Purchases made through the federal procurement and distribution system (Pharmimex and Rospharmacia), and Pharmacia, for January-May 1994 were as follows

Source	Location	Rubles	\$ US
Pharma (Kiritsy)	Kiritsy	1,933,920	967
Raskat (Rospharmacia)	Kolomna	40,855,953	20,428
Pharmacia	Ryazan	134,464,290	67,232

F Financial Debt in the Pharmaceutical System

In April 1994, the total debt owed to community pharmacies from health facilities for drugs and reimbursement for exempt prescriptions was 1.5 billion rubles (\$ US 855,675 at 1,753 rubles/\$ US). In May, the debt was reduced to 235,000,000 rubles (\$ US 129,121 at 1,820 rubles/\$ US). This significant reduction in debt was due to receipt of funds from the taxation cycle in the oblast.

According to a new law, enterprises with fewer than 300 employees may pay taxes quarterly, in March, June, September and December, instead of monthly. Many large firms in the oblast have split into several smaller firms in order to defer this payment. These tax revenues represent one third of the total oblast budget and were used to reduce the drug debt from public facilities in May.

The Oblast Administration provides funds to repay all debt to pharmacies at the end of each year, although interest is not paid on debt.

Pharmacia's overall current debt to suppliers

Description	Debt (rubles)	Debt (\$ US)
Direct Purchases	2,935,401,000	1,467,700
World Bank Loan, owed to Pharmimex	263,957,000	131,978
Total	3,198,358,000	1,599,678

Pharmacia's most significant debt to suppliers, as of May 1, 1994

Supplier	Debt (rubles)	Debt (\$ US)
Pharmimex - Reutov	421,400,000	210,700
Pharmimex- Kiritsy	312,600,000	156,300
Ferien	72,500,000	36,250
Rospharmacia	2,520,000	1,269
Bio-Synthes - Penza	33,087,000	16,543
Samson - Saint Petersburg	29,680,000	14,840
Bio-Chemia - Saransk	41,000,000	20,500

At the time of the assessment, accounts receivable from clients to Pharmacia was as follows

Ryazan Oblast	Debt (Rubles)	Debt (\$ US) 2,000 rubles/\$ US
Hospitals	Prepayment Only	
Pharmacies - Ryazan (40)	833,405,000	416,702
Pharmacies - Rayon (130)	847,432,000	423,716
Total	1,680,837,000	840,418

Nationally, it is estimated that the debt from all companies that import drugs for the MOH to external suppliers is \$ US 620,000,000

G Pricing Policy

At the time of the assessment, the following pricing policies were in effect, for domestically produced drugs, the producer's selling price could not be greater than 30% above the production cost. The total markup (by all intermediary distributors and pharmacies) on the manufacturer's selling price could not exceed a total of 50%.

For imported drugs, the purchasing company was restricted in setting a selling price within Russia by the Ministry of Finance and the State Committee on Prices. After the first selling price within Russia was established, total markup could not exceed 50% of this price.

New policies, approved in August, 1994, are explained below, in the section on Decree #890.

H User Fees

Average incomes of all workers in the public sector in Ryazan Oblast (May, 1994, 1,820 rubles/ \$ USD 1) were

Monthly	Rubles	\$ US
Average Salary	130,000	71.43
Minimum Pension	19,200	10.55
Minimum Salary	14,620	8.03

In hospitals, inpatients receive drugs and services free of charge. In some hospitals, private sector contractors are utilized to provide certain services, primarily for patient requests that go beyond the care prescribed by their physician. These companies have payment schedules for services.

Patient charges, as of May 1994, for some of these private services follow

Service	Rubles	\$ US (1,820 Rubles/\$)
Consult for a M D in Medicine	6,300	3 46
Consult for a department head	6,300	3 46
Consult for a Doctor of Medicine (Ph D)	7,200 first visit	3 95
Consult with physician	2,700 first visit	1 48
Ultrasound of heart	7,500	4 12
Electroencephalogram	13,000	7 14
Suction Abortion	12,000	6 59
Abortion	24,000-30,000	13 18-16 48
Stomatologist Exam	500 first exam	0 27

Physicians providing private sector consultation may also be public sector hospital employees. In such cases, private consultations may not take place during normal working hours. Equipment for procedures and tests are often rented from the hospital.

At the Oblast Hospital, the number of physicians also working in the private sector is unknown, but is assumed by the Chief Physician to be substantial.

Hospital employees and civil servants pay full price for drugs prescribed in outpatient settings.

Outpatients for whom drugs are prescribed in public facilities obtain their medications at community pharmacies and pay the amount determined by regulations on mark-ups. Pharmacies must meet drug costs, salary and operating expenses from sales revenues. The table on the next page presents the average selling price, and mark-ups of community pharmacy tracer drugs for 10 Ryazan city pharmacies.

Drug Pricing, 10 Ryazan Community Pharmacies

Drug	Form	Average % Pharmacy Mark-up	Highest % Pharmacy Mark-up	Lowest % Pharmacy Mark-up	Average Selling Price (Rubles)	Highest Selling Price (Rubles)	Lowest Selling Price (Rubles)
Gentamicin, 80 mg	amp	37%	40%	35%	387 67	620	218
Indomethacin, 25 mg	tablet	35%	35%	35%	102 44	495	37
Phenobarbital, 10 mg	tablet	33%	35%	30%	6 00	9	3
Ampicillin, 250 mg	tablet	36%	40%	35%	132 00	163	106
Pilocarpine, 5 ml %	vial	37%	40%	35%	1151 80	1296	971
Paracetamol, 200 mg	tablet	38%	50%	30%	46 00	99	18
Antihæmorrhoidal Suppositories	suppositories	36%	40%	35%	39 69	90	16
Nifedipine, 10 mg	tablet	36%	40%	35%	53 22	87	26
Clonidine, 15 mg	tablet	35%	35%	35%	42 63	75	7 5
Digoxin, 15 mg	tablet	37%	40%	35%	35 00	39	29
Furosemide, 40 mg	tablet	34%	40%	30%	25 43	42	3
Senna, 0 3 g	tablet	37%	40%	35%	24 30	30	1 5
Salbutamol 200 dose/10 ml	vial	35%	35%	35%	7212 67	7500	7068
Hydrocortisone, 1%/10 gr	ointment	36%	40%	35%	688 00	1045	126
Drotaverin, 0 04 gr	tablet	33%	40%	30%	40 50	72	22
Drotaverin 2%/2 ml	amp	36%	40%	30%	237 63	482	35
Papaverine 2%/2 ml	amp	36%	40%	30%	89 00	147	66
Pancreatin	tablet	38%	50%	30%	168 89	267	14
Bucarbon 500 mg	tablet	36%	40%	35%	99 57	232	59
Cimetidine, 200 mg	tablet	36%	40%	30%	352 86	583	81
Insulin Actrapid, 40 u/ml, /10 ml	vial	33%	35%	30%	1578 67	2189	971
Insulin Monotard, 40 u/ml, 10 ml	vial	33%	35%	30%	2189 00	2189	2189
Sulfadimidine, 500 mg	tablet	35%	35%	35%	58 50	73	44
Paracetamol, 400 mg	tablet	34%	35%	30%	22 80	28	9
Bromhexine, 8mg/100 ml	vial	34%	40%	30%	1360 43	1497	545
Amiodarone, 200 mg	tablet	36%	40%	35%	106 83	115	69
Nitroglycerine, 0005 g	tablet	34%	35%	30%	1 41	6	0 45
Nitroglycerine, 2 6 mg	tablet	35%	35%	35%	183 00	249	150
Cotrimoxazole 100 ml	vial	n/a	n/a	n/a	n/a	n/a	n/a
Heparin, 2500 ed/25 g	ointment	36%	40%	30%	530 20	756	180
Tetracycline, 100 mg	tablet	37%	40%	35%	29 88	51	6
Glibenclamide, 5 mg	tablet	34%	35%	30%	8 50	10	7 5

In Feldsher stations, where outpatients are seen in rural areas, patient visits are usually free of charge. In one feldsher station visited during the assessment, the on-site pharmacy was a branch location of a central rayon pharmacy. Patients paid normal prices for drugs, with the exception of exempt patients.

I Exempt Patients

Russian Federation Government Decree #970 Annex Nine, contains the list of exempted patients and conditions for which drugs are dispensed free of charge. Some examples of exempted patients and conditions are

Patient Type	Drugs Received Free of Charge
War veterans	all drugs
Children 0-3 years old	all drugs
Diabetics	all drugs
AIDs	all drugs
Oncological diseases	all drugs for terminal patients

Discounts range from 50% to 100% of the retail price of the prescription. For certain conditions, specific rules apply. For example, myocardial infarction patients pay nothing for related medications for 6 months. A discount of 50% is given for a very specific list of drugs. Pensioners who receive the minimum pension qualify for a 50% reduction in cost of the prescription.

The dispensing pharmacist cannot initiate the process of qualifying a patient for an exemption category. No exceptions are made for non-exempt patients who cannot pay for prescriptions.

It was estimated by the Oblast Administration Health Department that 20-30% of all prescriptions filled in community pharmacies are for exempt patients. During the community pharmacy survey, 46% of patients observed received drugs free of charge.

J Insurance Medicine

The Federal Law on Compulsory Medical Insurance in Russia was passed in 1991. Work on implementation began in 1992, including raising funds for the program by a 3.6% increase in taxes at the oblast level. Of this tax increase, 3.4% remains at the oblast level, and 0.2% is contributed to a federal insurance fund. The mechanism for using funds was not established in 1992, and funds accumulated without earning interest in state banks. At present, it is estimated that for the whole Russian Federation, 60% of the 3.6% tax increase is actually collected due to financial hardship in oblasts.

In 1993 guidelines were drafted that recommended that funds be used for

- medical services for ambulances,
- drug procurement for ambulance services, and
- preventive campaigns, such as vaccination programs

At a recent national level meeting in Novosibirsk, attended by Pharmacia Directors and representatives of Oblast Administration, the general consensus was that insurance medicine funds be given to Pharmacias for drug procurement. The republic of Komi has raised the tax to 6%, and some of these funds are used for drug procurement.

As the insurance medicine program develops, drug prescribing restrictions may be implemented, including the requirement that drugs be prescribed by generic name.

In 1992, a group of Ryazan specialists was chosen to develop an Oblast Program of Insurance Medicine. Oblast Administration requested that Ryazan Medical University take the leading role in this work, for which the university received 1.0 million rubles (\$ US 2,500).

The group studied insurance models developed in other Russian oblasts, and representatives from Ryazan participated in medical insurance training programs organized by the MOH in Russia and abroad. Five Ryazan officials attended two such sessions in the United States¹³. A Ryazan plan for insurance medicine was completed in 1992.

The Oblast Fund for Obligatory Insurance Medicine, launched in 1993, is derived from the 3.6% raise in the general wage tax fund described above. For 1994, Oblast Administration estimates that 28 billion rubles (\$ US 14,000,000) will be collected for the Ryazan fund.

In February 1994, Oblast Administration issued an order introducing Obligatory Insurance Medicine, and defined the stages of the program. In May, pilot sites for the program were chosen:

- Korablinski Rayon
- Spasski Rayon
- Ribnovski Rayon
- Ryazan City hospitals, polyclinics and ambulatories

Insurance medicine funds are currently used to

- cover all operating expenses in hospitals and municipal polyclinics in Ribnovski Rayon, including salaries and drugs procurement,
- purchase medical equipment for hospitals in pilot sites,
- rehabilitate youth camps,
- provide education for specialists,

¹³ The group included the Director of the Medical Insurance Fund, a representative of insurance companies, the Associate Deputy Head of Oblast Administration, the Deputy Head of Ryazan City Health Administration, and the Chief Physician of the Ryazan Municipal Hospital.

- cover the costs of fund administration, and
- develop software to be used in operating the insurance medicine program,

At the present time, the insurance medicine program does not cover drugs used in outpatient settings, although there are plans at the federal level to raise the current tax of 3.6% to a higher level for this purpose. The drugs that would be covered under such a program have not been decided.

Oblast Administration estimates that 45 billion rubles (\$ US 22,500,000) are needed to cover these expenses in 1994, of which the fund will provide 53%.

K Decree # 890

As mentioned previously, the drug pricing structure in effect at the time of the assessment will change with the issuance of Decree # 890 on July 30, 1994, and changes already implemented in Ryazan are not known at this time. The decree is summarized below.

Judicial Issues Related to Decree # 890

With the emergence of new private sector enterprises, and privatization of state owned enterprises, the need for strict control of quality by the MOH is recognized. The MOH has written detailed regulations which have been registered with the Ministry of Justice, that specify requirements that producers must meet for licensure. The decree states that all drug production facilities must be licensed.

Two organizations can issue licenses for the sale of drugs, the Federal MOH, for Russia-wide wholesalers, and Oblast Administrations, for wholesalers operating within an oblast. If greater than 50% of a wholesaler's total turnover is to clients outside of the oblast, federal licensure is required.

Exempt outpatients¹⁴ and disease categories for which patients receive drugs free of charge or at a reduced rate are identified in the decree. Oblasts will have the authority to determine discount levels (0-100%) for various categories of exempt patients, or alter the list of exempt patients.

In addition to defining subsidies for drugs by patient type, the MOH has compiled a *Russian Essential Drugs List* consisting of 241 drug names (467 products) for which discounts may be given to all patients. The MOH is in the process of reducing the number of drugs on the list to 96 drug names. The revised list is under review. Prior to decree # 890, all patients received a 50% discount for drugs contained on the list. Now, discounts may be established by individual oblasts.

The *Essential Drugs List* is also to be used by the pharmaceutical industry to prioritize production needs.

¹⁴ Outpatients who may receive drugs free of charge or at a reduced price.

Economy and Pricing

A prior decree, Decree #970, contained two elements that impeded the transition from a command to a market economy

- 1 The decree set limits on the price at which drug manufacturers could sell their products. Regulations stipulated that the average mark-up that a manufacturer could charge was 30% above production cost. The average was based on the producers complete line of products. Manufacturers followed specific procedures to calculate production costs, and the process was monitored by the Tax Inspection. Since 1991, high inflation has caused all Russian manufacturers to operate at a financial loss.
- 2 Decree #970 set a limit of 50% mark-up for drugs above the manufacturer's price, although a mark-up of 80% was established for a small number of northern oblasts.

Decree #890 cancels these markup limits. Oblasts have been given authority to establish mark-ups for the sale of pharmaceuticals. Russian drug manufacturers may now establish their own drug prices. One informed prediction is that prices will rise 25% on average.

Organizational and Economic Measures to Support Medical Industry Enterprises and the Network of Pharmacies

The decree recommends that oblasts take measures to attract sources of investment in medical industries. To support this recommendation, the decree suggests that,

- Public utility rates charged to medical industries be lowered
- Taxes levied on medical industries be lowered

Taxes currently paid by enterprises in Russia are as follows

Tax	% of Profit
Federal	13%
Local	25%
Road	2%
Other	2%
TOTAL	42%

An example of reform to support local industry can be found in the City of Moscow. Moscow city enterprises that sell 70% of their output in Moscow city are exempt from paying local tax.

The decree recommends measures to support pharmacies that are not meeting expenses. The main recommendation is that oblasts allow pharmacies a sufficient mark-up on drugs to become profitable. In Moscow, pharmacies are typically charging 50-70% mark-up in order to make 5% net profit.

Alternatives to attract new types of investments are recommended in the decree.

- Formation of Financial Investment Groups. These groups typically are made up of banks, insurance companies, or other financial institutions that unite to carry out a specific program of activities. For example, the MOH is considering launching a Financial Investment Group to promote production of drugs not currently manufactured in Russia. Some funding for this program would come from the Federal Insurance Fund. A working group will identify drugs to be produced, and facilities that can be rehabilitated for production of these drugs. Private investors will be invited to invest in the program. A Monitoring and Supervision Board will monitor the use of investment funds, and an Executive Board of Directors will provide overall management. Because this project is being initiated by the government, special tax exemptions and benefits will apply. At present, drug lists and production sites have been chosen, and private investors have been identified, but actual production has not begun.
- Elimination of import taxes for all drugs, medical supplies and raw materials.
- Elimination of export taxes on drugs and medical supplies. This issue will be decided by the MOH, Ministry of Finance, Ministry of Economy, and the Customs Committee, and a decision may be made by 1995.
- Increase in import taxes on external source drugs which are also produced in Russia.
- Exemptions from profit tax, Value Added tax, and Special Tax for Enterprises.
- Addition of pharmaceutical manufacturers to the list of enterprises not subject to cessation of services due to failure to pay bills, by Ministries controlling public utilities.

Organizational Measures to Rationalize Drug Supply

The decree recommends that

- the MOH and MOF define a *Russian Essential Drugs List*, which would be reviewed and revised annually. The uses of the EDL would not change from current practice. The list could be expanded at the oblast level if desired.
- the MOH and the State Committee on Statistics track the movement of drugs nationally, and monitor the needs of the population for drugs.
- the MOH and the Ministry of Economy review and revise the existing list of approximately 260 drug products that should be available in pharmacies at all times. Availability of these drugs, which are mostly over-the-counter products, should be monitored at the local level.
- specific mechanisms be established at the oblast level to ensure that pharmacies are properly compensated for providing drugs to exempt patients.
- Oblast Administrations and their Health Departments increase public health budgets, and that no limits be set on those budgets. Prior to 1991, budgets were determined by calculating the number of hospital beds in an oblast and budgeting a specific number of rubles per bed.

Specific Medical Help to Population in Disaster Situations (Natural and Industrial)

In the late 1980s, a procedure was established whereby Pharmacias were given credits to purchase a three-month supply of certain drugs needed for emergency situations. As these credits are no longer available, the decree recommends that specific funds be allocated in each oblast for this purpose. Procedures should be established to ensure that reserves are present in each oblast, and facilities authorized to utilize reserve stocks should be identified.

Ryazan Oblast Response to Decree #890

Regarding drug mark-ups, Ryazan Oblast Administration is considering two alternative approaches to reform, based on the decree

1. Oblast Administration will calculate optimal drug mark-ups, based on careful study, or
2. Oblast Administration will delegate responsibility for setting mark-up to city and rayon administrations.

L Areas of Concern Related to Finance

- Availability of funds for drug procurement is dependent on the local economy. There is currently only one enterprise providing hard currency funds. During the assessment, lack of funds for drug procurement was frequently cited as a problem at health facilities.
- If purchase prices rise dramatically, as is likely once subsidies are discontinued for agencies such as Pharmimex and Rospharmacia, considerably more funds will be needed to purchase the same quantity of drugs as in the past. This means that, unless funds are forthcoming, shortages will occur, unless the health system is able to limit procurement lists to those drugs most essential, given prevailing health problems.
- Debt owed to pharmacies, by health facilities, for both drugs used at the health facilities, and reimbursement for filling prescriptions for exempt patients, is a key problem. In April 1994, this debt totaled 1.5 billion rubles (\$ US 855,675 at 1,753 rubles/\$ US).
- Devaluation of the ruble, (9.56% per month from January 1993 to June 1994), and inflation will continue to strain the economy, including providing funds for the public health system and drug procurement.
- Morbidity data are not used to the fullest extent possible in the process of preparing drug budgets, currently budgets are developed, based on previous consumption patterns, which almost certainly will change as subsidies decrease and purchase prices rise.
- A high proportion of patients with outpatient prescriptions receive drugs free of charge under the current system of exemptions. Pharmacies report that long reimbursement times for exempt patients are problematic, given the current rate of inflation.
- The current medical insurance program does not provide clearly defined benefits to subscribers. Hospital and clinic expenses are covered in only one of the pilot rayons. At the national level, it has been estimated that the 3.6% tax increase should be raised to 7-10%.

- The exact role of Standard Treatment Guidelines or reimbursable treatment indications in Insurance Medicine has not been determined. Some draft guidelines reviewed during the assessment recommended drug treatments by trade name.
- Pricing policies in Pharmacia and in pharmacies need to be closely examined and adjusted as needed, to assure that allowable reimbursement and authorized prices are adequate to purchase replacement stock for the pharmaceuticals which are dispensed. This will become a critical issue as purchase prices begin to fluctuate according to market forces. In a situation of high inflation, sale of drugs by Pharmacia based on purchase price, rather than replacement cost may not generate sufficient funds for subsequent procurement. At the time of the assessment, allowable mark-ups were determined at the federal level. Since August, 1994, Decree # 890 delegated the authority to set mark-ups to local administrations. It is unclear if there is sufficient experience at Pharmacia to set drug prices that can cover replacement costs and operational expenses in periods of high inflation.

VII DRUG PROCUREMENT

This section of the report details drug procurement procedures at various stages of the drug distribution cycle. Data was obtained through interviews at the Oblast Administration Health Department, Pharmacia, the Oblast Hospital, Pharmimex, the Pharmaceutical Warehouse at Kiritsy, and other health facilities. Due to its prominent role in public health drug procurement, emphasis has been placed on data obtained from Pharmacia.

Because of computerized record keeping, the study team was able not only to collect data on tracer drugs, but was given information on all Pharmacia purchases and issues between 1 October 1993, and 1 April, 1994.

Two critical areas addressed in evaluating drug procurement are

- *the price paid for drugs* by Pharmacia and other institution that buy drugs. This is of particular importance in Ryazan, where there are limited funds, high inflation rates, and high devaluation of the ruble.
- *the availability of drugs* at various facilities, which is an indicator of the effectiveness of drug procurement efforts.

As the data that follows shows, Ryazan Pharmacia has been effective in purchasing drugs at prices that compare favorably to prices paid by other public sector procurement agencies internationally. For tracer drugs, Pharmacia paid 96% of the average international price in its last procurement prior to the assessment. It should be understood that drug prices in the Russian market as a whole have been kept artificially low through favorable exchange rates for Pharmimex, Rospharmacia etc., and by price controls. An informed national source predicts that drug prices charged by manufacturers will rise considerably.

Data on drug availability was less favorable. Only 27% of the top 74 (ranked by value) drugs purchased by Pharmacia were in stock in the warehouse in October, 1993, indicating that buffer stocks are not being maintained. At the health facility level, only 33% of tracer drugs were in stock at the time of the assessment, and 30% at the community pharmacy level.

Tables containing actual data are found at the end of this section.

A Procurement Decisions and Responsibilities

Drug procurement for the public sector is the responsibility of Pharmacia, which deals with producers or distributors in Russia, former soviet republics, baltic republics and with foreign producers, through their Russian representatives.

For the recently completed 1995 drug procurement, an ad hoc "Commission for Drug Needs Estimation for Purchasing," was formed to provide input into the process. The commission, comprised of 20 members, worked for one month, but there are discussions about having meetings on a more permanent basis. Standing members include

- Deputy Head of the Oblast Administration Health Department
- Chairman of the Pharmaceutical Committee
- Pharmacia Director
- Chief of Pharmaceutical Committee Division
- Chief of Procurement Department/Pharmacia
- Chief Surgeon
- Chief Therapist
- Chief Pediatrician
- Chief for Communicable Diseases
- Chief Oncologist
- Chief Endocrinologist
- Chief for Tuberculosis Program

Ad-hoc members include specialists such as obstetricians, gynecologists, hematologists and psychiatrists

The committee meets annually- usually for one week. Discussions focus on drug selection, availability, shortages, utilization, and actual and potential suppliers. Decisions are based on mutual consensus.

The Pharmaceutical Committee, Pharmacia, and the Oblast Administration Health Department also provide input on drug products and quantities to purchase. Pharmacia and the Pharmaceutical Committee provide estimates of needs based on past consumption. Pharmacia computer records and ledgers are used in this process. The Pharmaceutical Committee also advises on drugs and quantities to purchase based on disease patterns. A standard formula is not used in calculating drug quantities, and the process is done manually.

Ultimately, decisions on what drugs to buy are made by the Commission for Drug Needs Estimation for Purchasing. The *Russian Essential Drugs List* is used to prioritize procurement. Pharmacia is responsible for negotiating contracts and managing the distribution of drugs. In the public health system, Pharmacia supplies rayon central pharmacies with drugs, which then supply rayon hospitals and clinics. In practice, pharmacies make substantial drug purchases from private sector wholesale companies because of lower prices, resulting in overstock and loss of revenue at Pharmacia. One reason that small, private sector wholesalers can offer lower prices than Pharmacia is a "reverse volume discount" from suppliers, in which prices paid for smaller quantities of drugs are lower than large volume sales because suppliers consider such sales less risky.

B Drug Procurement by Ryazan Pharmacia

Pharmacia uses both its own funds and the oblast credit for procurement of drugs. Pharmacia's own funds are typically used for drugs that can be turned-over quickly.

Pharmacia has the ultimate decision on purchase quantity and source. There is no set schedule for buying drugs, due to the sporadic availability of funds.

All drug procurements are done based on contracts, often long-term agreements of one year, negotiated with suppliers by mail, phone or fax. There have been no competitive tenders done by Ryazan Pharmacia.

The main forms of payments to suppliers are

- Prepayment
- 50% upon order and 50% upon receipt
- 100% payment after receipt
- Payment within one to two months of receipt
- Consignment, with payment due after drugs are sold

Prepayment, and 100% payment after receipt, are the most commonly used methods.

It takes approximately two weeks for funds to be transferred to suppliers once a contract is signed. The transfer requires a letter of authorization from the Head of Oblast Administration when drugs are purchased with Oblast Administration funds. For international purchases, prepayment is required by suppliers. For purchases made from Britain, funds can be transferred in three days. Delivery begins only after the transfer has been completed.

For domestic purchases, most, but not all, companies require prepayment in rubles before shipment. Some companies allow partial prepayment, with the balance due on delivery, and some make sales on consignment. When foreign drugs are purchased from consignment warehouses from foreign suppliers, prices are calculated in hard currency, but payment is made in rubles at the exchange rate for the day that payment is made.

Most drugs included in long-term contracts are purchased quarterly. Current and past consumption and disease patterns are reviewed to determine order quantities. Actual requests/consumption figures are compared against forecasted needs.

Emergency purchases are made when

- vital drugs are out of stock
- A non-stocked drug is required for a specific patient, in which case the requesting physician must complete a detailed request.

When the oblast cannot purchase a drug, the MOH may provide assistance. Pharmacia administrative offices and warehouses are computerized, and use "Pharmaceutical Stock," a software program developed by the in-house programmer. The computer is not used to monitor purchase orders, which is done manually.

Since 1993, consumption data are tracked by a PC microcomputer system (formerly a minicomputer was used). The following reports are generated:

- purchase price, stock balance and line item value- produced when needed
- total quantities distributed to the facilities, and Pharmacia stock balance- produced yearly

For future consideration in planning RPM technical activities, support for computer hardware and software are provided by over 20 firms in Ryazan.

Ordering Through Domestic Wholesale Companies

Pharmacia purchases drugs through Russian wholesale companies such as Pharmimex and Rospharmacia. In the case of Pharmimex, orders are placed once a year. Distribution is organized from Moscow, mainly through the Kiritsy (located in Ryazan Oblast) and Reutov (located in Moscow Oblast) warehouses. Because Pharmacia is responsible for these orders, oblast or MOH approval is not required.

Orders are received by Ryazan Pharmacia within 30 to 60 days. Payment for goods after receipt occurs between ten days and two months.

Pharmacia receives a monthly price list from Pharmimex, and gets availability information by telephone upon request.

If Pharmimex cannot supply quantities ordered on prepaid items, Pharmacia receives a refund, plus penalty fees negotiated at the time the order is placed (0.5% to 1% of the value of shorted drugs for each delinquent day).

The main problems experienced by Pharmacia in purchasing drugs from domestic wholesalers are

- Lack of funds, which impedes prepay purchases,
- Lead times can be extended without warning,
- Drugs may arrive without a final invoice, and therefore, as stipulated by law, Pharmacia must store them until pricing information is received. This situation occurs when wholesalers such as Pharmimex receive and distribute drugs prior to paying their suppliers
- Although imported drugs come with a quality assurance certificate, according to MOH regulations they are subject to retesting by PharmControl, which results in additional expense to Pharmacia, who must pay for the testing

Procedures for procurement from Rospharmacia, and other wholesale companies, are similar to those encountered with Pharmimex. Stock lists are mailed by Rospharmacia on a weekly basis.

Ordering From Domestic Producers

Direct purchases are made from domestic manufactures, located mainly in Moscow, Saint Petersburg, Kazan and Tyumen. Lead times can be as long as six months, or as short as one month for smaller quantities.

The main problems in dealing with domestic suppliers are

- Limited range of products available, and
- Product shortages due to lack of raw materials

Of all domestic purchases, 70% of them are prepaid, and 5% are made by delayed payment. The remaining 25% of purchases are paid for by the other methods listed above.

Ordering Through Producers From Former Soviet Republics

Drugs used in oncology, hematology, cardiology, and anesthesia, and insulins are purchased from producers in former Soviet republics. Contracts are negotiated that include terms of payment (usually 100% prepaid), quantities and terms of delivery. Due to fluctuating ruble exchange rates, prices are negotiated in hard currency. Orders from producers in Baltic Republics are payable in US dollars. Rubles are used for all other republics. Large quantities are shipped by rail, air or truck. Smaller quantities are sent by mail.

Pharmacia must obtain import licenses for these purchases, which takes at least 1.5 months. Once an order is placed, Pharmacia is notified by telex, telegram or fax, of the estimated time of delivery. If all documents are in order, shipments clear customs within two days.

These suppliers do not distribute stock or price information on a regular basis. Pharmacia makes inquiries by telephone.

Ordering Directly From Producers Outside the Former Soviet Union

There is little experience with international drug procurement in the oblast. In 1992, the local oil refinery carried out a \$ 1.5 million drug procurement. Using a list of drugs compiled by Pharmacia, the company negotiated directly with a broker. Long delays were experienced obtaining drugs from Yugoslavia. Three drugs from this procurement have still not cleared customs and are being held in bond in the Pharmacia warehouse because they were not registered in Russia by the supplier.

As is the case for drugs from NIS countries, an import license, processed by the Department of Drugs and Medical Equipment of the MOH, is necessary to purchase finished drugs of foreign origin. A license is not required for import of raw materials. Licensing takes 25 days to one month, and costs 42,000 rubles (\$ US 21) for less than ten items, and 900 rubles (\$ US 0.45) per item when there are more than ten items. The lead time needed to process licenses for urgently needed imported items can be reduced, for an additional 50% licensing fee, but this is rarely done.

For international purchases, import licenses may be obtained in two ways:

- The purchaser (i.e. Ryazan Pharmacia) applies to the MOH for the license. A separate license is required for each purchase. These types of purchases are made with hard currency.
- The drug company may apply for the import license. The purchaser needs to take no special actions, and the purchase may be made in rubles from the warehouses in Russia.

The procedure for receiving an import license, and clearing customs, follows:

1. The buyer checks the registration status of a drug, and negotiates a contract with the supplier.
2. A contract is signed between the purchaser and the supplier, specifying drug products, quantities, delivery times, and prices.
3. Signed contracts are brought to the MOH, where an import license application is completed. The application requires information about suppliers, and complete information on drugs being purchased. The total value of the contract is required.
4. The application is signed by the Head of the Licensing Committee or the Head of the Department of Medical Industry.

- 5 The application is reviewed, signed and sealed by the Permanent Committee on Narcotic Drug Control. Certificates are prepared for all narcotic and psychotropic drugs.
- 6 The application is signed by the First Deputy Minister of Health, or the Deputy Minister responsible for the Department of Drugs and Medical Equipment.
- 7 The supplier is notified to begin processing the order.
- 8 Drugs are shipped. Rail shipments are routed directly to oblasts for customs clearance. Air shipments must be cleared in Moscow. The shipment must include a copy of the contract and a waybill. Each container must contain a packing list, detailing the contents of the container.
- 9 The customs office notifies the consignee when shipments arrive.
- 10 The consignee completes a customs declaration.
- 11 A representative of the buyer, and a customs inspector open all containers and inspect contents. If all shipping documents are in order, goods are cleared within 2 days of arrival. Damaged or missing containers shipped by rail are compensated for by the railway company.
- 12 A 0.1% customs charge is paid by the purchaser.

There is a separate process for importing "substances for production" of drugs. This license is issued by the Department of Medical Industry.

Ryazan Pharmacia has placed orders from international producers, through local agents, from the United States, Britain, Hungary, and Yugoslavia. The reference book *Drugs of Foreign Companies in Russia* is used to identify potential suppliers.

The average lead time for international purchases, after contracts have been negotiated and import licenses received, is one to three months, including customs clearance times.

Main problems in ordering from international producers are

- difficulty obtaining hard currency (current inflation rate is 20% per month) and
- lack of experience in dealing with foreign firms.

The effectiveness of procurement and distribution practices was measured by collecting data on tracer drugs at Pharmacia. Of the 33 drugs investigated, 25 were purchased during 1993. For those drugs, the actual price paid by Pharmacia was compared to the average international price found in the 1993-94 *International Drug Price Indicator Guide*. On average, Pharmacia

paid 96% of the average international price found in the guide. Since drug prices on the local market have been kept artificially low, it is not clear how much prices will rise in the domestic market, and whether Pharmacia will need to increase international procurement activities.

For the top 50% (by value) of domestic and imported drugs purchased by Pharmacia from 1 October 1993, through 1 April 1994, 97% were out of stock at the beginning of the reporting period. Two of 74 drugs were out of stock at the end of the period (2.7%). At the time of the assessment, 24 of 33 (73%) tracer drugs were in stock. For those tracer drugs in stock, the average months supply on hand was 1.29, with a range of 0.0009 to 5.31 months.

The average lead time for purchasing 24 tracer drugs was 133 days.

C Pharmacia Sales to Clients

Every health facility in the public health system that purchases drugs has a bank account into which funds are deposited by the rayon administration.

There are four basic methods of payment to Pharmacia by clients:

- Prepaid,
- 50% upon placement of the order and 50% upon receipt,
- Payment upon delivery (within five banking days), and
- Delayed payment within one month.

Hospital purchases from Pharmacia are prepaid, while community pharmacies buy with delayed payment, whenever feasible. Terms vary according to the nature/seasonality of the product, and the quantity. No facilities receive free supplies.

At the time of the assessment, MOH regulations stated that a maximum of 50% could be added to the ex-producer cost by the time the product is sold to a customer. Therefore, to keep prices competitive, Pharmacia adds 15% (or less) to the price paid to the supplier. The mark-up for tracer drugs ranged from -63.0% to 168.2%, with an average of 13.8%. Mark-up and margin data for all tracer drugs can be found on the following page.

Ryazan Pharmacia Price Analysis
Percentage Mark-up and Margin for Tracer Drugs

Description	Strength	RT	Issue Unit	Last I.U. Cost (in Rubles)	Current Sell Price (in Rubles)	Percentage Mark-up	Margin
Ketamine (10 ml)	50 mg/10 ml	Inj	Vial	571	211	-63 05%	-170 62%
Prednisolone (1 ml)	30 mg/ml	Inj	Vial	245	657	168 16%	62 71%
Gentamicin	80 mg	Inj	Vial			n/a	n/a
Cefotaxime	1 gm	Inj	Vial	3048	3338	9 51%	8 69%
Heparin (5 ml)	10,000 U/ml	Inj	Vial			n/a	n/a
Furosemide (2 ml)	20 mg/2 ml	Inj	Vial	143	165	15 38%	13 33%
Aminophylline (10 ml)	240 mg/ml	Inj	Vial	29	33	13 79%	12 12%
Chlopromazine (2 ml)	025 mg/ml	Inj	Vial	35	40	14 29%	12 50%
Pilocarpine	0 01	Eye Drops	Vial	1200	1380	15 00%	13 04%
Epinephrine (1 ml)	1 mg	Inj	Vial			n/a	n/a
Diphenhydramine (1 ml)	10 mg/ml	Inj	Vial			n/a	n/a
Lidocaine (2 ml)	0 02	Inj	Vial	50	58	16 00%	13 79%
Drotaverin (2 ml)		Inj	Vial	158	182	15 19%	13 19%
Papaverin (2ml)	0 02	Inj	Vial	51	53	3 92%	3 77%
Vitamin K1 (1 ml)	10 mg	Inj	Vial			n/a	n/a
Vincristine	5 mg	Inj	Vial	2117	2434	14 97%	13 02%
Vinblastine	5 mg	Inj	Vial	3745	4307	15 01%	13 05%
Ampicillin	250 mg	Oral	Tab			n/a	n/a
Indomethacin	25 mg	Oral	Tab			n/a	n/a
Phenobarbital	15 mg	Oral	Tab	2	3	50 00%	33 33%
Antihemorrhoidal		Rectal	Supp	11	13	18 18%	15 38%
Nifedipine	10 mg	Oral	Tab	18	20	11 11%	10 00%
Clonidine	15 mg	Oral	Tab	5	6	20 00%	16 67%
Digoxin	25 mg	Oral	Tab	0 06	0 07	16 67%	14 29%
Amitriptyline	25 mg	Oral	Tab			n/a	n/a
Pancreatin	5 mg	Oral	Tab	14	15	7 14%	6 67%
Cimetidine	200 mg	Oral	Tab	55	63	14 55%	12 70%
Salbutamol (10 ml)	200 doses	Inhaler	Inh	3172	3474	9 52%	8 69%
Hydrocortisone (10 gr)	0 01	Topical	Tube	359	413	15 04%	13 08%
Paracetamol	500 mg	Oral	Tab	11	11	0 00%	0 00%
Insulin	All types	Inj	Vial	1103	1208	9 52%	8 69%
Tetracycline	100 mg	Oral	Tab	9	10	11 11%	10 00%
Glibenclamide	5 mg	Oral	Tab	3	4	33 33%	25 00%

Average % Mark-up | 13 77%

Drugs are always sold based on actual purchase price. The selling price for supplies already in stock are not altered when new product arrives with a different price.

Health facility staff members receive updated Pharmacia price lists each time they visit the warehouse.

Pharmacia issue and revenue records are reconciled monthly by the Chief Accountant. Records are audited by the Tax Controller (a government representative). The last audit was conducted in January 1994. The Pharmaceutical Committee also monitors drug markups. Pharmacia sends quarterly purchase, revenue and salary reports to the Department of Statistics of the Oblast Administration.

The most common problems experienced by health facilities in getting drugs from Pharmacia are:

- Lack of transportation
- Lack of funds/price of drugs
- Availability of drugs
- Long delivery times (average in the survey was 17 days), compared to private sector wholesale drug companies

With the exception of long delivery times, the same problems are experienced in getting drugs from the private sector.

Sales to the Oblast Hospital by Pharmacia

The Oblast Hospital supplies yearly drug estimates to Pharmacia. Drug needs are determined by review of past consumption, disease patterns, and general experience of the staff. Wards notify the pharmacy of anticipated shifts in drug consumption patterns. The pharmacy uses a computer program to track drug use in the hospital, and make purchasing decisions, although a standard formula is not used to calculate order quantities. The Director of Pharmacy and the Chief Physician have ultimate decision making authority for drug purchases by the hospital.

Monthly orders are placed to Pharmacia, and received as drugs become available- usually one shipment per week. Non-scheduled orders are placed to meet unexpected needs. The following information is included on monthly orders, which are done on a printed form:

- Name, strength, and dosage form
- date order submitted
- date order received
- quantity ordered
- quantity received

A pre-pay system is used in which the hospital makes estimated payments in advance. The hospital, therefore, has no debt to Pharmacia. Fifty orders were placed in 1993, indicating a

significant number of non-scheduled orders. Drug availability is determined by telephone inquiry, or by visiting Pharmacia. Stock lists are not sent to the hospital.

Major problems in getting drugs from Pharmacia are

- availability of funds
- availability of drugs

D Drug Procurement by Kiritsy Warehouse

The Pharmaceutical Warehouse at Kiritsy, located about 60 Km from Ryazan city, in the village of Kiritsy, is one of five former Soviet Union pharmaceutical warehouses build for the distribution of imported drugs. The Kiritsy warehouse serves approximately 80 Pharmacias throughout Russia, and approximately 200 additional clients in Ryazan Oblast and other oblasts in Russia.

At the time of the assessment, most procurement activities were centralized by Pharmimex in Moscow. Approximately 90% of drugs in stock belong to Pharmimex Moscow, who provide distribution instructions to Kiritsy. The remaining 10% are purchased by Kiritsy using their own funds. The Head of the Kiritsy Commercial Department predicts that during 1995, these percentages will reverse, with only 10% of drugs being distributed through the centralized procurement system.

To coordinate activities, the Kiritsy warehouse sends the following information to Pharmimex every month:

- quantity received for each product,
- list of drugs in stock,
- list of drugs received without an invoice,
- list of drugs temporarily refused by clients, and
- stock balance for specific items (upon request),

Oblast Pharmacias may provide Pharmimex with information on anticipated need, which Pharmimex uses to process bids and award contracts to suppliers. Quotes are submitted in US dollars. Pharmimex then negotiates contracts with oblasts for specific quantities. The Kiritsy warehouse is used as a transit point for distribution to oblasts. Kiritsy refused several shipments from Moscow in 1994 due to lack of storage space.

In 1992, a Commercial Department was established in Kiritsy. A representative was placed in the city of Ryazan, in order to be closer to clients and reliable communications services. The department is directed by a purchasing committee, which includes the commercial director, a secretary and a warehouse representative. This department works primarily with domestic

products, but currently also has a limited number of imported products. Pharmacies buy a limited range of products directly from this department, but must purchase items provided by Pharmimex/Moscow, from Pharmacia. Pharmacies currently account for 15% of Commercial Department business, and the warehouse would like to see this proportion increase. A 10-15% mark-up is added to drugs purchased by the Commercial Department.

The commercial representative contacts pharmacies directly to solicit orders, using a list of available stock.

Kiritsy has also handled direct contracts with the MOH in Moscow, and is currently negotiating a MOH contract to carry reserve essential drugs. The warehouse is anticipating that MOH will provide 50% prepayment for these drugs.

Kiritsy representatives are active in the cities of Samara (for the Volga region), Yoshkar-Ola (for Kirovskaya Oblast, Tatarstan, and Tyumen), Tambov (for Tambov and Lipetsk), Mahachkala (for Dagestan, Stavropolski region, and the Northern Caucasus).

Pharmimex/Moscow is responsible for managing the procurement of drugs using World Bank and European Economic Community loans. The duration of this loan to Pharmimex is one year which sells to clients on a 60 day payment basis.

Pricing Structure

Drug prices are controlled by regulations of the federal government. The pricing structure allows addition of a maximum of 50% mark-up to the CIF price for imported or domestic products. At the time of the assessment, mark-ups for products supplied by Pharmimex were done according to the following outline:

PHARMIMEX/MOSCOW	CIF Pharmimex + 1.2% Service Charge ▼
KIRITSY WAREHOUSE	CIF Pharmimex Cost+customs+ 1.2% + 5.0% Service Charge ▼
PHARMACIA RYAZAN	CIF Pharmimex Cost + customs + 1.2%+ 5.0% + 13.8% Service Charge ▼
PHARMACY 13.8%	CIF Pharmimex Cost+ customs+ 1.2% + 5.0% + +50% - (customs + 1.2% + 5.0% + 13.8%) ▼
PATIENT	CIF Pharmimex Cost+ customs + 50%

This scheme of mark-ups will probably change as a result of Decree # 890 (See Financial section)

For centralized procurement, Kiritsy markup to Ryazan Pharmacia is 5.0%. For clients in other territories of Russia, the markup is 10%. The lower markup for Ryazan Pharmacia is upon Oblast Administration request.

Since 1993, Kiritsy has used a microcomputer to monitor all transactions, and for accounting. This accounting software package cannot be used to quantify needs based on past consumption.

The main problems experienced by Kiritsy are

- A large amount of capital is tied up in accounts receivable
- Although clients can be surcharged 5% daily for outstanding debt beyond the contracted date of payment, accounts receivable are not aggressively pursued. The warehouse does not typically discontinue service for non-payment.
- Outside communications from the warehouse are difficult
- Short shipments of goods
- Long lead-times (up to six months for shipments from Indian producers) for drugs provided through Pharmimex
- Commercial Department expansion is hindered by lack of funds for drug procurement

E Private Wholesale Distributors

There is an increasing number of private wholesale distributors based in Ryazan. None currently function on the scale of a U.S. wholesaler. Most Ryazan wholesalers obtain their drugs from a variety of sources - Russian manufacturers and other larger wholesalers outside of Ryazan. There is little regulatory control of this activity. In theory, these wholesalers should notify the pharmaceutical committee when foreign products are purchased, but this may or may not occur in reality. The following is a profile of one Ryazan wholesale drug company.

HIPPOCRATES LTD

The assessment team interviewed the director of Hippocrates, a private wholesale and retail company selling drugs and medical supplies in Ryazan Oblast. In addition to wholesale operations, Hippocrates owns six kiosks for drug sales in Ryazan medical facilities and city trade centers. One of the outlets, in operation for 1.5 years, is located on the premises of the Oblast Hospital, and stocks about 400 drugs. The hospital does not charge Hippocrates rent for the kiosk space. In return, Hippocrates offers discounted prices and favorable payment.

terms on drug sales to the hospital. Retail sales from all Hippocrates kiosks account for 70% of total sales.

Hippocrates has a total staff of 18 persons, including maintenance persons, drivers for two trucks and four automobiles, managers, bookkeepers, and nine medical personnel.

Hippocrates purchases drugs and supplies from 20 suppliers, mostly in Moscow and Saint Petersburg. Purchases are also made from Kiritsy and Pharmacia, but are limited by small product lines. The director prefers purchasing well known brand name drugs because of product recognition and guaranteed quality, and is looking for a reliable western supplier.

Payment terms vary by supplier.

- immediate payments, for drugs is high demand ,
- 20% prepayment, with the balance due after sale of the product, and
- payment 30 to 50 days after receipt

At the time of the assessment, the Oblast Hospital owed Hippocrates one million rubles, which is considered to be a small debt.

The company attempts to fill hospital orders within ten days.

The primary constraint facing Hippocrates is the limited number of drugs available from suppliers.

F Procurement By Health Facilities From Other Suppliers

Oblast Hospital

Oblast Hospital makes drug purchases from several private sector suppliers, through negotiated procurements. The Chief Physician must approve orders to private suppliers, which usually takes two days. Orders are placed by telephone, and only for drugs known to be in stock, resulting in short lead times and high service levels. Private suppliers require either full prepayment, or within five days of receipt.

The hospital is not obligated to purchase requested amounts of drugs from Pharmacia when they become available if they were previously purchased from the private sector.

Major problems with getting drugs from the private sector are

- availability of funds
- availability of the desired drug

Patients requiring drugs not normally stocked by the pharmacy may purchase the drugs themselves from a local pharmacy. If a physician prescribes a drug normally stocked, but currently out of stock, the pharmacy may try to barter with another facility for the drugs, or the patient may purchase the drug using personal funds. If a drug is unavailable from any source, therapeutic substitution¹⁵ is permitted with the permission of the physician. The Oblast Hospital does not purchase drugs from abroad or directly from manufacturers.

Other Health Facilities

In seven hospitals recently surveyed by oblast officials, 70 drug products in stock were purchased from places other than Pharmacia. Of these, five were purchased based on price, and 65 based on availability, although the prices for these 65 drugs also tended to be less than Pharmacia.

The 21 facilities surveyed during the assessment reported using the following methods in determining quantities of drugs to order:

- 1 Review of past consumption- 90%
- 2 Review current and past disease patterns- 38%
- 3 General experience of staff- 38%
- 4 Comparison of consumption with disease patterns- 9%

None of the surveyed facilities use a standard formula for determining order quantities.

Community pharmacies purchase drugs from Pharmacia, and, increasingly, from private wholesalers. This trend is reportedly due to more lenient payment terms by private companies (one month), than Pharmacia (prepay, or payment within five days).

Several (33%) surveyed facilities reported receiving drugs not ordered, mostly from Pharmacia, although these were most likely cases of therapeutic substitution for drugs out of stock.

G Donations of Drugs

Statistics on the value of drug donations are maintained by Oblast Administration and hospitals. The Oblast Administration Health Department reports that the figure is negligible relative to the total oblast drug budget.

¹⁵ In Russia, therapeutically equivalent drugs are referred to as "analogs."

H Areas of Concern Related to Drug Procurement

- "The Commission for Drug Needs Estimation in Purchasing" works only on an ad-hoc basis. The process of determining drugs and quantities to buy involves the use of consumption and morbidity data, but the process is done manually and without the use of standard formulas.
- Drug purchases by Pharmacia are made through negotiation with drug distributors and manufacturers. Competitive tendering procedures have not been utilized. Although prices have been averaged lower than international prices (96%), this is mainly due to subsidies and price controls, which artificially depressed prices in Russia.
- There is a definite lack of information at all levels of the oblast concerning reliability, product quality and comparative prices from potential international suppliers. The situation is complicated by the emergence of numerous small distributors in the oblast, which import a limited number of products for resale to Pharmacia or to pharmacies.
- Unexpected drug purchases from private sector suppliers by pharmacies has resulted in overstock situations at Pharmacia, which had planned to provide the drugs to pharmacies.
- Establishment of a routine procurement cycle by Pharmacia is not possible due to the unpredictable receipt of funds.
- Prepayment of orders from domestic and international suppliers leaves Pharmacia little recourse if problems occur with shipments.
- The computer system used at Pharmacia is not adequate to monitor orders placed for drugs, from a diverse set of suppliers or to monitor supplier performance over time. The system does not have the capacity to perform standard procurement analyses such as ABC and VEN analyses. These tools will become critically important as increasing prices and decreasing state subsidies force all purchasers to limit purchases to the most essential pharmaceuticals.
- Under current regulations, receipt of drugs by Pharmacia without the invoice causes unnecessary delays in distribution, because a selling price cannot be fixed by Pharmacia without the invoice.
- Some drugs received with a quality certificate are nevertheless subject to testing by the Oblast Quality Control Lab, resulting in financial loss for Pharmacia, since they must pay for the tests.

-
- For the top domestic and imported drugs purchased by Pharmacia from 1 October 1993, through 1 April 1994, 97% were out of stock at the beginning of the reporting period. Two out of 74 were out of stock at the end of the period (2.7%). At the time of the assessment, 24 of 33 (73%) of tracer drugs were in stock. This data indicates that adequate buffer (reserve) stocks are not being achieved for all items, and that the procurement system is not able to respond as quickly as needed to avert shortages.
 - Unbiased drug information, necessary to make rational procurement decisions, is limited at Pharmacia and Kiritsy. The lack of comparative price information has been locally identified as an area of concern.

RYAZAN OBLAST SURVEY RYAZAN PHARMACIA - INVENTORY AND STOCK RECORDS INFORMATION

PLEASE NOTE The consumption and out of stock data should be reported for 1993

If this is not possible, specify period

DATE 27/05/94		ISSUE UNIT	PHYSICAL STOCK COUNT	EARLIEST EXPIRY DATE	STOCK LEVEL	# MONTH BEFORE EXPIRY	QUANTITY THAT MIGHT EXPIRE	REFERENCE #1 (LEDGE)		REFERENCE #2 (COMPU)		# DAYS OUT OF STOCK	TOTAL CONSUMPTION	Estimated Yearly Needs	
DESCRIPTION	STRENGTH							COUNT	DATE LAST ENTRY	COUNT	DATE LAST ENTRY				
Ketamine (10mL)	50mg/10m Inj	Ampoule	2 655	Dec 95	3 19	12 4	0	2655	05/25/94	2655	05/25/94	28	8%	4795	10000
Prednisolone (1ml)	30mg/ml Inj	Ampoule	2 603	Jun 95	0 23	6 4	0	2603	05/23/94	2603	05/23/94	119	33%	57447	135000
Gentamicin	80mg Inj	Ampoule	300	Jul 97	0 01	31 4	0	300	12/26/94	300	12/26/94	182	50%	304	400000
Cefotaxime	1Gm Inj	Ampoule	23 288	Nov 94	9 32	0 5	24636	23288	05/26/94	23288	05/26/94	182	50%	468	30000
Heparin (5ml)	10 000 U/n Inj	Ampoule	0				0	0	10/11/93	0	10/11/93	182	50%	18	50000
Furosemide (2ml)	20mg/2ml Inj	Ampoule	50 430	Feb 95	3 67	2 5	0	50430	05/26/94	50430	05/26/94	31	8%	144650	165000
Aminophylline (10ml)	240mg/ml Inj	Ampoule	265 710	Mar 96	5 31	15 4	0	266800	05/27/94	265710	05/27/94		0%	93476	600000
Chlorpromazine (2ml)	0 025mg/rr Inj	Ampoule	2 580	Nov 94	1 35	0 5	0	2580	05/18/94	2580	05/18/94	28	8%	101738	23000
Pilocarpine	1% Eye Dro	Vial	665	Mar 97	0 03	27 4	0	765	05/26/94	665	05/27/94	166	45%	2255	260000
Epinephrine (1ml)	1mg Inj	Ampoule	1 990	Feb 97	0 27	26 4	0	1990	05/25/94	1990	05/25/94		0%	12770	90000
Diphenhydramine (1ml)	10mg/ml Inj	Ampoule	197 790	Jan 96	2 37	13 4	0	199390	05/26/94	197790	05/27/94		0%	604289	1000000
Lidocaine (2ml)	2% Inj	Ampoule	300	Jun 98	0 01	42 3	0	300	05/18/94	300	05/18/94	26	7%	76600	300000
Drotavenn (2ml)	Inj	Ampoule	4 300	Jul 96	0 04	19 4	0	4300	05/26/94	4300	05/26/94		0%	123925	1250000
Papaverin (2ml)	2% Inj	Ampoule	2 000	Aug 96	0 03	20 4	0	2000	05/25/94	2000	05/25/94	125	34%	41580	700000
Vitamine K1 (1ml)	10mg Inj	Ampoule	280	Jan 95	0 01	1 5	0	280	05/16/94	280	05/16/94	182	50%	740	300000
Vincristine	0 5mg Inj	Ampoule	0				0	0	01/19/94	0	01/19/94	99	27%	3000	4000
Vinblastine	5mg Inj	Ampoule	0				0	0	02/21/94	0	02/21/94	66	18%	1000	800
Ampicillin	250mg Tablet	Tablet	0									182	50%	0	2400000
Indomethacin	25mg Tablet	Tablet	16 680	Jun 96	0 56	18 4	0	16680	05/24/94	16680	05/24/94		0%	6540	360000
Phenobarbital	15mg Tablet	Tablet	0				0	0	05/24/94	0	05/24/94		0%	259440	840000
Antihaemorrhoidal	Rectal	Supp	144 100	Jan 96	0 59	13 4	0	144100	05/27/94	144100	05/27/94	26	7%	298050	2920000
Nifedipine	10mg Tablet	Tablet	465 950	Jun 97	0 75	30 4	0	465950	05/26/94	465950	05/26/94	57	16%	855100	7500000
Clonidine	0 15mg Tablet	Tablet	82 650	Sep 97	0 25	33 4	0	90650	05/26/05	82650	05/27/94	100	27%	513350	4000000
Digoxin	0 25mg Tablet	Tablet	6 000	Nov 96	0 06	23 4	0	6000	05/26/94	6000	05/25/94	176	48%	85500	1250000
Amitypytline	25mg Tablet	Tablet	8 450	Jul 96	0 05	19 4	0	8450	05/25/94	8450	05/25/94	157	43%	26500	2000000
Pancreatin	0 5mg Tablet	Tablet	11 900	Jan 96	0 01	13 4	0	11900	05/05/94	11900	05/05/94	120	33%	283960	15000000
Cimetidine	200mg Tablet	Tablet	50	Oct 97	0 00	34 4	0	50	11/26/93	50	11/26/93	150	41%	250000	650000
Salbutamol (10ml)	200 doses Inh	Vial	0				0	0	02/28/94	0	02/28/94	139	38%	2093	25000
Hydrocortisone (10gm)	1% Cream	Tube	0				0	0	04/28/94	0	04/28/94	166	45%	2031	10000
Paracetamol	500mg Tablet	Tablet	99 990	Feb 97	0 80	26 4	0	99990	05/27/94	0	05/27/94	166	45%	40400	1500000
Insulin	All types Inj	Vial	12 187	May 95	2 25	5 5	0			12187	05/27/94	61	17%	11700	65000
Tetracycline	100mg Tablet	Tablet	0				0	0	11/24/93	0	11/24/93	179	49%	14000	5000000
Glibenclamide	5mg Tablet	Tablet	595 200	Dec 96	1 30	24 4	0	595200	05/27/94	595200	05/27/94	75	21%	1168840	5500000
		COUNT	33					0 07%		5 00%		3170	26%		

98

RYAZAN OBLAST SURVEY RYAZAN PHARMACIA - PROCUREMENT/PRICE ANALYSIS

DESCRIPTION	STRENGTH	RT	ISSUE UNIT	TOTAL QUANTITY BOUGHT LAST PROCUREMENT CYCLE DATES THROUGH										DONATIONS RCV ED FOR THE LAST CYCLE		
				TOTAL QUANTITY	LAST PACK SIZE	LAST I U COST	AVG INT PRICE	% OF AV INT PRICE	LAST LEAD TIME(DAYS)	<F>OB <C>IF	TYPE OF PURCHASE	SUPPLIER	CURRENT SELLING PRICE	QUANTITY	SOURCE	DATE
1 Ketamine (10mL)	50mg/10ml	Inj	Ampoule	5,000	5 Amp	571	118	484%	217	CIF		1	211			
2 Prednisolone (1ml)	30mg/ml	Inj	Ampoule	60,000	3 Amp	245	411	60%	164	CIF		2	657			
3 Gentamicin	80mg	Inj	Ampoule													
4 Cefotaxime	1Gm	Inj	Ampoule	100	1 Amp	3048			151	CIF		3	3338			
5 Heparin (5ml)	10,000 U/ml	Inj	Ampoule													
6 Furosemide (2ml)	20mg/2ml	Inj	Ampoule	198,000	50 Amp	143	153	94%	216	CIF		4	165			
7 Aminophylline (10ml)	240mg/ml	Inj	Ampoule	69,983	10 Amp	29	28	102%	51	CIF		5	33			
8 Chlorpromazine (2ml)	0.025mg/ml	Inj	Ampoule	99,998	10 Amp	35	252	14%	120	CIF		6	40			
9 Pilocarpine	1%	Eye Drops	Vial	5,000	5 Amp	1200	339	354%	29	CIF		7	1380			
10 Epinephrine (1ml)	1mg	Inj	Ampoule				247									
11 Diphenhydramine (1ml)	10mg/ml	Inj	Ampoule				362									
12 Lidocaine (2ml)	2%	Inj	Ampoule	80,000	10 Amp	50	27	184%	5	CIF		8	58			
13 Drotaverin (2ml)		Inj	Ampoule	125,000	25 Amp	158			146	CIF		9	182			
14 Papaverin (2ml)	2%	Inj	Ampoule	40,000	10 Amp	51	133	38%		CIF		10	53			
15 Vitamine K1 (1ml)	10mg	Inj	Ampoule				502									
16 Vincristine	0.5mg	Inj	Ampoule	3,000	10 Amp	2117	11683	18%	133	CIF		2	2434			
17 Vinblastine	5mg	Inj	Ampoule	1,000	10 Amp	3745			133	CIF		2	4307			
18 Ampicillin	250mg	Tablet	Tablet				67									
19 Indomethacin	25mg	Tablet	Tablet				13									
20 Phenobarbital	15mg	Tablet	Tablet	120,000	6 Tab	2	6	38%	158	CIF		11	3			
21 Antihaemorrhoidal		Rectal	Supp	556,400	10 Sup	11	169	7%	105	CIF		12	13			
22 Nifedipine	10mg	Tablet	Tablet	1,307,800	50 Tab	18	150	12%	245	CIF		1	20			
23 Clonidine	0.15mg	Tablet	Tablet	1,000,000	50 Tab	5			54	CIF		5	6			
24 Digoxin	0.25mg	Tablet	Tablet	250,000	50 Tab	0.06	27	0.23%	281	CIF		13	0.07			
25 Amitriptylline	25mg	Tablet	Tablet				12									
26 Pancreatin	0.5mg	Tablet	Tablet	300,000	100 Tab	14			243	CIF		3	15			
27 Cimetidine	200mg	Tablet	Tablet	250,000	50 Tab	55	73		72	CIF		2	63			
28 Salbutamol (10ml)	200 doses	Inh	Vial	2,000	1 Vial	3172	3480	91%	13	CIF		14	3474			
29 Hydrocortisone (10gm)	1%	Cream	Tube	3,120	1 Tube	359	792	45%	113	CIF		12	413			
30 Paracetamol	500mg	Tablet	Tablet	50,000	10 Amp	11	19	56%	10	CIF		17	11			
31 Insulin	All types	Inj	Vial	27,600	1 Vial	1103	553	200%	197	CIF		3	1208			
32 Tetracycline	100mg	Tablet	Tablet	14,000	20 Tab	9			49	CIF		16	10			
33 Glibenclamide	5mg	Tablet	Tablet	2,018,800	1000 Tab	3	10	35%	285	CIF		1	4			

96%

**INFORMATION ON PURCHASES OF IMPORTED DRUGS BY RYAZAN PHARMACIA
FROM 1 OCTOBER 93 'TIL 1 APRIL 94
(Top 50% of Purchases by Value)**

Item Description	Unit	Wholesale Prices	Beginning Inventory		Receipts		Issues		Ending Inventory		% of Total	Running Total
			Quantity	Sum	Quantity	Sum	Quantity	Sum	Quantity	Sum		
HYDROCORTISONE INJ 1 5ML 125M	PACK	877	0	0	30000	263100000	24720	21679440	5280	4630560	9 72%	9 72%
CEREBROLYZIN 1ML N10	PACK	4234	0	0	44998	190521532	43570	184475380	1428	6046152	7 04%	16 76%
HALAZOLIN 0 1% 10 ML	PACK	273 92	0	0	660000	180787200	180580	49464474	479420	131322726	6 68%	23 44%
PHOSPHALUGEL 16 0 N20	PACK	2268	0	0	49998	113395464	49663	112635684	335	759780	4 19%	27 63%
LEGALON DRAGEE N100	PACK	9225	4445	4 1E+07	10000	92250000	9689	89381025	4756	43874100	3 41%	31 04%
NO SPA 0 04 N100	PACK	1502	0	0	54000	81108000	4956	7443912	49044	73664088	3 00%	34 04%
SEDACORON N50 TAB 200MG	PACK	5625	0	0	10000	56250000	9485	53353125	515	2896875	2 08%	36 12%
CAVINTON TAB 5MG N50	PACK	3742	0	0	14996	56115032	14996	56115032	0	0	2 07%	38 19%
CEREBROLYZIN 5 ML N5	PACK	10584	0	0	4997	52888248	2800	29635200	2197	23253048	1 95%	40 14%
HALIDOR 0 1 N50	PACK	2255	0	0	20000	45100000	19645	44299475	355	800525	1 67%	41 81%
BUCARBAN 0 5 N50	PACK	2038	0	0	20000	40760000	19921	40598998	79	161002	1 51%	43 32%
REOPIRIN 0 25 N20	PACK	975	0	0	39993	38993175	39615	38624625	378	368550	1 44%	44 76%
VISCEN 0 50 N30	PACK	3801	0	0	9979	37930179	9375	35634375	604	2295804	1 40%	46 16%
TRIGAN N100	PACK	1802	0	0	19995	36030990	19844	35758888	151	272102	1 33%	47 49%
INS MONOTARD MC	VIAL	1459 25	0	0	23000	33562750	0	0	23000	33562750	1 24%	48 73%
SEDUXEN INJ 10MG 2ML N5	PACK	1143	10100	1 15E+07	28000	32004000	27400	31318200	10700	12230100	1 18%	49 91%

28

FROM 1 OCTOBER 93 'TIL 1 APRIL 94 (IN RUBLES)

(Top 50% of purchases by value)

Item Description	Unit	Wholesale Prices	Beginning Inventory		Receipts		Issues		Ending Inventory		% of Total	Running Total
			Quantity	Sum	Quantity	Sum	Quantity	Sum	Quantity	Sum		
RIBOXIN 0 2 N50	PACK	1650	0	0	40000	66000000	10499	17323350	29501	4 87E+07	5 58%	5 58%
LINCOMYCIN 30% 1 0 N10	BOX	4000	0	0	10000	40000000	9896 6	39586400	103 4	413600	3 38%	8 96%
OXACILLIN 0 25 N20 TABL	PACK	1500	0	0	15040	22560000	5476	8214000	9564	1 43E+07	1 91%	10 86%
AMPICILLIN 0 25	VIAL	931 8	0	0	20000	18636000	18196	16955032 8	1804	1680967	1 57%	12 44%
HIPPOPHEAE OLEUM 100 ML	PACK	2000	0	0	7611	15222000	5329	10658000	2282	4564000	1 29%	13 72%
NOVOCAIN 0 5% 5 0 N10	BOX	204 78	0	0	69678 1	14268681 32	56570 7	11584547 95	13107 4	2684133	1 21%	14 93%
ASELLI JECORIN OLEUM 90 0	VIAL	1340	0	0	10500	14070000	8305	11128700	2195	2941300	1 19%	16 12%
GLUCOSE 5% SOL INJ 400 ML	PACK	685	0	0	18704	12812240	15024	10291440	3680	2520800	1 08%	17 20%
MONOCHLORAMIN S NDS	KG	1920	0	0	6600	12672000	6250	12000000	350	672000	1 07%	18 27%
ATF 1 % N10	PACK	1200	0	0	10500	12600000	400 8	480960	10099 2	1 21E+07	1 06%	19 34%
AMPIOX 0 2	VIAL	621 2	0	0	20000	12424000	19696	12235155 2	304	188844 8	1 05%	20 39%
ASCORUTIN N50	PACK	220	0	0	54560	12003200	32035	7047700	22525	4955500	1 01%	21 40%
CLOPHELINE 0 000075 N200	PACK	590	0	0	19999	11799410	2700	1593000	17299	1 02E+07	1 00%	22 40%
YOD CRISTAL	KG	13000	0	0	853	11089000	808 2	10506600	44 8	582400	0 94%	23 33%
CORVALOL 15ML	PACK	562	0	0	19200	10790400	19200	10790400	0	0	0 91%	24 25%
OXYTOCIN INJ 5*1ML	PACK	670	0	0	15000	10050000	14102	9448340	898	601660	0 85%	25 09%
OXACILLIN NARIUM 0 25	VIAL	200	0	0	50000	10000000	48596	9719200	1404	280800	0 84%	25 94%
GLUTAMEVIT TABL N30	PACK	242	0	0	40000	9680000	8033	1943986	31967	7736014	0 82%	26 76%
NITROGRANULONG 0 0052 N50	PACK	800	0	0	12096	9676800	680	544000	11416	9132800	0 82%	27 57%
VIT B6 5% 2 0 N10	BOX	302 5	0	0	31247 8	9452459 5	9838 2	2976055 5	21409 6	6476404	0 80%	28 37%
NOVOCAIN	KG	31200	0	0	300	9360000	19	592800	281	8767200	0 79%	29 16%
POTASSIUM PERMANGANATE WITH NDS	KG	3000	0	0	3116	9348000	2090	6270000	1026	3078000	0 79%	29 95%
PROMEDOL 2% 1 0 SHPR TUB	UNIT	467	0	0	19995	9337665	15855	7404285	4140	1933380	0 79%	30 74%
REVIT N100	PACK	185	0	0	49998	9249630	49998	9249630	0	0	0 78%	31 52%
GLUGICIR SOL 50 ML	VIAL	360	0	0	25022	9007920	21385	7698600	3637	1309320	0 76%	32 29%
OLETETRIN 0 125 N25 TB	PACK	460	0	0	18000	8280000	18000	8280000	0	0	0 70%	32 99%
CALCIUM HYPOCHLORITE	KG	332 3	0	0	24014	7979852 2	8146 5	2707081 95	15867 5	5272770	0 67%	33 66%
CALENDULA OFFICINALIS LOSION 100 0	VIAL	165	0	0	46175	7618875	39300	6484500	6875	1134375	0 64%	34 30%
GLUCOSE	KG	1500	0	0	5000	7500000	1120	1680000	3880	5820000	0 63%	34 94%
KANAMYCIN SULPH 1 0 WITH NOVOCAIN	SAO	214 6	0	0	34800	7468080	34794	7466792 4	6	1287 6	0 63%	35 57%
METHACYCLINUM HYDROCHL 0 15 N16	PACK	2484 8	0	0	3000	7454400	3000	7454400	0	0	0 63%	36 20%
HEMODEZ SOL INJ 200ML	<	5000	0	0	1454 4	7272000	749 2	3746000	705 2	3526000	0 61%	36 81%
LEVOMYCETIN 0 25 N10	PACK	185	0	0	38962	7207970	38962	7207970	0	0	0 61%	37 42%
KANAMYCIN SULPH 0 5 WITH NOVOCAIN	SAO	400	0	0	18000	7200000	4020	1608000	13980	5592000	0 61%	38 03%
VIT C 0 025 N100	PACK	240	0	0	30000	7200000	30000	7200000	0	0	0 61%	38 64%
NOVOCAIN 0 5% 10 0 N10	BOX	257	0	0	27983 7	7191810 9	27982 9	7191605 3	0 8	205 6	0 61%	39 25%
MONOCHLORAMIN S NDS	KG	1080	0	0	6600	7128000	6600	7128000	0	0	0 60%	39 85%
CITRAMON N6	PACK	228 16	0	0	30000	6844800	13200	3011712	16800	3833088	0 58%	40 43%
ANALGIN 50% 2 0 N10	BOX	680 3	0	0	10000	6803000	9767 7	6644966 31	232 3	158033 7	0 57%	41 00%
SODIUM CHLORIDE 0 9% 5 0 N10	BOX	261 89	0	0	25464	6668766 96	23867 4	6250633 39	1596 6	418133 6	0 56%	41 56%
MENOVAZIN 40 ML	VIAL	113	0	0	55114	6227882	45094	5095622	10020	1132260	0 53%	42 09%
DOXYCYCLIN 0 05 CAPS N10	PACK	2018 9	0	0	3000	6056700	3000	6056700	0	0	0 51%	42 60%
VIT C DRAGEE N200	PACK	200	0	0	30000	6000000	30000	6000000	0	0	0 51%	43 11%
ANALGIN 50% 1 0 N10	BOX	600	0	0	10000	6000000	1800 2	1080120	8199 8	4919880	0 51%	43 62%
PILOCARPINI HYDROCHLOR 1% 1 5ML N5	PACK	6000	0	0	1000	6000000	450 6	2703600	549 4	3296400	0 51%	44 12%
PENICILLIN K 1 0	VIAL	60	0	0	99596	5975760	56495	3389700	43101	2586060	0 50%	44 63%
MYDOCALM DR 30 50MG	PAC	591	0	0	10000	5910000	9380	5543580	620	366420	0 50%	45 13%
NYSTATIN 0 5 N20 TABL	PACK	380	0	0	15550	5909000	15550	5909000	0	0	0 50%	45 63%
NOVOCAIN 0 5% 5 0 N10	BOX	294 89	0	0	20010	5900748 9	0	0	20010	5900749	0 50%	46 13%
CALENDULA OFFICINALIS TINCTURA 40 0	VIAL	100	0	0	57660	5766000	50460	5046000	7200	720000	0 49%	46 61%
ANALGIN 50% 1 0 N10	BOX	570 87	0	0	10000	5708700	0	0	10000	5708700	0 48%	47 09%
GINSENG TINCTURA 40 0	VIAL	197	0	0	28865	5686405	26220	5165340	2645	521065	0 48%	47 58%
REVIT N100	PACK	180	0	0	30040	5407200	30040	5407200	0	0	0 46%	48 03%
CRATAEGI FRUCTUS	KG	2000	0	0	2655 6	5311200	1902	3804000	753 6	1507200	0 45%	48 48%
FORMIC ALCOGOL 50 ML	PACK	118	0	0	44622	5265396	35501	4189118	9121	1076278	0 44%	48 93%
LEONURI TINCTURA 15 0	VIAL	54	0	0	97440	5261760	84400	4557600	13040	704160	0 44%	49 37%
METHATRECSAT 1ML 10MG N10	PACK	7349	0	0	700	5144300	32	235168	668	4909132	0 43%	49 81%

89

VIII THE DRUG DISTRIBUTION SYSTEM

Drugs enter the Ryazan Oblast drug distribution system from supply points that include domestic wholesalers, such as Pharmimex, domestic manufacturers, and, to a lesser extent, foreign manufacturers. Within the oblast, the main points of entry are Pharmacia, the pharmaceutical warehouse at Kiritsy, and several private sector wholesale companies. Central rayon pharmacies, which obtain drugs from the above suppliers, supply health facilities within their respective rayons. Distribution in the community pharmacy system, which serve the majority of ambulatory patients, is addressed later in the report.

As with procurement, Pharmacia, the pharmaceutical warehouse in Kiritsy, the Oblast Hospital, and health facilities, play key roles in the overall distribution process and are addressed in detail below.

An important aspect of public health distribution systems, at all levels, is the effectiveness of inventory control systems, which help ensure both the availability of drugs, and adequate turnover of stock. At Pharmacia, both manual and computer inventory control systems were found to be highly accurate. Turnover of tracer drugs was adequate throughout the distribution system, with no expired found at Pharmacia and small amounts of two drugs in health facilities. Despite these positive findings, at the time of the assessment, 25 of 33 (75%) of tracer drugs were in stock at Pharmacia, and 33% of tracer drugs were in stock in health facilities.

Detailed findings of the assessment of the distribution system follow.

A Ryazan PharmaciaStaffing

Pharmacia is divided into 18 departments, plus administrative staff. Staffing, including the number of pharmacists in each department, is as follows:

Number	Description	# of Pharmacists	Total Staff
	Administration/Management	3	4
1	Maintenance/Engineering	0	5
2	Accounting	0	18
3	Personnel	0	4
4	Procurement/Production	0	11
5	Cleaning/Janitors	0	23 5
6	Computer	0	5 5
7	Re-Packaging	0	59
8	Solid Forms	5	10
9	Liquid Forms	4	10
10	Ampoules	3	7
11	Domestic Finish Products	3	7
12	Controlled Substances	3	4
13	Disinfectants	3	7
14	Medical Gas, Equipments & Inflammable Substances	3	7
15	Imported Finish Products	3	5
16	Receiving	4	15
17	Distribution/Expedition	8	21
18	Transportation	0	40
Total		39	263

Infrastructure and Equipment

Temperature Control

Temperature and the humidity are checked daily, and recorded into log books

Security

Security is maintained night and day by personnel from the Ministry of Internal Affairs. No leakage was reported at the warehouse level, or during distribution. Problems have occurred when containers transported to Ryazan from the railway station have been opened in-route.

Pest Control

Warehouses are treated for pests every two weeks. The main problem is with mice.

Cold Chain

Pharmacia does not have a cold room. Refrigerators, with thermometers, are used to store suppositories, insulins, and other drugs requiring refrigeration. Temperatures are checked daily.

Electrical Supply

Electricity is supplied by the national power system. Pharmacia does not have an automatic generator. When power outages occur, they have not lasted more than two to four hours.

Storage Systems

The storage area, approximately 4,000 square meters, is adequate. Products are neatly organized on shelves and pallets, and in cabinets, depending on product type and container size. Some repairs, including upgrading of electrical wiring, ventilation systems, and infrastructure were in progress during the assessment.

Equipment

The Pharmacia administrative office and warehouse have a combined total of four typewriters, three computers and three printers.

Fire Control

Fire extinguishers are present, and inspected and recharged regularly.

Transportation

Domestic products are purchased FOB (Free On Board), or 50% of shipping and insurance is paid by the supplier and 50% by Pharmacia. Foreign products are purchased CIF (Cost, Insurance and Freight included)

Pharmacia transports orders to health facilities, unless clients have their own vehicles to collect shipments. Delivery charges are included in the regular 15% markup. A few remote clients that always provide their own transportation receive a 1% discount.

Pharmacia transportation expenses for 1992 and 1993 follow

Transportation Expenditures

1992 (Rubles)	1992 (\$ US)	1993 (Rubles)	1993 (\$ US)
4,823,486	12,059	41,051,346	34,209

The Pharmacia transportation fleet includes

- 45 trucks
- 4 Jeeps
- 2 buses (for staff transportation)

All are in good working condition

Pharmacia also owns eleven 40-foot containers

Pharmacia uses its vehicles to transport drugs and medical supplies, and does not share them with other programs with the rare exception of distributing goods provided by humanitarian assistance.

Pharmacia serves a total of 80-90 clients, 65 on a regular basis, and the remainder periodically. The nearest client is approximately three kilometers from the warehouse, and the most remote is approximately 200 kilometers away.

Prior to 1993, distribution to health facilities was centrally scheduled. Now, Pharmacia negotiates delivery directly with facilities. Pharmacia attempts to combine delivery of Ryazan city orders to save fuel and time.

Orders brought to Pharmacia by clients that provide their own transportation are filled the same day. Otherwise, Pharmacia attempts to deliver within one week.

Receiving

The Pharmacia permanent receiving committee includes

- Receiving Department representative (Chairman),
- Representative from each Pharmacia warehouse division, and
- Two independent members from another organization

Items are checked upon receipt. If a shipment is acceptable, the commission submits a receiving report, items are priced, then placed into storage. If a shipment is unacceptable, a claim is submitted in writing to the supplier, or the shipping organization, depending on the problem.

A quality certificate is required for each drug lot from the manufacturer. MOH Regulation # 1,475 lists drugs for which additional qualitative and quantitative testing should be performed within the oblast. The latest list is dated March, 1994. This list includes antibiotics, steroids and digestive enzymes. Drugs included on this list are kept in the Pharmacia receiving area until Oblast Quality Control Laboratory tests are satisfactorily completed. Other drugs are tested sporadically, by random selection.

Drugs returned in 1993, due to problems, were

- Riboxin Injection (Inosine¹⁶) 2,400 ampules received frozen from the Saint Petersburg factory "October", contained sediments and had changed in color
- Disenterin Injection¹⁷ 100 ampules received from a vaccine and serum manufacturing factory
- Unitiol¹⁸ 5% (5ml) Injection 80,000 ampules returned to the supplier because the quantity shipped was greater than requested

Prior to 1992, Pharmacia frequently received unrequested items, sometimes unusable, although this rarely occurs now.

¹⁶ Used for cardiovascular, liver, skin, and anemia disorders

¹⁷ a serum, used to treat dysentery

¹⁸ used as an antidote for acute alcohol, arsenic, mercury, and bismuth poisoning. Also used for diabetic polyneuropathy

Inventory Control

At the time of the assessment, there were 1,760 items in stock at Pharmacia, of which 280 (16%) are on the *1992 Russian Essential Drugs* (and medical supplies) list. The breakdown of the items in stock was

- 1,500 drugs
- 20 medical supplies
- 240 other items

Bin cards are maintained at the storeroom level. Ledgers, and computerized records are also kept in the accounting and computer departments, respectively.

Physical counts and inventory record adjustments are done annually. (Last count was done November, 1993). Quarterly inventories are conducted for controlled substances and alcohol (Last count was done April, 1994).

During the last fiscal year, Pharmacia was out of 86 items for more than one month (Annex Ten).

Cardiovascular, anticoagulant, narcotic, anesthetic, spasmolytic and ophthalmic drugs have been regularly out of stock during the past year for the following reasons:

- Difficulty in acquiring hard currency, and
- prepayment requirements for orders placed to Ukrainian and Baltic states

There are MOH lists of recommended therapeutic substitutions for use in out-of-stock situations.

When items are in short supply, Pharmacia distributes smaller quantities than requested, and attempts to get the drugs from other Oblast Pharmacias, or, more rarely, from community pharmacies. When exchanges take place between Pharmacias, Ryazan Pharmacia purchases items at the maximum selling price, and therefore cannot add an additional markup.

Communications Capabilities

Communications are difficult due to telephone lines that rely on an outdated city system. Direct outside lines are limited to former Soviet Republics. Other international connections must be made with operator assistance.

Drug Information

Information on drug availability, and domestic and international prices, is limited to that received from distributors or manufacturers. Pharmacia provides such information to clients upon request. The lack of comparative price information is a major problem. For a complete description of drug information resources at Pharmacia, refer to the section on Drug Information.

B Kiritsy Warehouse*Staffing*

Staffing at the Kiritsy warehouse is as follows

Staff Category	Number Approved	Number at Post
Pharmacists	21	21
Supply Officer	1	1
Store keeper	1	1
Clerks/Secretaries	1	1
Handymen	20	20
Drivers	14	14
Security (day/night)	11	11
Administrators	3	3
Accountants/Controllers	8	8
Customs Broker	1	1

Transportation

Transportation expenses for 1992 and 1993 were

Transportation Expenses			
1992 (Rubles)	1992 (\$ US)	1993 (Rubles)	1993 (\$ US)
2,110,000	5,275	38,512,000	32,093

The Kiritsy warehouse owns 4 trucks and 2 tractor-trailers (for containers), used exclusively for transportation of drugs. All are in good condition. Vehicle availability is not a problem. This warehouse distributes to over 115 points throughout Russia. The closest is approximately 60 Km from the warehouse. The furthest is on the Sakhalin Islands, on the east coast of Russia. Distribution is done by train for sites outside the Ryazan Oblast.

Receiving Procedures

Upon arrival, goods are stored in the Receiving Department and inspected by the Receiving Commission, consisting of 2 Kiritsy employees, and one member of the local administration who arbitrates when problems arise. Products should have at least 80% of shelf life remaining at the time of receipt.

Quantities received are checked against shipping documents, and a receiving report is prepared. Short shipments have been experienced with producers from Poland. There are procedures for settling disputes, if reported within three months after the goods leave the producer.

Qualitative and quantitative tests are performed by the Kiritsy quality control laboratory according to protocols contained in the *USSR Pharmacopeia*. Updates on testing procedures are received periodically from the MOH as new information is available, or as new products are registered. The laboratory completes about 55 tests a month, although with the increased stock from World Bank and European Economic Community loans, there were 198 tests performed in April, 1994.

After passing quality testing, drugs are sent to the appropriate storage department. Drugs that do not pass testing are sent to the Moscow State Scientific and Research Institute for retesting. The results of the Moscow institute are accepted as final.

Product quality has been a problem in the past, although only one problem product was received in 1993. Galazolin (Xylometazoline) nose drops, received from a Polish manufacturer, was refused because

- the product was inadequately labelled,
- no expiration date was indicated, and
- the volume of drug contained in bottles was less than that stated on the label.

Other problems, such as the PH of Valocordin¹⁹ from a German manufacturer, and lack of an expiration date on furosemide received from India, are under review by the quality control department.

When drugs are placed into storage, shipping documents are prepared and a receiving report is sent to Pharmimex/Moscow.

¹⁹ A combination product containing bromisoval and phenobarbital, used for nervous disorders.

Pharmimex charges Kiritsy CIF Pharmimex price, plus a 1.2% fee, and the amount of any customs charges. Based on this figure, Kiritsy then prepares the client invoice, adding its mark-up.

Infrastructure

The storage area of approximately 3,500 square meters is adequate under normal circumstances. Goods are stored in the warehouse on pallets and organized by pharmaceutical dosage form. At the time of the assessment, the Kiritsy warehouse was receiving up to ten times the normal supply because of World Bank and the European Community loans.

Storage facilities were well organized, clean and secure. However, due to excess stock, pallets were stored in the corridors of the warehouse and outside on the compound, protected only by galvanized sheets. Pallets of diazepam injection were stored outside, without temperature control or security. No theft or leakage have been reported.

Fire Control

Approximately 60 extinguishers were present, and were serviced in 1993.

Electric Supply

The Kiritsy warehouse is served by the national supply system, and has its own generator.

Inventory Control

Bin cards are used for each storeroom, and there is a central Kardex system.

Physical stock counts are done yearly, by 1 October. A complete inventory is also taken each time a storekeeper takes leave, as part of the transfer of responsibilities to a replacement employee.

Quantities distributed are decreased when stocks are low. Pharmimex usually ships an additional 0.2% above quantities requested by oblasts to store at the Kiritsy warehouse as buffer/emergency stock.

Communications

Telephone communication is difficult, even within Ryazan Oblast. Most communication takes place by telegram. A fax machine is present, but rarely used.

Drug Information

The warehouse obtains price lists from Russian manufacturers (by telegram), Pharmimex, and drug manufacturer representatives. The warehouse does not provide drug information services to clients.

The main problems experienced by the Kiritsy warehouse are

- In April, 1994, the warehouse had 116 million rubles in the bank from traditional business. The Commercial Division contributed another 35 million rubles. However, accounts receivable at that time totaled 16 billion rubles.
- lack of storage space, at certain times
- communications problems, particularly by telephone
- Lack of experience in competitive procurement techniques

C Oblast Hospital

Staffing

There are 325 physicians on staff at the Oblast Hospital.

Staffing in the pharmacy is as follows:

Position	Actual	Budgeted
Pharmacist	10	11.75
Drug Information Pharmacist	1	1
Pharmacy Technician	8	8.25
Dispensing Assistants	3	5.25
Transportation/Receiving Clerks	2	3
Computer Specialist	1	1
Housekeeping	7	7
Laborers	2	2

Infrastructure and Equipment

Structural Conditions

The pharmacy consists of 17 rooms, including offices. There are seven dispensing, and six compounding rooms. All appeared to be structurally sound.

Temperature Control

Drug storage rooms are heated One of the storage areas has a window air-conditioning unit
Room temperatures are checked and recorded weekly

Storage Space

The Director of Pharmacy reported that available storage space (180 square meters) is inadequate

Security

There were no cases of reported theft from the pharmacy within the last year

Pest Control

The pharmacy is treated for insects twice yearly There no reported rodent problems

Cold Chain

The pharmacy has six refrigerators The pharmacy director feels that additional refrigerated storage space is needed

Electrical Supply

The hospital is served by the national electrical supply The hospital has an emergency generator which serves only the surgical unit

Storage Systems

Cabinets are the predominant storage system used in the pharmacy Drugs are arranged by therapeutic groups and, within these sections, by dosage form The first-expired, first-out stock rotation system is used, and no expired drugs were seen during the assessment visit

Compounding

Compounding represents a large proportion of the activities of the Oblast Hospital pharmacy. Three pharmacists, and all of the department's eight pharmacy technicians work in the compounding unit. The pharmacy routinely compounds the following types of products:

Product Type	Average Monthly Production
Ointments	500 (100 gram)
Topical Solutions	800 (400 ml)
Suppositories	120 suppositories
Eye Drops	150 (10 ml)
Nose Drops	60 (10 ml)
Oral Liquids	600 (400 ml) 200 (200 ml)
Powders	20,000 papers
Base IV Solutions	17,000 (various sizes)

Examples of some of the approximately 100 products compounded are:

- Ointments
40% Salicylic Acid Ointment
- Suppositories
Nystatin Vaginal Suppositories
Cefacone Antipyretic (containing phenacetin)
- Eye Drops
Riboflavin based vitamin drops (used for cataracts)
Albucid 30% (sulfa drug used for conjunctivitis)

Products are compounded according to the *USSR Pharmacopeia*, and batch records are kept.

The department also repackages oral solid dosage forms, received in bulk, for distribution within the hospital.

Equipment

The IV department has five autoclaves, two IV bottle-capping machines, and equipment for production of distilled water. The supply of potable water in the department is reported to be adequate, but there are shortages of distilled water, resulting in borrowing from the hospital central sterilization department.

Balances and weights are routinely calibrated according to established procedures. Autoclaves are tested for temperature and pressure by the Deputy Pharmacy Director. Personnel in charge of autoclaves undergo special training.

Quality Control

Quality control testing is done on compounded products, on finished products and at various stages during compounding, using procedures found in the *USSR Pharmacopeia*. Testing is done for identity and concentration of active ingredients, and some excipients, using the volumetric technique described in the section on Quality Control. Parenteral products are visually inspected for particulate matter, and proper bottle closure. The supply of laboratory reagents is adequate. Testing is supervised by a pharmacist attached to the compounding unit.

In addition to departmental testing, products are sent to the Oblast Quality Control Lab, and oblast lab personnel observe procedures in the pharmacy eight times a year.

The Sanitary and Epidemiological Committee also tests compounded products, equipment uniforms and ambient air samples, for bacterial contamination, in unannounced inspections. The pharmacy also sends samples to the committee for testing. Significant problems have not been found through testing.

Transportation

Pharmacia provides delivery service for scheduled shipments to the Oblast Hospital. For non-scheduled shipments, hospital transportation is used. For purchases from private sector suppliers, both supplier and hospital transportation are used, depending on the supplier. If supplier transportation is used, the charge is included in the cost of the drugs. The hospital has two small trucks used to transport drugs- both are in good condition.

Reported problems with transportation include fuel shortages and lack of functioning vehicles, but these problems occur rarely.

The pharmacy does not have its own transportation budget, and a break-down on costs for supplying the pharmacy with drugs is not available.

Receiving

Three pharmacy employees have authority to receive drugs

- Director of Pharmacy,
- Deputy Director of the Compounding Department, and
- Deputy Director of the Stock Department

When shipments arrive, all available pharmacy staff, including the two laborers, move stock from trucks to the pharmacy. A pharmacy staff member checks quantities of drugs received against the waybill. The drugs are then placed into active stock, and quantities received are entered into the pharmacy computer system.

Receipt of damaged products, products not ordered, or expired products, have not been reported.

Drugs received from Pharmacia undergo quality testing prior to receipt by the hospital, so further testing is not required. The hospital receives a certificate of quality for each drug.

Inventory Control

At the time of the last biannual physical inventory, the pharmacy had the following numbers of products in stock:

- 1,093 drug products
- 93 medical supplies

A computer system is utilized to track distribution within the hospital. Issues to wards are entered into the system daily.

Drug Distribution within the Oblast Hospital

Drugs are distributed from the pharmacy as ward stock, not to individual patients. Individual patient drug therapy information is not maintained and reviewed in the pharmacy by a pharmacist. A nursing profile (Form of Physician's Prescriptions) is maintained in the ward for each patient, on which the patient name, ward, date of birth, diagnoses, medical record number, and diet are recorded. Physicians prescribe drugs on this form by writing the start date, drug name, strength, dosage form, directions for administration, and stop date. The form is also used for ordering tests and other procedures.

Wards order drugs weekly from the pharmacy, based on compiled drug orders. Required information includes drug name, and quantity requested. An estimated two-week supply is ordered, resulting in a one week buffer stock on each ward. No "quantity on hand" figure is required. The pharmacy records quantities actually distributed, and prices. Prices are provided to wards for accounting purposes only. A "bill" is generated by the pharmacy computer, and accompanies each order. The pharmacy may decrease quantities sent to wards based on past consumption and availability.

A supply of commonly used drugs are stocked in the admitting ward for after hours use. A pharmacist is "on-call" on Sundays when the pharmacy is closed.

Pharmacy staff participate in weekly administrative ward inspections that address drug storage, and use. The inspection team consists of the Chief Physician, Deputy Chief Physicians, department heads, the Chief Nurse, an epidemiologist and the Pharmacy Director. Additionally, two wards are inspected weekly by representatives of the pharmacy department. Findings and recommendations are entered into an inspection log book. Additionally, a pharmacist checks drug storage conditions on each ward monthly.

Policies and Procedures

MOH and Federal Government policies and procedures address various aspects of hospital pharmacy, including

- drug preparation
- dispensing
- labelling
- handling of outdated drugs
- drug recalls
- drug defect reporting
- approved abbreviations

These policies were published in one volume in 1979 as the *Collection of Regulations and Acts of Pharmacy Services* (ed M A Kluev). MOH revisions, and new policies and procedures, are forwarded to all pharmacies by the Pharmaceutical Committee.

Hospital Committees

In the Oblast Hospital, drug supply issues are discussed by the Commission on Drug Supply, a committee consisting of

- Deputy Head Physician
- Director of Pharmacy
- All Deputies of the Chief Physician
- Drug Information Pharmacist

- Chief Accountant
- heads of the five largest wards
- Chief Nurses

The Commission meets four times a year. Issues discussed include control of drugs containing narcotics and poisons, drug procurement, drugs in short supply, general issues related to drug use, and new drugs being introduced at the hospital.

Monitoring Pharmaceutical Services

Pharmaceutical services are monitored, but not as part of a planned, systematic program. Within the pharmacy, several staff members, including the Director of Pharmacy, have been designated by the Chief Physician to monitor the following areas:

- sanitary conditions and clothing
- distilled water production
- compounding procedures
- drug storage
- handling of narcotic/poisons
- quality control of compounded drugs
- fire safety
- labor safety
- product sterility

Performance is measured against standards contained in the *Collection of Regulations and Acts of Pharmacy Services*. Written reports of monitoring findings are not required, although verbal reports are made to the Director of Pharmacy on problems identified and corrective actions taken.

Investigations on Efficacy of New Drugs

The Commission on Drug Supply determines drugs to be studied for clinical efficacy and cost-effectiveness at the hospital. At the present time, studies are conducted mainly on new drugs, supplied free of charge to the hospital, by drug manufacturers. The hospital submits a final report of findings to the manufacturer at the conclusion of the study. Drug companies reportedly use excerpts from these reports for advertising purposes. Studies are conducted by physicians, with minimal involvement from the pharmacy department.

Approximately ten drugs are studied per year. The length of each study is one year and data is collected concurrently. Patient responses, and cost-effectiveness of study drugs are compared with similar drugs already in use. Recommendations on whether study drugs should subsequently be used at the hospital are made in a meeting held at the conclusion of the study, although continued availability of study drugs has been cited as a problem.

Drug Usage Review

Review of drug prescribing is done by the Commission on Rational Drug Use and Distribution of Drugs- a committee consisting of the five deputies of the Chief Physician, five heads of hospital departments, the Director of Pharmacy and the Chief Nurse. The commission reviews case histories and prescribing weekly by sampling technique, with special attention being given to antibiotic and narcotic use. The Commission reports the following problems:

- antibiotics are overused, partly because of confusion over treatment guidelines, and conflicting recommendations on indications and duration of treatment
- Polypharmacy, and lack of attention to drug interactions are common

D Other Health Facilities

Surveyed Hospitals (surveys were conducted at 16 hospitals)

Infrastructure and Equipment

Structural Conditions

Hospitals did not report significant structural problems in drug distribution areas.

Temperature Control

One hospital reported having an air conditioner in the drug storage area. Thermometers were found in 56% of drug storage areas.

Space for Pharmacy Related Activities

Most hospitals reported that more space was needed for pharmacy-related activities. Various activities, and the % of hospitals responding that available space was inadequate, follow:

Dispensing	75%
Storage	50%
IV Compounding	94%
IV Additive	94%
Non-IV Compounding	81%
Office Space	75%

Security

One hospital reported that loss of drugs was a problem at some stage of the supply system
One hospital reported that there was a major problem with drug theft within the last year

Pest Control

No pest control procedures or systems were in place in 19% of the facilities

Of those facilities that do have pest control procedures in place, 40% have agreements with the State Sanitary Epidemiological Control Center

Storage Systems

Storage cabinets are the most commonly used system for drug storage (75%), followed by shelves (44%) Pallets are used in 12.5% of facilities

Transportation

Most hospitals, (94%) have an official vehicle for transporting drugs
Problems affecting transport availability included

lack of spare parts	31%
fuel prices	37%
poor condition of vehicles	19%

Receiving

During 1993, one hospital received drugs that were not ordered, and one returned drugs that were close to expiration

Inventory Control

FEFO (First Expired, First Out) was the most commonly used inventory control method used (69%)

Hospital Committees

One half of hospitals reported having committees where issues related to drug use are discussed and decided

Monitoring Pharmaceutical Services

Programs for monitoring pharmaceutical services were reported in 25% of facilities

Drug Usage Review

Existence of Drug Usage Review programs was reported in 69% of hospitals

Surveyed Health Clinics (surveys were conducted at 6 clinics)

Infrastructure and Equipment

Space for Pharmacy Related Activities

Available space for pharmacy-related activities was adequate in most cases. Activities, and the % of clinics responding that space was inadequate, follow

Dispensing	56%
Storage	19%
IV Additive	37%
Non-IV Compounding	37%
Office Space	37%

Security

No problems with security were reported in clinics

Pest Control

One facility reported having pest problems. Of the clinics that have pest control procedures, 67% utilize the State Sanitary Epidemiological Control Center

Inventory Control

FEFO (First Expired, First Out) is the most commonly used method of inventory control. One facility reported using the FIFO (First In, First Out) method of inventory control

E Areas of Concern Related to Drug Distribution

- Clients report lack of transportation and long delivery times in getting drugs from Pharmacia. Unless this is resolved, clients will move away from reliance on Pharmacia as a primary source for pharmaceuticals
- At the time of the assessment, 25 of 33 (75%) of tracer drugs were in stock at Pharmacia. Of all drugs in stock, 16% were on the *Russian Essential Drugs List*. Cardiovascular, anticoagulant, narcotic, anesthetic, spasmolytic and ophthalmic drugs have been regularly out of stock in 1993. Only 33% of tracer drugs were in stock in health facilities

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- As more and more small local distributors enter the pharmaceutical market, it will become increasingly difficult to monitor the overall distribution system. The impact on large distributors like Pharmacia and the Pharmaceutical Warehouse at Kiritsy may be significant, if these distributors can supply drugs more quickly than the traditional distributors.
 - Communications are difficult at many levels of the distribution system, and may be problematic if procurement from international suppliers increases.
 - A floor stock drug distribution system is used at the Oblast Hospital, and pharmacy departments do not exist in other hospitals, resulting in little or no pharmacist involvement in monitoring inpatient drug distribution and use. Floor stock systems generally require a greater amount of drug in the distribution pipeline.
 - The amount of drug compounding done in the Russian healthcare system is excessive, compared to western systems, where, in most cases, it is more cost-effective to purchase finished preparations. While the cost-effectiveness of Ryazan compounding operations were not addressed during the assessment, such a study may be needed in the future.
 - There is not an indicator based, planned, systematic program for monitoring pharmaceutical services in oblast health facilities.
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IX COMMUNITY PHARMACY SYSTEM

Drug needs for the majority of the ambulatory population are met through the system of community pharmacies. Pharmacies have contracts with the state, issued through the Committee on Property (GKI), which authorize Pharmacy Directors to manage state property, and include rent clauses. Non-profitable pharmacies are usually not required to pay rent to the state.

At the time of the assessment, there were 183 "main" community pharmacies in the Ryazan Oblast network, and numerous smaller outlets, and kiosks, each affiliated with a main pharmacy.

- 63 Category I Outlets
- 39 pharmacy kiosks
- 863 Category II Outlets

The total number of public sector drug outlets in the oblast was 1,148. There are also 21 privately owned pharmacies, or 1.8% of the entire network.

Each rayon has a central rayon pharmacy. In addition to filling ambulatory patient prescriptions, these pharmacies function as small wholesalers, supplying hospitals with drugs, compounded products and IV base solutions. The IV compounding role of pharmacies may change in the future with the planned construction of an IV manufacturing plant in the oblast. It is unknown if and when the facility will be completed, and construction is proceeding slowly. The oblast is also considering phasing-out the wholesaler role of central rayon pharmacies, forcing health facilities to purchase drugs directly from wholesalers or manufacturers.

As in other sectors in Russia, regulations on the privatization of pharmacies are being drafted. A Presidential Act addressing pharmacy privatization is expected to be finalized in 1994. Presently, pharmacy privatization is addressed only in the Program of Privatization, which states that a license is required for pharmacies that wish to privatize. The new Act will reportedly include a requirement that pharmacies maintain the same staff levels and services present at the time of privatization for a period of three years. This will limit the financial viability of privatized pharmacies in many cases.

The viability of the community pharmacy network in Russia is of greater importance than in many public health systems, because health facilities do not have in-house dispensaries in most cases. Critical areas that must be addressed to ensure viability include, regulations on mark-ups, financial management skills of pharmacy directors, and possible changes in staffing and service levels.

According to the "Presidential Decree on Commercialization", all pharmacies in Russia have the legal right to privatize. However, pharmacies in Ryazan have not purchased assets from the state, and the ownership of most of the buildings are still with the state. Pharmacies which pay rent pay an average of 2,000 rubles/ square meters/month.

Decree #970 recommends special support for bankrupt pharmacies by Oblast Administration, and no pharmacies in Ryazan Oblast have failed to date.

As in warehouses and health facilities, a key indicator of the effectiveness of the community pharmacy network is the availability of drugs. For tracer drugs, 30% were in stock in community pharmacies at the time of the assessment. In the prescribing survey, 70% of drugs prescribed were actually dispensed. No expired drugs were found.

A Regulation and Inspection

The practice of community pharmacy, including trade, pricing, licensing, labor, and taxation, is regulated by, decrees of the government of the Russian Federation, orders and regulations issued by the MOH, and regulations issued at the oblast level in accordance with the Law on Local Authority.

Pharmacies undergo a comprehensive inspection of pharmaceutical activity by the Pharmaceutical Committee every one to two years, and are required to send drug samples to the Oblast Quality Control Laboratory every three months. If serious infractions occur during a Pharmaceutical Committee inspection, the pharmacy's license may be revoked, although this has not happened to date.

City, rayon, oblast and national level agencies conduct unannounced pharmacy inspections, usually in specific areas. The following is a list of some of the agencies which inspect pharmacies:

- Oblast Quality Control Laboratory (PharmControl)
- Pharmaceutical Committee
- Tax Inspection
- Tax Police
- State Central Sanitary/ Epidemiological Surveillance
- Fire
- Internal Affairs
- Federal Trade Inspection
- Department of Pricing
- Committee on Consumers Rights

There is currently an effort by oblast administration to coordinate these activities and to increase inter-agency communication.

Various acts and regulations address classification of pharmaceuticals, drug storage conditions, filing of prescriptions and required financial reports. The *Reference Manual of Regulations Governing the Practice of Pharmacy* (1979, USSR MOH) contains many of these acts and regulations. Other important acts include State Order # 970, Act # 520 and MOH Regulation #673 (22 Dec, 1989). Labor conditions are governed by labor law of the Russian Federation.

Regulation #705, issued in 1978, and still in effect, specifies the number of pharmacies required per population, as follows

- in cities, one pharmacy per 10,000 population
- in rural areas, one pharmacy per 7,000 population

The number of pharmacies needed in the oblast is now being considered by Oblast Administration, including the option of not renewing licenses of "redundant" pharmacies, and discontinuing subsidies to pharmacies with debt

Regulations existed specifying the number and type of personnel required for a pharmacy to operate, based on volume of business, however, staffing may be decided by individual pharmacies

B Prescriptions and Dispensing

Drugs are divided into several categories, comparable the schedule scheme used in the U S Categories differ by requirements for labeling, prescribing and dispensing There are three main groups,

- List A (medicinal poisons, and narcotics)
- List B (prescription drugs not included in List A)
- Over the counter products

Over the counter products are listed in MOH USSR Order #673 (1989), and fall into three categories

- prepared medications,
- herbal preparations, and
- medical supplies

In practice, prescriptions are only required for, poisons, narcotics, and mood-altering drugs²⁰

²⁰ narcotics, poisons, C₂H₅OH, soporifics, neuroleptics, antidepressants, steroids, hormones, tranquilizers, 8-oxicholine derivatives, and "para-narcotics "

The most important requirements for dispensing narcotic drugs include

- Prescriptions must be written, signed, and sealed by the same prescriber
- The prescription must be co-signed by the Chief Physician or a deputy
- The seal of the medical facility must be on the prescription
- Special rose-colored prescription blanks must be used

If requirements are not met, a prescription may not be filled, and is retained in the pharmacy. The pharmacist contacts the prescriber, and a new prescription must be issued.

List A substances must be kept in storage units containing red identification labels. In pharmacy stock departments, containers with List A drugs must be labeled with white letters over a black background. For List B, red letters over white background are required. List A and B products must be kept in special locked cabinets, identified with the letters A, or B. One person is responsible for the key at all times. Poisons are kept in safes or metal boxes. Other drug storage regulations, such as temperature, appear in Order # 520.

Pharmacies do not fill narcotic prescriptions written by prescribers outside of their rayon. Every pharmacy has a list of prescribers, and signatures specimens, from their polyclinic or hospital. Prescriptions are compared to this list to verify signatures. If a patient presents a prescription written outside the rayon, a local physician must write a new prescription.

Narcotic prescriptions must be filled within 5 days of the date written, and the number of refills is restricted. Poison prescriptions must be filled within 10 days. Prescriptions for patients in exempt categories must be filled within 30 days. All other prescriptions must be filled within two months.

For prescriptions written for exempt patients, or for exempt drugs, the patient has the prescription filled at no cost, or at a reduced cost. The prescriptions are then filed together. A register of these prescriptions, with patient name, type of health problem, prescriber, drug, quantity and cost is prepared, and sent to the local hospital or polyclinic for payment. A bank transfer of funds from the hospital/polyclinic account to the pharmacy account is then done. One Ryazan pharmacy (Pharmacy #1) reported that payment is normally received from its affiliated polyclinic within one week of submitting the register. Payments for Chernobyl victims are processed in approximately ten days. Other payments take up to 30 days, and are sometimes received in installments. Pharmacies may also receive reimbursement for exempt prescriptions through the City Center for Exempt Prescriptions Reimbursement, which typically takes two to three months. At the current rate of inflation, 30 day payment is considered to be unreasonably slow by pharmacies.

C Recordkeeping

Prescriptions for narcotics, poisons, psychotropics, hypnotics, antidepressants, neuroleptics, steroids, tranquilizers, 8-oxicholine derivatives, ethyl alcohol, anabolics, clonidine tablets, and discounted or free prescriptions remain in the pharmacy

Discounted, or free prescriptions, are kept on file for three years "Pink-blank" (narcotic) prescriptions are kept for five years Prescriptions for poisons, ethyl alcohol, para-narcotic (mood altering) and anabolics must be kept on file for one year After the required time period, prescriptions are destroyed

Information on narcotics, para-narcotics, poisons, and ethyl alcohol are kept in special stitched, sealed books with numbered pages The book is signed by the head of a higher organization

D Generic and Therapeutic Substitution

Substitution is allowed, according to regulations issued by the MOH **Generic** substitution is done at the pharmacist's discretion If a pharmacy does not have information about generic equivalents, the Central Resource Bureau has a card file with generic equivalents (synonyms) For exempt patients or drugs, the pharmacist is required to contact the prescriber, so that the patient file can be updated, the original prescription is not altered This is apparently because if a substitute is more expensive than the original, the hospital may not be able to cover the cost

Therapeutic substitution is also allowed, with recommended substitutions provided in Russian MOH bulletins sent periodically to oblasts The *WHO Essential Drugs List* is used in developing recommended substitution lists, as well as references by M D Mashkovsky and M A Kluev For therapeutic substitution, the prescriber is always contacted prior to dispensing

E Operations

At one time, Pharmacia determined many of the operational policies of pharmacies, including selection of the pharmacy director, hours of operation, number of staff members needed, and the range of services and products provided by pharmacies Retail pricing of prescriptions was dictated by the federal government²¹

Pharmacy hours and are now determined by each pharmacy, in close consultation with local administration Financial viability is based on the income and expenses of the individual pharmacies, but at this time, if a pharmacy is not able to meet expenses, the local administration subsidizes the operation It is thought that the subsidies will continue in geographic areas where no other pharmacies are located, assuming funds are available

²¹ After the reorganization of the pharmacy administration system in 1991, most pharmacies were turned into independent municipal enterprises with the rights of a legal entity and the right to self-manage all organizational and business issues

Pharmacy directors may now choose the range of services to be offered in their pharmacies. Pharmacy # 19, located in Ryazan city, was designed to compound IV solutions for city medical facilities. Based on profitability, the pharmacy recently discontinued all compounding services, and began purchasing high volume drugs from private wholesale companies for retail sale, resulting in shortages of IV solutions.

At each pharmacy, the director is usually chosen from within by the pharmacy staff. While the current criteria for choosing a director, are not clear, during Soviet times, the following were considered, experience, educational training, referral by other pharmacy directors, referral by other administrative personnel, and communication ability. When considering an outside candidate, the personal file and work record book were reviewed. For candidates with limited work experience, greater weight was given to education or training. Financial experience and supervisory ability were not emphasized.

Staff scheduling is usually done by the chief accountant and approved by the pharmacy director. Staff working conditions are governed by labor laws. At one time, unions administered the federal social insurance fund from which all payments for vacations days, sick days, maternity leave or leave for other reason came. The fund is now independent of the union, and is a federal structure administered by oblast administration. Typical benefits for pharmacists include the following:

- Paid vacation of 24 working days per year. Some pharmacists are now working on contracts which give up to 30 working days vacation per year.
- Up to four months paid sick days per year, after four months the case is reviewed to determine if the individual should be classified as an invalid. During the review process, the employee is paid minimum wage. Each classification carries its own minimum wage benefit. To receive benefits, the worker must have certification from a physician. If a person has been employed less than five years, the salary received is 60%, from five to eight years, the salary is 80%, after eight years, the person receives 100%.
- All female workers are entitled to three years leave for maternity. For the first 1.5 years, the woman receives 100% of the prevailing minimum wage (20,500 rubles in June, 1994). The percentage for the next 1.5 years is determined by a pharmacy committee. The employee's personal and financial situation, and the financial status of the pharmacy are taken into account. Minimally, the employee should receive 2,589 rubles per month (in May 1994), but the usual practice is to provide 100% of prevailing minimum wage. For single mothers, if the financial situation does not permit the pharmacy to provide maternity wages, the woman may apply to the social insurance fund for assistance. If married, a spouse may obtain funds through his place of employment. The worker is guaranteed employment at the end of maternity leave.
- Childcare is administered through the social insurance fund, and a specific social security fund of the oblast administration.
- Paid educational days, including expenses, for attending meetings are provided.

F Education

Pharmacists are required to participate in continuing education programs every five years. Local meetings, may contribute to the requirement, but often Medical Universities offer programs of continuing education. Education and training for the three main types of community pharmacist usually focus on the following areas, as follows:

- pharmacist "organizer" - administration
- "technologist"- preparation of dosage forms, and
- "analytic" - quality control

Four to five times a year, the Pharmaceutical Committee receives invitations from institutes, such as the Pyatyorsk Pharmacy Institute, for one person from the oblast to attend one month training programs. The inviting institute may, or may not cover expenses such as travel and accommodation.

The Ryazan Medical University offers frequent educational meetings.

G Community Pharmacy Survey in the Assessment

Service population

During the assessment, surveys were conducted in 22 community pharmacies. Some survey results are presented as averages. Others were offered as estimates, since data on total number of patrons served, number of prescriptions, and number and type of transaction, are not usually recorded.

Service populations per pharmacy are

Area	Population Per Pharmacy
Ryazan City, Main Pharmacies (47)	11,830
Remainder of Oblast, Main Pharmacies (136)	5,735
All Oblast, All outlets (1,148)	1,163

The average percentage of patrons to receive goods or services during a pharmacy visit was 37.4%. Factors which may contribute to this relatively low percentage include:

- unavailability of prescribed drugs or alternatives,
- expense of available products, or
- incorrectly written prescriptions

Available Products

Herbal preparations are sold in 92% of surveyed pharmacies. Extemporaneously compounded products are provided by 72% of the pharmacies. Controlled substances, other than narcotics, are also provided in 72% of the pharmacies. Narcotics are available in 52% of the surveyed pharmacies.

The average number of drug entities in stock (exclusive of dosage form and strength) was 456 commercially prepared products, 50 on-site compounded products, 18 medical supply products, 11 convenience products, and 7 herbal preparations. The number of drug entities did not differ markedly from the private pharmacy visited during the assessment, where the reported number of drug entities was 440.

Availability of specialty products varied with the type of hospital or polyclinic closest to the pharmacy, however, there were a number of products which were carried by approximately 90% of surveyed pharmacies. These included:

- obstetric and gynecological products,
- oral contraceptives,
- specialty antibiotics and other anti-infectives,
- intravenous solutions,
- wound dressings, gauze, bandages, and
- feminine hygiene products.

The following drug categories were available in less than 90% of pharmacies surveyed:

- insulin - 56%
- other endocrinological drugs - 64%
- hyperaliments - 32%
- enteral feeding solutions - 8%
- incontinence products - 68%

Specialty equipment was available in few pharmacies, as follows:

- syringes- 80%
- sphygmomanometer- 68%
- durable medical goods (wheelchairs, crutches, walkers)- 52%

- blood glucose meters, test strips- 10%
- urine test strips- 4%
- pregnancy testing kits- 16% (it was unclear if tests are provided to laypersons or only health professionals)

Compliance aids, such as pill boxes, measuring syringes or spoons, were not available in any pharmacies

Services

Counseling to be provided to patients is defined in the *Collection of Regulations and Acts of Pharmacy Services* reference by Kluev. Some information, such as that found in the package insert, can be provided by pharmacy technicians. More specific information, such as dosage regimen, can be provided only by the pharmacist. In surveyed pharmacies, 88% reported providing counseling on the proper use of medications. The same percentage reported obtaining and providing information for prescribers on new medications or treatment regimens.

Comprehensive medication review for appropriateness, interactions, or duplication was reported by 16% of pharmacies. The low percentage of pharmacies doing medication reviews may be due to two factors:

- the service is not defined by regulation, and therefore not considered necessary, or
- pharmacies lack the necessary individual medication records to conduct such a review

Regulations also stipulate that, upon request, patients receive either the package insert for the prescribed medication, or the pharmacist write the information on paper. The percentage of pharmacies reporting provision of written information to patients was 68%. It is not clear what proportion provide the package insert.

Polyclinics were a more frequent source for written information about disease states, only 8% of pharmacies reported providing such information.

Blood pressure readings are provided in 28% of pharmacies. Fingerprick blood glucose testing is not provided by pharmacies. Blood glucose testing is done only in hospital or polyclinic laboratories. Pharmacies do not provide training in use of blood glucose meters, insulin syringes, or other supplies used in giving injections. Currently this training is done either by a physician or nurse while the patient is hospitalized. In the near future, Eli Lilly is planning to open a training center for diabetics, with initial emphasis on training of trainers. The exact date of opening and location is unknown.

Forty-four percent of surveyed pharmacies train pharmacy students prior to graduation and licensure. Participation in public health committees was reported in 4%. No pharmacies reported providing presentations to community groups.

H Infrastructure and Equipment

Structural Conditions

The average size of surveyed pharmacies was 467 square meters, ranging from 228-680 square meters. Two pharmacies (9.5%) reported needing repairs in counter space, floors, and walls. Seven (33%) reported needing repairs to the ceiling. One pharmacy reported needing repairs in the ventilation/heating system.

Equipment

Three pharmacies (14.2%) reported not having a telephone. Nine pharmacies (40.9%) have typewriters, three (13.6%) have computers, and one has a printer. Almost all (91%) reported having abacuses, most have adding machines (63.6%), one-third have calculators. Cash registers were reported in three pharmacies (13.6%).

Temperature control

All pharmacies that have refrigerators reported checking and recording temperatures weekly.

Storage space

Storage areas and equipment were reported to be functional in most cases. The walls and floors in two pharmacies (9%) were reported as needing repair. The ceiling needed repair in six pharmacies (27.2%). Storage units were reported as needing repair in three pharmacies (13.6%). Ventilation and heating were adequate in most pharmacies, however, two (9%) indicated that the storage area contained no separate heating and ventilation.

Security

Nine pharmacies (40.9%) reported having no secure area for storage, and in one more pharmacy, the secured area was in need of repair. Seventeen of the pharmacies (77.3%) have one or more safes.

Cold Chain

Thirteen pharmacies (62%) had refrigerators. Eleven (5%) reported not having refrigerators in the prescription work area. Fourteen (64%) reported not having refrigerators in the storage areas.

Compounding

Four pharmacies (19%) do not provide compounding services. For pharmacies having compounding units, equipment was judged functional, with minimal repairs needed.

These pharmacies routinely compound the following types of products

- oral liquids
- powders
- ointments
- topical solutions
- suppositories
- nose drops

IV solutions are produced only at central rayon pharmacies and then distributed throughout the network. Sterile products compounded by a central rayon pharmacy may, however, be provided to satellite pharmacies for dispensing to patients.

The compounding function is very labor-intensive. One rayon central pharmacy indicated that although approximately 40% of labor costs could be attributed to compounding activities, revenues generated by compounding account for only 5% of revenues. This compounding unit regularly produces 180 different formulas, including IV solutions (80 to 100 liters daily).

Compounded products are priced according to this formula

$$\text{Retail Price} = (\text{ingredient cost} + \text{markup}) + \text{cost of containers} + \text{tariffs}$$

The markup will be up to 50% of the original manufacturer selling price, including all markups by wholesalers and distributors. Tariffs are surcharges for particular types of dosage forms. The method of calculation was once determined by Pharmacia, and updated quarterly. Because labor costs are considered in calculation of tariffs, and labor costs are increasing, each pharmacy now updates tariffs quarterly. Compounded products appear to be the only category for which operational expenses are taken into account in determining the retail price.

Personnel

Federal law requires that a pharmacy professional (pharmacist or technician) be on the premises to operate a pharmacy. Some small pharmacies, satellites, and dispensing points have a technician as the only employee. In these cases, the main responsibility of the technician is dispensing, with administrative responsibilities handled by the central rayon pharmacy with which it is affiliated.

Most pharmacies employ a large, perhaps excessive, number of staff pharmacists, and pharmacy technicians. As an example, the staff make-up for Pharmacy #1 (770 square meters) in Ryazan city is as follows:

- 14 full-time equivalent (FTE) pharmacists, including the director and assistant director
- 9 pharmacy technicians
- 2 bookkeepers

- 3 cashiers
- 2 glass bottle washers
- 3 compounding technicians

Some pharmacies also employ drivers, cleaning persons and general laborers

Costs

The table below details financial information from eight pharmacies in Ryazan Oblast. This data may not be illustrative of all pharmacies, but gives gross measures for expense categories as a percentage of annual sales, and as a percentage of total expenses. For comparison, 1992 data from the Lilly Digest²² are presented.

In this comparison, the main differences between U.S. and Ryazan pharmacies can be found in, cost of goods sold, rent, taxes and licenses, miscellaneous expenses, and value of inventory at cost. There is a sizeable difference in the average number of total hours worked per week by pharmacists, 83 pharmacist hours in a U.S. pharmacy versus 495 hours in surveyed pharmacies. The percent of expenses attributable to wages in Ryazan (51.5%) is, however, not significantly different from the U.S. figure (54.9%).

There are several expense categories which are blank on the table, either the categories were not explained satisfactorily, or they are not encountered in the current system in Russia.

²² A United States annual publication providing information on U.S. community pharmacies.

Lilly Digest Comparison with Ryazan RPM Project, May 1994

	US Averages Per Pharmacy in US Dollars	Ryazan Averages Per Pharmacy in Rubles	Ryazan Averages Per Pharmacy in Dollars (1820R/\$1)	US % of Sales Per Pharmacy	Ryazan % of Sales Per Pharmacy	US % of Total Expenses Per Pharmacy	Ryazan % of Total Expenses Per Pharmacy
Sales	1 021 215	149 606 381	82 201 31				
Cost of Goods (% of sales)	723 840 (70.9%)	139 662 924 (93.3%)	76 737 87 (93.3%)	70.9	93.3		
Net Revenue	297 375	9,943 457	5,463 44				
Expenses							
Wages	146 815	15 057,253	8 273 22	16.5	10.1	5.5	51.5
Rent	21 263	100 687	55 32	2.1	0.1	0.8	0.3
Utilities	8770	2 082 331	1 144 14	0.9	1.4	3.3	7.1
Telephone		484 652	266 29		0.3		1.6
Accounting	3681		0 00	0.4		1.4	
Taxes and Licenses	14 236	4 862 341	2,671 62	1.4	3.2	5.3	16.6
Insurance	10 571		0 00	1.4		5.3	
Interest Paid	5719	135 337	74 36	0.6	0.1	2.1	0.5
Computer	3175		0 00	0.3		1.2	
Depreciation	7658		0 00	0.7		2.8	
Miscellaneous	45 225	6 498 499	3,570 60	4.4	4.3	16.9	22.2
Total	267 113	29 221 103	16 055 55	26.2	19.5		
Net Profit	30 262	-19 277,646	10 592 11	3.0			
Value of Inventory at Cost	123 825	55,361 222	30 418 25	12.1	3.7		

	US Averages Per Pharmacy	Ryazan Averages Per Pharmacy
Size of Area (square feet)	2,820	5,023
Total Pharmacist Hours Per Week	83	495

I Areas of Concern Related to Community Pharmacy

- Historically, financial management skills and supervisory ability have not been important requirements for community pharmacy directors. As subsidies to pharmacies decrease or are eliminated, these skills will become increasingly important.
- As at Pharmacia, drug mark-ups by community pharmacies may not be sufficient to cover replacement costs of drugs, much less operating costs.
- The relatively high staffing levels and extensive pharmacist benefits in community pharmacies may not be sustainable if currently subsidies are reduced or eliminated.
- Comprehensive review of medications for appropriateness, interactions or duplication, is not routinely done in community pharmacies.
- Extensive compounding operations by community pharmacies may not be cost-effective.
- Based on the average net loss shown by pharmacies in Ryazan, it is not clear how many of them will be financially viable without state subsidies, and it is also unclear whether subsidies can be supported by the oblast.

X DRUG CONTROL LEGISLATION²³

In this project, RPM will do technical work at the oblast level. Because legislation in Russia is issued from the federal level, RPM will not provide recommendations on legislative reform. It is important, however, that laws and regulations affecting RPM technical areas are understood. In western countries, including many in which RPM works, a logical approach to understanding drug control legislation is to address the country's National Drug Policy, Medical Practice Act and Pharmacy Practice Act, and relevant drug registration laws.

This approach was modified significantly in Ryazan to accommodate the structure of drug control legislation in Russia. Additionally, the issuance of Decree #890 in July, 1994 required that information be collected after the field portion of the assessment was completed for inclusion in this report. The finance section of the report, contains a summary of Decree #890. This section contains a review of basic pharmacy and medical law. The future impact of Decree #890 will be discussed in detail during the Ryazan workshop.

As defined by the WHO, a National Drug Policy does not exist in Russia. This is not meant to imply that practices related to drugs are not controlled- quite the opposite is true. There are a series of separate federally written acts, policies and laws that address virtually all aspects of the pharmaceutical sector.

Government Decree # 68, issued in 1991, outlined a five-year program for the development of the Russian pharmaceutical industry and drug supply system, including reconstruction of several facilities to come into compliance with Good Manufacturing Practice (GMP). Because it was designed for a command economy, the plan was never implemented.

One of the most recent developments involving the Russian pharmaceutical sector, which will have a direct affect on RPM activities, is the issue of Decree # 890, Government Support for the Development of Medical Industry and the Improvement of Provision of Pharmaceutical and Medical Products to the Public and Health Care Facilities, on July 30, 1994. This decree was developed for implementation in a market economy. Main areas addressed in the decree, and summarized in the Finance Section are:

- Judicial Issues
- Economy and Pricing
- Organization and Economic Measures to Support Medical Industry Enterprises and the Network of Pharmacies

²³ In Russia, a "law" is a very general statement on a subject, without specific directives. Laws must be passed by the Russian parliament. "Decrees", also known as sub-laws, are used to define government policies. They are used to define specific problems that are to be solved by the government, and are approved by the prime-minister. "Federal Regulations", also known as sub-sub-laws, define specifically how problems are to be solved, and are approved by the appropriate Minister. Regulations may also be issued at the oblast level, but tend to deal with issues such as budget, rather than public health issues.

- Organizational Measures to Rationalize Drug Supply
- Specific Medical Help to Population in Disaster Situations (Natural and Industrial)

Drug Registration

All drugs marketed for use in Russia are required by law to be registered by the MOH Division of State Control of Drug Quality and Medical Equipment. Registration is required for each separate drug product. In cases of multiple suppliers of a given product, separate registration is required for each product. Drugs must be re-registered every five to ten years, depending on the drug. Registered drugs are issued unique registration numbers.

In Ryazan, the principle issue regarding registration is whether or not a drug being considered for procurement is registered in Russia. Registration may be verified through use of

- the *Register of Registered Drugs*. This book contains both foreign and domestic registered products, and is updated periodically through supplemental "booklets", and
- a computer database of drugs registered in Russia, purchased by Pharmacia from Rospharmacia.

Regulations and Policies on Pharmacy and Medical Professions

Pharmacy

There is no comprehensive Russian Pharmacy Practice Act that addresses all aspects of the profession, but rather a series of MOH regulations covering pharmacy practice issues, including

- licensing in areas of pharmaceutical activity
- price control
- prescribing
- generic substitution
- disciplinary actions
- narcotic control
- drug compounding
- quality control

A MOH "Law on Drugs," being prepared by a group of scholars, is still in draft form. The draft is currently being reviewed by the parliament, and is expected to be passed in 1995.

In the *public sector*, pharmacists, pharmacy technicians, feldshers, and midwives are permitted by law to dispense drugs. In Ryazan, it is reported that only authorized personnel dispense drugs.

In the *private sector*, the professionals mentioned above, plus physicians and stomatologists, can dispense drugs, although there are no private sector feldshers or midwives in the oblast at this time.

Nurses are never permitted to dispense drugs.

Medicine

Medical practice issues are covered by four federal laws, all revised within the past four years. They are:

- Basic Law on Protection of Health
- Sanitary and Epidemiological Wealth of Peoples
- Law of Medical Insurance
- Law of Psychiatric Care

In the *public sector*, the following professionals are permitted to prescribe drugs:

- Physician
- Stomatologist
- Anesthetist
- Midwife
- Dentists
- Feldsher

Stomatologists, Anesthetists, Midwives, Dentists, and Feldshers have limited lists of drugs from which they can prescribe. Compliance with the law in this regard is high. It was noted that while anesthetists have the right to prescribe, they rarely do so in Ryazan.

In the *private sector*, the same laws on prescribing exist, however, as noted, there are no private sector anesthetists, midwives, nurses, dentists, or feldshers in Ryazan Oblast. Private sector physicians are not permitted to prescribe narcotic drugs. Compliance with the law is also reported to be high in private sector prescribing.

A local licensing committee handles licensing of physicians and premises for medical practice, drug prescribing and dispensing. The Oblast Administration Health Department determines license fee schedules, with approval from the Oblast Administration.

There are no restrictions on what private sector physicians can charge for services. In the public sector, patients pay for services beyond what the physician considers the "normal standard of treatment", and for second opinions. Within the oblast, local responsibility for enforcement of regulations is as follows

Area	Primary Responsibility
Pharmacy Practice	Pharmaceutical Committee, Licensing Committee
Medical Practice	Oblast Administration Health Department, Licensing Committee
Midwifery	Oblast Administration Health Department, Licensing Committee
Drug Manufacturing	Oblast Quality Control Laboratory
Drug Product Quality	Oblast Quality Control Laboratory
Drug Advertising/Marketing	Pharmaceutical Committee

XI DRUG UTILIZATION AND DISEASE PATTERNS IN THE OBLAST

Mortality

The most frequent causes of death in Ryazan Oblast in 1993, for adults and children under five were

ADULTS

- 1 Cardiovascular diseases
- 2 Neoplastic diseases
- 3 Accidents, cases of poisoning and trauma
- 4 Respiratory diseases
- 5 Digestive diseases
- 6 Endocrine system diseases
- 7 Urogenital diseases
- 8 Infectious and parasitic diseases (including tuberculosis)
- 9 Nervous system diseases, sensory organ diseases
- 10 All other diseases

CHILDREN UNDER 5 YEARS

- 1 Certain conditions in perinatal period
- 2 Congenital abnormalities (malformations)
- 3 Trauma
- 4 Respiratory diseases
- 5 Infectious diseases
- 6 Neoplastic diseases
- 7 Blood diseases
- 8 Endocrine system diseases
- 9 Central nervous system diseases
- 10 Digestive diseases

Morbidity

1993 Ryazan Oblast out-patient and in-patient morbidity data for adults, and children aged 0-14 years, are presented on the following pages

Ryazan Oblast, Out-patient and In-patient Morbidity Data 1993

Disease	Registered Outpatients 0-14 Years	Registered Outpatients Adults	Registered Inpatients 0 14 Years	Registered Inpatients Adults
Infectious and parasitic diseases	28 168	47,784	5033	8629
Tumors (malignant and non-malignant)	972	29 452	404	10 530
Endocrinological diseases nutritional disorders immunity and metabolism disorders including	6095	31,604	373	3788
Thyrototoxicosis with/without goiter	351	1706	7	359
insulin dependent diabetes melitus	91	2114	95	995
non-insulin dependent diabetes melitus	8	18 134		855
obesity	1261	2289	15	59
Diseases of blood and hemopoietic organs including				
anemias	3332	2879	162	265
blood coagulation disorders	13	11	9	35
Psychological disorders	7605	63 052	1151	15499
Diseases of the nervous system and sense organs including	34 456	122 919	3003	10 919
infantile cerebral paralysis	724	91	183	10
diseases of the peripheral nervous system	270	5637	108	1094
epilepsy	359	354		
myopia	6686	21 087		
glaucoma		7668		1164
cataracts		12 324		1413
chronic otitis	760	4318		

Disease	Registered Outpatients 0-14 Years	Registered Outpatients Adults	Registered Inpatients 0-14 Years	Registered Inpatients Adults
Diseases of the circulatory system including	3 900	132 574	714	38 003
acute rheumatism	25	104	15	346
chronic rheumatic heart diseases valvular diseases	118	4000	6	719
hypertension	6	17,299	5	2812
myocardial infarction		1668		2343
cardiac stenosis		13 762		5712
other ischemic heart diseases		30 140		10 711
cerebrovascular disease		48 945		7456
Diseases of the respiratory organs including				
acute viral respiratory infections			12 506	5238
chronic pharyngitis nasopharyngitis sinusitis	870	6911		
chronic tonsillitis	5292	4090		
allergic rhinitis (poliosis)	438	680		
pneumonias	2308	5697	2930	5147
chronic bronchitis (unknown etiology) emphysema	487	18309	721	6203
bronchial asthma	679	5226	438	2345
other chronic obstructive lung diseases	97	215	31	114
other respiratory diseases	361	1980	66	743
Diseases of the digestive organs including	11 443	5205	5232	24 292

Disease	Registered Outpatients 0-14 Years	Registered Outpatients Adults	Registered Inpatients 0-14 Years	Registered Inpatients Adults
gastric and duodenal ulcers	65	1 8357	76	5814
gastritis duodenitis	2790	18 802	1394	3396
non infectious enteritis and colitis	313	2306	59	1110
cholecystitis cholelithiasis	702	11 255	156	4223
chronic liver diseases cirrhosis		1910	15	655
Urogenital diseases including	5720	66 828	1645	23 669
nephritis nephrosis nephrotic syndrome	322	789	91	592
renal infections	2886	13 253	759	2888
nephrolithiasis	22	340	5	2167
prostatic diseases		3696		1251
salpingitis oophoritis		4927		
cervical erosion		8284		
menstrual disorders		14	2996	
Complications of pregnancy and delivery	1	8481	1	27 856
Cutaneous and subcutaneous diseases	18612	43 797		5879
Musculoskeletal and connective tissue diseases including	3558	75 698	736	15 220
Aspecific diseases of connective tissues		421	8	347
Rheumatoid arthritis other inflammatory arthritis polyarthropathies		1587	99	8329
Osteoarthritis and connected disorders		7903	12	1316
Congenital anomalies including	3392	1480	1130	348

For the Oblast Hospital, 1993 out-patient and in-patient morbidity data is as follows

**RYAZAN OBLAST HOSPITAL CONSULTING POLYCLINIC,
MOST FREQUENT OUT-PATIENT DISEASE CATEGORIES IN 1993**

(as reported by the Oblast Hospital Statistical Department)

Disease Category	Number of Cases
Diseases of the musculo-skeletal system	1671
Ischemic heart diseases	1603
Angina Pectoris	963
Trauma and poisoning	1328
Complications of pregnancy and delivery	1156
Hypertension	1029
Tumors (all)	1027
Gastritis and duodenitis	906
Renal infections	803
Cerebrovascular diseases	727
Diabetes	672

RYAZAN OBLAST HOSPITAL, MOST FREQUENT IN-PATIENT DIAGNOSES 1993
(as reported by Oblast Hospital Statistical Department)

Disease Category	Number of Cases
Diseases of the musculo-skeletal system	2069
Tumors (all)	1649
Malignant tumors	1148
Diseases of the nervous system	1334
Cerebrovascular diseases	1327
Fractures	1206
Bronchial asthma	599
Ulcers of stomach and duodenum	578
Chronic bronchitis	460
Diabetes	447
Cholelithiasis, cholecystitis and cholangitis	325

Overall number of registered out-patients in 1993 29,773

Overall number of registered in-patients in 1993 18,373

These diagnosis were consistent with the findings in other inpatient facilities surveyed Other frequent reasons for admission included, poisoning, pneumonia, and urological conditions

Drugs Used in Ryazan

The tables at the end of this section provide a summary of the types of drugs purchased by Pharmacia from 1 October 1993 through 1 April 1994 While this information does provide enough information for a thorough analysis of drug treatment practices, it provides an initial list of drugs commonly used in the oblast Of the top (by value) 73 drug products purchased by Pharmacia, 53 (73%) are not on the *WHO Essential Drugs List*

Analysis of the Benefit of Imported Drugs

The following table lists qualities of the sixteen top imported drugs

Table Top 16 Imported Drugs' Contribution to Total Purchases, Efficacy and Benefit/Risk Ratio

Drug	Generic Name or Description	% of Total Drug Purchases	Efficacy ¹	Benefit/Risk Ratio ²
Hydrocortisone	Hydrocortisone	5.6	+	+
Cerebrolyzin (Various Preps)	Porcine Brain Extract	5.2	0	0
Halazoln	Xylometazolon	3.8	+/-	0
Phosphalugel	Aluminum Phosphate Gel	2.4	0	0
Legalon Dragee	Silibinin	2.0	0	0
No-Spa	Drotaverine	1.7	0	0
Sedacoron	Amiodarone	1.2	+	+
Cavinton	Vinpocetin	1.2	0	0
Halidor	Bencyclane Fumarate	1.0	0	0
Bucarban	Carbutamide	0.9	+	0
Reopirin	Analog of Phenylbutazone	0.8	+/-	0
Viscen	Pindolol	0.8	+	+
Trigan	Dipyron	0.8	+/-	0
Ins Monotard MC	Insulin Zinc Susp	0.7	+	+
Seduxen Inj	Diazepam	0.7	+	+

1 Efficacy is measured as follows

Efficacious, Clinical Benefit Established
 Efficacious, Symptomatic Benefit
 Clinical Benefit Not Established

(+)
 (+/-)
 (0)

2 Benefit/Risk Ratio is determined as follows

Benefit/Risk Questioned	(0)
Benefit/Risk known to be positive	(+)

This table shows that 62% of the top 16 imported drugs have either a clinical or symptomatic benefit which is firmly established. In contrast, six drugs, accounting for almost 13.5% of the value of all drug purchases have little or no known clinical benefit, or a risk of toxicity great enough to discourage use in most clinical situations.

Analysis of the Benefit of Domestic Drugs

The following table lists qualities of the top 57 domestic drugs.

Table Top 57 Domestic Drugs' Contribution to Total Purchases, Efficacy and Benefit/Risk Ratio

Drug	Generic Name or Description	% of Total Drug Purchases	Efficacy	Benefit/Risk Ratio
Riboxin	Inosine	1.4	0	0
Lincomycin	Lincomycin	0.9	+	0
Novocaine (Various Preps)	Procaine	0.8	+	+
Oxacillin (Various Preps)	Oxacillin	0.7	+	+
Ampicillin	Ampicillin	0.4	+	+
Analgin (Various Preps)	Metamizole Sodium	0.4	+/-	0
Glucose (Various Preps)	Glucose	0.4	+	+
Monochloramin (Various Preps)	Monochloramin	0.4	?	?
Hippophea	Plant Extract	0.3	?	?
Aselli Jecoris Oleum	Cod Liver Oil	0.3	+	+
Kanamycin/Novocaine (Various Preps)	Kanamycin/Procaine	0.3	+	0

Drug	Generic Name or Description	% of Total Drug Purchases	Efficacy	Benefit/Risk Ratio
ATF	Acid Adreno Triphosphate	0.3	0	0
Ampiox	Ampicillin/Oxacillin	0.3	+	0
Ascorutin	Ascorbic Acid/Menadiol Na /Sulmarin/Rutin	0.3	0	0
Calendula Officinalis (Various Preps)	Plant Extract	0.3	?	?
Clopheline	Clonidine	0.3	+	+
Revit	Vitamins A, B1, B2, C	0.3	+	+
Vitamin C (Various Preps)	Ascorbic Acid	0.3	+	+
Iod Cristol	Iodine	0.2	+	+
Corvalol	Corvalolum	0.2	?	?
Oxytocin	Oxytocin	0.2	+	+
Glutamivit	Multivitamin	0.2	+	+
Nitrogranulong	Nitroglycerine	0.2	+	+
Vitamin B6	Pyridoxine	0.2	+	+
Potassium Permanganate	Potassium Permanganate	0.2	+	0
Promedol	Trimeperidine	0.2	?	?
Glucicir	Glucicum Na	0.2	?	?
Oletetrin	Oleandomycin/Tetracycline	0.2	?	0
Calcium Hypochlorite	Calcium Hypochlorite	0.2	+	?
Methacyclinum HCl	Methacycline	0.2	+	+

Drug	Generic Name or Description	% of Total Drug Purchases	Efficacy	Benefit/Risk Ratio
Hemodez Soln	Dextran 60	0 2	+	+
Levomycetin	Chloramphenicol	0 2	+	+
Citramon	Acetyl Salicylic Acid, Caffeine, Phenacetin, Citric acid	0 1	+/-	0
Sodium Chloride	Sodium chloride	0 1	+	+
Menovazin	Menthol, Procaine, Anestizine	0 1	?	?
Doxycycline	Doxycycline	0 1	+	+
Pilocarpine HCl	Pilocarpine HCl	0 1	+	+
Penicillin	Penicillin	0 1	+	+
Mydocalm DM	Tolperisone HCl	0 1	?	?
Nystatin	Nystatin	0 1	+	+
Ginseng Tincture	Ginseng	0 1	0	0
Crataegi Fructus	Crataegi Fructus	0 1	?	?
Formic Alcohol	Formic alcohol	0 1	?	?
Leonuri Tincture	Leonuri Tincture	0 1	?	?
Methotrexate	Methotrexate	0 1	+	+

1 Efficacy is measured as follows

Efficacious, Clinical Benefit Established	(+)
Efficacious, Symptomatic Benefit	(+/-)
Clinical Benefit Not Established	(-)

2 Benefit/Risk Ratio is determined as follows

Benefit/Risk Questioned	(0)
Benefit/Risk known to be positive	(+)

References

Martindale, The Extra Pharmacopoeia, 1993
Goodman and Gilman, 1985
AMA Drug Evaluations, 1993
British National Formulary, 1993
Meyler's Side Effects of Drugs, 1992
USP DI, 1994

The domestic purchases table shows that 67 % of the top 57 domestic drugs have either a clinical or symptomatic benefit which is firmly established. Four drugs, accounting for 2% of the value of all drug purchases have little or no known clinical benefit, or a risk of toxicity great enough to discourage use in most clinical situations. No information could be found in the above references on 13 (28%) of the 46 drug names.

Ryazan Oblast Morbidity vs Drug Purchases

The morbidity and procurement data are summarized and presented on the following page. Adult and child inpatients and outpatients were pooled together due to the difficulty in determining which purchased drugs were consumed by which age group.

Table Ryazan Oblast, Total Morbidity by Disease Group vs Purchased Drugs Commonly Used to Treat Disease Group

Disease Group	Number of Outpatients	% of Total	Number of Inpatients	% of Total	% of Drugs Purchased by Value
Infectious and Parasitic Disease	75,952	8	13,662	5.4	3.1
Tumors (Malignant and Benign)	30,424		10,934		
Endocrine/Nutrition/ Immunologic, including Diabetes Mellitus (20,347)	37,694	3.2	4,161	4.3	
		2.2	1,945	0.8	
Hematopoietic Disorders	6,235	0.7	471		
Psychological Disorders	70,657	7.5	16,650	6.5	1.1
Nervous System and Sensory Disorders	157,375	16.7	13,922	5.5	
Circulatory Disorders, Including Hypertension (17,305) Ischemic Disease (45,570) Cerebrovascular Disease (48,945)	116,067	12.3	30,125	11.8	5
Respiratory Disease, Including Chronic Bronchitis/Emphys. (18,796)	53,640	5.7	36,482	14.3	6.8
		2	6,924	2.7	
Digestive Disease, Including Gastric and Duodenal Ulcer (18,422) Gastritis (21,592)	64,075	6.8	29,524	11.6	7
		1.9	5,890	2.3	
		2.3	4,790	1.9	
Urogenital Disease	72,548	7.7	25,314	10	
Complications of Pregnancy	8,482	0.9	27,857	11	
Congenital Anomalies	4,872	5.2	1,478	0.6	
Trauma and Poisoning	103,279	10.9	21,818	8.6	

The following should be noted. First, comparison between disease groups may be of limited value since some conditions require little or no medication to be treated appropriately. Myopia, for example, constitutes around one-fifth of outpatient visits for nervous and sensory disorders, but usually requires a simple eye exam and fitting for eyeglasses. On the other hand, analysis for disease groups where medication is usually expected and moderately expensive drugs may be quite useful. For example, infectious and parasitic diseases, which account for 8.0% and 5.4% of outpatient and inpatient visits, respectively, should be treated with pharmaceuticals. Yet, our analysis shows only 3.14% of purchased drugs are antibiotics or other drugs appropriate to these conditions.

Similarly, "psychological disorders" includes 7.5% of outpatients, and 6.5% of inpatients, but there are no antipsychotics or antidepressants listed among the top imported drugs and domestic drugs (by value), despite the fact that these drugs tend to be somewhat more expensive than average. Only benzodiazepines are included, and these make up just 1.15% of total drug purchases. These figures suggest, then, that both infectious/parasitic diseases and psychological disorders are undertreated using pharmacotherapy in Ryazan.

This pattern describes diseases of the circulatory system as well. Only 5% of total drug purchases are for drugs used in this disease category, yet 12.3% of outpatients and 11.8% of inpatients fall within it.

In contrast, treatment of diseases of the digestive tract, which appears to be mostly gastritis and ulcer disease, accounts for around 7% of both drug purchases and outpatient visits. In this case, that is the expected result, since these conditions are easily treated with moderately priced medicines.

A Treatment Protocols

Insurance Medicine Guidelines

The preparation of national standards of treatment was ordered by the 1991 Federal Law on Compulsory Medical Insurance in Russia. These national treatment standards, which have not been prepared to date, were intended to be the basis for the introduction of health insurance. Ryazan oblast health administration decided to prepare its own interim standards of treatment for major disease conditions. Specialists of hospital departments, and the Ryazan Medical University, prepared the standards on the basis of earlier work, similar work from other locations in Russia, and Russian and foreign literature. Reportedly, specific standard treatment guidelines from outside Russia were not extensively used, however, the Oblast Hospital Hematology Department uses standard treatment guidelines provided by the Munster Hospital, in Germany. Different versions of standards were prepared for city and rural hospitals, based on availability of equipment and other resources.

The interim standards were discussed with the Oblast Administration Health Department in February 1994. A broad discussion on the standards, involving university, medical associations, and various specialists, is also planned for the future. Implementation is planned for 1995.

Draft standards were designed as tables. For each disease, recommended diagnostic procedures, laboratory tests, and treatment options are given. Recommended drug treatments are frequently listed by brand name. The draft standards for diabetes (out-patient care), pneumonia, hypertension, and anemia are presented in Annex Eleven. Preparation of more extensive guidelines are planned for the future.

The standards have not been distributed to all categories of health workers, and, although university medical students are aware of the use of standard treatment guidelines, the draft standards are not part of the curriculum. They will be added when finalized.

Other Guidelines

Current knowledge on disease treatment is communicated through activities of associations of physicians and pharmacists, the Oblast Scientific Medical Library, monthly hospital conferences, and the existing system of continuing education, described in the section on Post Graduate Training. Pharmaceutical companies have recently started providing treatment information to prescribers. In addition, most Russian health professionals turn to accepted clinical standard reference works, such as *Pharmaceutical Agents* (Maskovsky), for making treatment decisions. Most reference works are updated every few years.

The Oblast Hospital, with 18 clinical departments, does not have its own official standard treatment guidelines. Each department has its own, largely unwritten, standards of treatment, determined by senior staff and based on their interpretation of Russian and foreign clinical literature. Many disease-specific monographs (10-20 pages long), with case management guidelines are also used in the hospital. Apart from treatment guidelines, the monographs also deal with drug use, by listing drugs needed per treatment course. Each department tends to stock only the monographs relevant to its needs. Monographs are regularly updated.

The oblast draft standard guidelines were found in all Oblast Hospital departments visited during the assessment, but were used only by specialists involved in developing the guidelines to judge the adequacy (and later the costs) of treatment of individual patients.

- B Areas of Concern Related to Drug Utilization and Disease Patterns in the Oblast**
- Draft Standard Treatment Guidelines provide several options for drug treatment, rather than specific recommendation on drugs of choice, dosage, and length of treatment
Trade names are used in the drafts
 - Of the top (by value) 72 drugs purchased by Pharmacia, 53 (74%) are not on the *WHO Essential Drugs List*
 - 62% of the top (by value) 16 imported drugs and 67% of the top 57 domestic drugs have either a clinical or symptomatic benefit which is firmly established
 - Drugs purchased by Pharmacia may not be optimal for the oblast morbidity pattern, given the lack of DUE and lack of tools such as ABC and VEN analyses, there has been no way to compare the two sets of data to determine whether or not adjustments are needed
 - Drug Use Review is done mainly on new drugs, antibiotics, and narcotics. Criteria based, ongoing review of drugs used for routine therapy is not done. Pharmacists are minimally involved in existing DUE efforts

**TOP 16* IMPORTED DRUGS (BY VALUE) PURCHASED BY PHARMACIA
BETWEEN 1 OCTOBER 1993 AND 1 APRIL 1994**

Item Description	Unit	Generic Name or Description	Therapeutic Classification or Use	WHO EDL
HYDROCORTISONE INJ 1 5ML 125 MG	PACK	Hydrocortisone	Corticosteroid for Systemic Use- Glucocorticoid	Yes
CEREBROLYZIN 1 ML N10	PACK	Porcine Brain Extract	Nervous System Disorders	No
HALAZOLIN 0,1% 10 ML	PACK	Xylometazalone	Decongestant	No
PHOSPHALUGEL 16 0 N20	PACK	Aluminum Phosphare Gel	Antacid Aluminum Compound	No
LEGALON DRAGEE N100	PACK	Silibinin	Liver Disorders/Mushroom poisoning	No
NO-SPA 0 04 N100	PACK	Drotaverine	Antispasmodic Drug	No
SEDACORON N50 TAB 200MG	PACK	Amiodarone	Cardiac Antiarrhythmic	No
CAVINTON TAB 5MG N50	PACK	Vinpocetine	Cerebrovascular Disorders	No
CEREBROLYZIN 5 ML N10	PACK	Porcine Brain Extract	Nervous System Disorders	No
HALIDOR 0 1 N50	PACK	Bencyclane Fumarate	Cerebrovascular Drug-Vasodilator	No
BUCARBAN 0 5 N50	PACK	Carbutamide	Antidiabetic Agent-Sulfonamide	No
REOPIRIN 0 25 N20	PACK	Analog of Phenylbutazone	Antiinflammatory/Antirheumatic	No
VISCEN 0 50 N30	PACK	Pindolol	Cardiovascular Drug-Beta Blocker	No
TRIGAN N100	PACK	Dipyron	Analgesic	No
INS MONOTARD MC	VIAL	Insulin Zinc Suspension (Porcine, monocor	Insulin-Intermediate Acting	Yes
SEDUXEN INJ 10MG 2ML N5	PACK	Diazepam	Sedative/Hypnotic Benzodiazepine	Yes

* These 16 products represent 50% of the value of imported drugs purchased by Pharmacia from 1 Oct 93 to 1 April 94

143

**TOP 57* DOMESTIC DRUG PRODUCTS (BY VALUE) PURCHASED BY PHARMACIA
BETWEEN 1 OCTOBER 1993 AND 1 APRIL 1994**

Item Description	Generic Name or Description	Therapeutic Classification or Use	WHO EDL
RIBOXIN 0,2 N50	Inosine	Cardiovascular, liver, skin disorders, anemias	No
LINCAMYCIN 30% 1 0 N10	Lincomycin	Antibiotic for Systemic Use Carbohydrate Antibiotic	No
OXACILLIN 0,25 N20 TABL	Oxacillin	Antibiotic for Systemic Use Penicillinase Resistant Penicillin	No
AMPICILLIN 0 25	Ampicillin	Antibiotic for Systemic Use Broad Spectrum Penicillin	Yes
HIPPOPHEAE OLEUM 100 ML	Plant Extract	Burns, various topical uses	No
NOVOCAIN 0 5% 5 0 N10	Procaine	Anesthetic Local	No
ASELLI JECORIS OLEUM 90 0	Cod Liver Oil	Source of Vitamins A and D	No
GLUCOSE 5% SOL INJ 400 ML	Dextrose	Plasma Substitute IV Solution	Yes
MONOCHLORAMIN S NDS KG	Monochloramin	Antiseptic	No
ATF 1% N10	Acid adreno-triphosphate	Muscular dystrophy, tachycardia	No
AMPIOX 0 2	Ampicillin/Oxacillin	Antibiotic for Systemic Use Broad Spectrum Penicillin	No
ASCORUTIN N50	Ascorbic Acid/Menadiol Sodium/Sulmann/Rutin	Hemorrhagic Disorders	No
CLOPHELINE 0 000075 N200	Clonidine	Antihypertensive	No
IOD CRISTAL	Iodine	Dermatological drug	Yes
CORVALOL 15ML	Corvalolum	Sedative	No
OXYTOCIN INJ 5 1ML	Oxytocin	Systemic Hormonal Preparation	Yes
OXACILLIN NATRIUM 0 25	Oxacillin	Antibiotic for Systemic Use Penicillinase Resistant Penicillin	No
GLUTAMEVIT TABL N30	Vitamin, Multiple	Vitamin or Mineral Supplement	No
NITROGRANULONG 0 0052 N50	Nitroglycerine	Antianginal	Yes
VIT B6 5% 2 0 N10	Pyridoxine	Vitamin or Mineral Supplement	Yes
NOVOCAIN KG	Procaine	Anesthetic Local	No
POTASSIUM PERMANGANATE WITH NDS	Potassium Permanganate	Anti infective	No
PROMEDOL 2% 1 0 SHPR TUB	Trimeperidine	Analgesic	No
REVIT N100	Vitamin A, B1, B2, C	Vitamin or Mineral Supplement	No
GLUGICIR SOL 50 ML	Glucicirum Solution	Unknown	No
OLETETRIN 0 125 N25 TB	Oleandomycin/Tetracycline	Antibiotic for Systemic Use Macrolide and Tetracycline	No
CALCIUM HYPOCHLORITE KG	Calcium Hypochlorite	Disinfectant/antiseptic	No
CALENDULA OFFICINALIS LOSION 100 0	Calendulae Loto	Antiseptic	No
GLUCOSE KG	Dextrose	IV Solution	Yes
KANAMYCIN SULPH 1 0 WITH NOVOCAIN	Kanamycin/Procaine	Antibiotic for Systemic Use Aminoglycoside	No
METHACYCLINUM HYDROCHL 0 15 N16	Methacycline	Antibiotic for Systemic Use Tetracycline	No
HEMODEZ SOL INJ 200 ML	Dextran 60	Plasma Substitute Blood Related Product	Yes
LEVOMYCETIN 0 25 N10	Chloramphenicol	Antibiotic for Systemic Use Amphenicol	Yes
VIT C 0 025 N100	Ascorbic Acid	Vitamin	Yes
KANAMYCIN SULPH 0 5 WITH NOVOCAIN	Kanamycin/Procaine	Antibiotic for Systemic Use Aminoglycoside	No
NOVOCAIN 0 5% 10 0 N10	Procaine	Anesthetic Local	No
MONOCHLORAMIN S NDS	Monochloramin	Antiseptic	No
CITRAMON N6	Acetyl Salicylic Acid, Caffeine, Phenacetin, Citric Acid	analgesic, antiinflammatory antipyretic	No
ANALGIN 50% 2 0 N10	Metamizole or Dipyron	analgesic, antiinflammatory, antipyretic	No
SODIUM CHLORIDE 0 9% 5 0 N10	Sodium Chloride	IV Solution	Yes
MENOVAZIN 40 ML	menthol, procaine, anestizine	Neuralgia	No
DOXYCYCLINE 0 05 CAPS N10	Doxycycline	Antibiotic for Systemic Use Tetracycline	Yes
VIT C DRAGEE N200	Ascorbic Acid	Vitamin	Yes
ANALGIN 50% 1 0N10	Metamizole or Dipyron	Analgesic, antiinflammatory, antipyretic	No
PILOCARPINE HCL 1% 1 5ML N5	Pilocarpine	Ophthalmic Parasympathomimetic	Yes
PENICILLIN K 1 0	Penicillin	Antibiotic for systemic Use Penicillin	Yes
MYDOCALM DR 30 50MG	Tolpersone HCl	Muscle relaxant	No
NYSTATIN 0 5 N20 TABL	Nystatin	Antiffective	Yes
NOVOCAINE 0 5% 5 0 N10	Procaine	Anesthetic Local	No
CALENDULA OFFICINALIS TINCTURA 40 0	Calendulae Tincture	Topical antiseptic, antiinflammatory/ internally as bile expellent	No
ANALGIN 50% 1 0 N10	Metamizole or Dipyron	Analgesic, antiinflammatory, antipyretic	No
GINSING TINCTURA 40 0	Tincture of Ginseng	Sedative/stimulent	No
REVIT N100	Vitamin A, B1, B2, C	Vitamin or Mineral Supplement	No
CRATAEGI FRUCTUS KG	Crataegi Fructus	Tea heart disease, angina, arrhythmia tachycardia, hypertension	No
FORMIC ALCOHOL 50ML	Formic Alcohol	Unknown	No
LEONURI TINCTURA 15 0	Leonun Tincture	Sedative antihypertensive	No
METHOTREXATE 1ML 10MG N10	Methotrexate	Oncological drug	Yes

These 57 products represent 50% of the value of domestic drugs purchased by Pharmacia from 1 Oct 93 to 1 April 94

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XII QUALITY CONTROL TESTING AND INSPECTIONS

Drug products used in Ryazan Oblast are tested for quality in the following places

- the Russian MOH Department for Drug Quality Control
- Ryazan Oblast Quality Control Laboratory (Pharmcontrol)
- Individual pharmacies where drugs are compounded

In the past, the Oblast Quality Control Laboratory did not report to the Russian MOH Department for Drug Quality Control, however, MOH Order #53, issued in March, 1994, subordinated all oblast laboratories to the federal laboratory Pharmcontrol now reports both to the federal laboratory and the Ryazan Pharmaceutical Committee

The MOH Department for Quality Control informs all Russian oblasts concerning *producers* for which all drugs should be sent to the Federal Quality Control Laboratory for testing

Testing is required for all pharmaceutical products procured for the public health system which are listed in a MOH special order. Examples include all drugs in the following categories: eye drops, pediatric drugs, injections, ferments, and cardiac glycosides. Private sector suppliers must submit all drugs from the list to Pharmcontrol for testing. This is enforced by the Pharmaceutical Committee, who now suspect non-compliance with the requirement.

MOH Order #53 also states that public health facilities must notify the Pharmaceutical Committee when they intend to buy drugs from private sector suppliers. There is not an established system of penalizing pharmacies that violate the order.

Two to three years ago, Pharmcontrol began to receive increasing numbers of imported drugs for which testing methods were not readily available. Testing methods are available for all drugs produced in Russia, but methods are not necessarily the same as those used in other countries.

Testing is done using refractometry, potentiometry (PH meter), spectrophotometry, polarimetry, thin-layer chromatography and volumetric methods. The laboratory is equipped with a functioning, vented exhaust hood. High Pressure Liquid Chromatography (HPLC) is not used.

The laboratory is responsible for testing raw materials, compounded drugs and manufactured drugs. In 1993, 8,031 tests were performed.

Product Tested	Number of Tests Performed in 1993
Compounded in Pharmacies	6,074
Manufactured Drugs	567
Locally Produced Drugs	693
Distilled Water	544
Bacterial Analysis	25
Raw Materials	25
Retests	36
Tests for Private Enterprises	67

The majority (76%) of the of the tests in 1993 were done on compounded products, and were performed on-site in pharmacies, using the pharmacies' own equipment. This in-pharmacy testing is referred to as the "rapid method of testing for compounded drugs," in which a small amount of finished product is tested using volumetric procedures that cause reactions that can be read quickly. Reference standards are not used in the testing process, and it is uncertain how sensitive these local tests are, by western pharmacopeial standards.

An example of the testing procedure for oral solids in Pharmcontrol follows:

- 1 Obtain monograph for drug to be tested in the USSR Pharmacopeia. Each monograph has a section on "identity."
 - 2 Inspect drug visually.
 - 3 Weigh tablet.
 - 4 Perform dissolution test.
 - 5 Grind tablet.
 - 6 Weigh powder from ground tablet.
 - 7 Perform all tests stated in monograph.
- * Identity of all ingredients, including excipients
 - * Potency
 - * Presence of impurities defined in the pharmacopeia monograph

Complete testing of one drug requires an average of one hour of staff time, and 10-15 ml of reagents are required to test for identity and potency. These resource requirements are comparable to those required for the modified thin layer chromatography procedure developed by the U.S. Food and Drug Administration. The accuracy of methods used in Ryazan were not determined during the assessment.

The "volumetric" procedure is used most often to test for identity and potency, and does not require use of reference standards. Specific reagents are added to a solution containing the drug being tested, and color changes in the solution are observed. Identity and potency are determined by observing the amount of reagent needed to cause color changes, and by comparing the observed color change with a standard.

Upon request, the Pharmacopoeial Committee in Moscow sends procedures for testing new drugs to the Ryazan Quality Control Lab.

Random sampling is done for manufactured drugs, with sample size calculated using a formula developed by the MOH, as follows:

1. The number of containers to open is $0.4 \times \sqrt{N}$, with N being the total number of containers.
2. The number of boxes to open is $0.4 \times \sqrt{N}$, with N being the number of boxes per container.
3. The number of bottles to test is $0.4 \times \sqrt{N}$, with N being the number of bottles per box.

Quality problems have not been found to date with imported drugs. However, given the lack of access to international pharmacopoeial methods and reference standards, it is not clear that problems would always be identified.

With the issuance of MOH Order # 53, no domestic or foreign companies may receive testing exemptions.

When problems are detected, the manufacturer is notified. In Ryazan, a company has never been eliminated as a potential supplier based on drug quality testing. There have been only two recent reports of problems with drug quality- one involving the separation of components of an antacid suspension, and the other concerning the quality of a topical plaster product. There is no suspicion of counterfeit products by the Pharmaceutical Committee. There is concern that the lack of adequate refrigerated drug storage space throughout the drug distribution chain is causing deterioration of some products.

The Quality Control Lab is not permitted to extend expiration dates based on testing results.

According to the Pharmaceutical Committee, the biggest problems in the drug product testing system are:

- Suspected lack of compliance with testing requirements by the growing number of private sector drug wholesale companies.
- Outdated equipment in the quality control laboratory.
- Delays in receiving reagents from the supplier in Moscow,

- High procurement prices of reagents from Moscow,
- Lack of funds- 50% of the laboratory budget is expected to come from revenues generated from private sector testing, however, very little private sector testing is actually done The remainder of the budget comes from the oblast,
- Transportation to perform inspections/tests,
- The laboratory is currently housed in a very old, physically inadequate building, and
- Lack of oblast drug quality standards

Pharmaceutical Sector Inspections

In Ryazan Oblast, Pharmaceutical services are monitored through inspections conducted by the Pharmaceutical Committee, and Pharmcontrol Inspections are conducted by nine inspectors from Pharmcontrol, and six from the Pharmaceutical Committee

From November 1993 through June 1994, the Pharmaceutical Committee carried out a total of 207 inspections, including inspections of all 186 existing and 21 newly opened pharmacies, resulting in 68 licenses being issued to legal entities, and 141 branch locations In 1993, Pharmcontrol made 40 inspections

Two distinct types of inspection visits are conducted, complex, and problem oriented

In complex Inspections, the following areas are addressed

- organization of facility
- procurement procedures
- presence of quality certificates for drugs
- current stock levels of drugs
- system of supplying hospitals (at Central Rayon Pharmacy)
- prices/mark-ups
- compliance to laws regarding drug schedules
- presence of required reserve stocks of drugs for certain exempt groups
- handling of narcotic drugs
- drug storage
- cleanliness
- facility and staff licensure
- internal quality control procedures

A complex inspection at a large facility can be completed by two or three inspectors in three days Smaller facilities require one to two days In facilities that stock and dispense narcotics, a representative of the Joint Commission on Narcotics participates in the inspections

Problem oriented inspections are conducted,

- as a follow-up to complex inspections, to ensure that problems have been addressed,
- in response to complaints received about a particular facility,
- to ensure that drug recall procedures have been followed,
- for narcotic related problems, and
- to audit the use of funds allocated by Oblast Administration for special programs

Constraints to the monitoring process include lack of transportation, lack of clearly defined standards as the basis for inspection, and poor enforcement mechanisms in cases where problems are identified

A monitoring schedule has been set up so that each of the oblast's 183 public sector main pharmacies receives a complex inspection every two years (92 inspections per year) Main pharmacy staff are responsible for regular inspection of their own branches At the time of a main pharmacy inspection, the Pharmaceutical Committee and Pharmcontrol visit 30% of branches, chosen randomly A main pharmacy inspection together with the branch visits constitute one inspection visit

An inspection checklist exists, but is in need of revision according to the Pharmaceutical Committee Narrative reports are written after each inspection, and a copy is sent to the inspected pharmacy The Pharmaceutical Committee compiles quarterly summary reports for Oblast Administration, and for pharmacies upon request No reporting to the MOH is required

Quarterly workshops of the Joint Commission on Narcotics, attended by representatives of Oblast Administration, Oblast Administration Health Department, the Pharmaceutical Committee, the Department of Internal Affairs, the Narcotic Rehabilitation Center, the Department of Education, and the Youth Committee, are held in the oblast to discuss narcotic issues

A Areas of Concern Related to Quality Control

- The Oblast Quality Control Laboratory does not have testing procedures for many new imported drugs being introduced in the oblast There is no access to USP or other international texts on methodology, or access to reference standards It is also unclear whether available equipment is sufficient to carry out test specified in USP and other international pharmacopeias
- There may be non-compliance with submission of samples for quality control testing by private sector wholesale companies
- Staff are not trained in testing methods specified in international pharmacopeias

- Access to standard reagents and reference standards is limited
- Given the lack of revenue generated, it is uncertain how the laboratory can be upgraded, without substantial support from Oblast Administration
- A number of problems in the inspection process have been identified, such as lack of transportation, lack of clearly defined standards, and poor enforcement mechanisms. Again, the Oblast Administration would need to substantially increase financial resources for this process in order to effect improvements

XIII DRUG INFORMATION

Drug information of several types are available in Ryazan oblast, including information on new products and forms of therapy, availability information, and resources for the education of physicians and pharmacists

Several organizations are involved in providing drug information, including Pharmacia, the Ryazan Oblast Scientific Medical Library, the Central Resource Bureau (CRB), the University Medical Library, the Pharmaceutical Committee, and oblast hospitals

A Pharmacia

The provisor informant, within the Pharmacia Trade Department, is responsible for drug information services. Until 1993, when restructuring occurred, a Division of Drug Information existed. Current activities of the provisor informant include collecting, cataloguing and providing information. Drug information services are used by Pharmacia staff, the Central Recourse Bureau, and community pharmacies.

Materials

Since 1992, funding to purchase new drug information has been minimal. Information resources available include

- "prospects", referring to material produced by manufacturers about their products, in the U S , prospects would be equivalent to written labelling for products. It appeared that most prospects were provided by representatives of foreign firms. In Ryazan Oblast, representatives of foreign firms visit or communicate with Oblast Administration, the Oblast Administration Health Department, Pharmacia, the Pharmaceutical Committee, the hospitals and community pharmacies on a regular basis.
- bulletins, produced by the Rospharmacia information division. These are collated by year and filed appropriately. No bulletins have been received since 1993.
- publications, distributed free of charge, by the information bureau of the Russian MOH, such as the monthly published *Methodological Recommendations on Preparation, Analysis and Use of Drug Preparations*. In the past, Pharmacia received enough copies of such publications to provide one to every oblast community pharmacy. In this publication, one therapeutic category was featured monthly, with a review of agents used for certain disease states. This was last provided three years ago.
- *Pharmaceutical Agents* (Mashkovsky Moscow, 1993, 2 volumes)
- A subscription to *New Drug Preparations Express- Information* prepared by the MOH from 1991 and earlier.

- subscriptions to various medical journals
- *Pharmaceutical Preparations of Foreign Firms in Russia* (1993 Moscow, published by Astrapharmservice), a text containing information on drug products imported by Russia. This is the first edition of this book, which is highly regarded by the provisor informant at Pharmacia. The following information is included
 - * name of pharmaceutical firm, address in Moscow, telephone number, fax number, and information (labelling) about all products registered in Russia, listed by trade name
 - * the indices include a list of drugs by manufacturer, their international name, the registration number of the drug, or designation that the drug is under review for registration, and page number where the information can be found on the particular drug
- *Register of Pharmaceutical Agents of Russia*, (published by Inpharmchem, 1993 in Moscow), a text containing information on all Russian drug preparations, and some foreign drugs. This is also a highly regarded, but expensive (\$54.95) first edition. The book indexes drugs by manufacturer, therapeutic category, and trade name. This text is considered a good complement to the reference on foreign drugs in Russia.

Information is catalogued manually. The backbone of the system is a card file, where drugs are listed by trade names. Citations on cards may be, synonyms (trade names and country of origin of all other like generic entities), prospect numbers, Rospharmacia bulletin numbers with publication year, MOH publication number and year, or textbook reference. Citations are separated if different indications exist. As new information is received, the card file is updated and new materials are added to the archive.

Other informants, and reference libraries, have similar card files. The Central Reference Bureau, described in detail below, also has card files, concentrating on new drugs, drugs which have been discontinued by manufacturers, lists of synonyms, and lists of analogs.

Pharmacia also subscribes to a service, offered by Rospharmacia, for receiving information on drugs registered in Russia on diskette. Information provided includes drug name, code, country of origin, manufacturer, date of registration, registration number and pharmacological category for domestic and foreign products. Updates are received once a year. From the diskette, drug lists are produced for use by Pharmacia staff, organized by drug name, or country of origin. The information is used for ordering purposes.

Services

Prior to 1990, when new drugs became available through the MOH, Pharmacia, together with the Oblast Administration Health Department, were responsible for allocating limited quantities to appropriate health facilities, for introduction into the public health system. Although these drugs were already registered, there was a practice of having physicians report conclusions about the relative effectiveness of the drug, observed adverse reactions, and side effects, after three months use. This information was forwarded to Rospharmacia in Moscow, where specialists would discuss results and determine if, and how much of, the drug should be ordered for the next year.

Previously, basic information about every new drug, where it was available and reports about effectiveness, were published by Pharmacia, and distributed to pharmacists and physicians.

Prior to 1991, a three to five minute telephone message was recorded for all new drugs received by Pharmacia. All medical workers had access to this telephone number. Each recording was available for 3 to 4 days.

Until 1991, Pharmacia published a monthly booklet, provided to pharmacies, about the availability of drugs at Pharmacia. A complete list of drugs was published annually, with monthly updates. The booklet also identified slow-moving drugs, analogs, and gave full pharmacological information for new drugs.

Most of these former services and systems for information distribution no longer exist.

Now, every three months, an "Information Day on Drugs" is organized for physicians by Pharmacia at the Ryazan Oblast Scientific Medical Library, or at one of the hospitals. Professionals from Pharmacia, the Ryazan Medical University, clinicians and specialists present a literature review of a category of drugs, review chemical characteristics and clinical pharmacology of the drugs, and discuss concerns about new drugs. When drug products are available, the physicians have the opportunity to examine packaging and labelling.

Occasionally, drug manufacturer representatives attend these meetings to present information about their products. Recently, a representative from Eli Lilly made a presentation on human and animal source insulins. The program for the next session will address new anti-ulcerative preparations, such as the foreign drugs omeprazole (Prilosec) and nizatidine (Axid), with a journal review and presentations about domestic products.

Pharmacists do not attend these sessions in significant numbers. Largely because of the expense of subscribing to medical periodicals, facility department heads or other designated physicians always attend these sessions, which are held at no cost to participants. Physicians are responsible for returning to their respective facilities and sharing the information with their staff.

Pharmacia has contact with oblast medical specialty associations, with whom there is two-way information sharing regarding new drugs, their effectiveness, and side effects. This information is compiled quarterly and remains on file in the library.

B Ryazan Oblast Scientific Medical Library

This library was founded in 1943 to provide current medical information to all medical workers and students. Any person may use the library, after providing some form of identification, such as a passport. There is no formal relationship between the Ryazan Oblast Scientific Library, and the university library, described separately. The university medical library has more theoretical references, selected mostly for teaching, and the scientific library is for practitioners. The library occupies two floors of a building it has occupied since 1977. The first floor houses the stacks of books, the most recent periodicals of foreign and domestic literature, and the card catalog. The second floor houses older periodicals, a conference/reading room, the automation center, bibliographic department, circulation department, and a meeting room. Approximately 30-40 visitors come to the library daily, although this number may rise to 60 in the winter. In addition to the main library, there are 20 branches at oblast hospitals.

The library is fully funded by the Oblast Administration. Cost recovery is limited to late fees, photocopying, and book sales. Staff includes 25 workers in the main library, and 45 workers in the satellites. In 1993, the library received 180 million rubles from the oblast. Of that amount, a maximum of 30-40 million rubles was to be spent on new literature. The budget for 1994 is 235 million rubles.

The library does not pay rent, since the building belongs to Oblast Administration.

The lobby of the library contains displays of new drugs. This consists of empty drug packages of new drugs, with drug labelling attached. The information generally is in Russian, with occasional foreign language inserts. The packages are supplied by Pharmacia. This display is well-liked by physicians. The other side of the lobby is used for public service announcements, and other news. During the assessment, the display contained information on "May 31, a Day Without Smoking."

The card catalog file is located in a separate room. Files are organized by subject matter and author, and cover 160,000 titles. Only 4,000 are available to be checked out. The reader fills out a request form and has the worker locate the book, or photocopy the information for personal use.

The check-out room contains a display of current year domestic and foreign periodicals. Current funding is only sufficient to order subscriptions for domestic journals. Currently, 140 titles are received monthly. Various titles were seen from 1994, including

- *Physician 1994*, a monthly, and the most popular journal with physicians (Jan 94),
- *Experimental and Clinical Pharmacology*, a monthly journal (Feb 94),
- *Health Services in Belarus* (Apr 94),
- information from the MoH, and
- journals of various physician specialty societies, such as the *Journal of Pediatrics*

Foreign journals were less numerous or current. An Italian journal, *Annali Italiani DI*, Vol 9, Mar 94, No 1, was printed in Italian and English, with abstracts in Russian. All other foreign journals were translated into Russian. Titles included

- *Medical Market*, No 12, 1993,
- *Sandoz Review* (Feb 93),
- *MSD Lipid File Quarterly*,
- *Medipress*, Vol 8, No 2, 1992, and
- *Journal of the American Medical Association (JAMA)* (Jan 93)

The JAMA translation, which is very popular, is done by The Central Medical Library in Moscow and published quarterly.

The two most popular reference books are *Pharmaceutical Agents* (Mashkovsky, two-volume set, 1993), and *Clinical Pharmacology* (D R Lawrence (UK), sixth edition, 1987, translated into Russian, 1991 edition)

The circulation department is responsible for ordering journals, subscriptions, and textbooks. Recently the library began to order economic journals on subscription. The operations department stamps books with identification of the library and prints cards for the card catalog file on computer. There are two computers at the facility, both "286" machines with 40 megabyte hard disk drives.

One computer appears to be devoted to a project in which staff of the Radiotechnical Academy are developing a FoxPro based drug bibliographic program. Drugs referenced in the program are those registered in Russia. Fields of inquiry include, drug trade name, generic name.

pharmacological category, dosage form, manufacturer, registration number and indication. At various levels it is possible to access additional brief information, and to print.

The Automation Department, staffed by a computer specialist, has existed for less than two years. The department is working toward replacing the manual card file with a computerized system that allows for cross-referencing information by author, subject matter and therapeutic category.

Long-range plans include an Internet connection, and computer links between all hospitals and satellite libraries and the main library. The estimated time-line for implementation of this computer network is 10-15 years, limited only by technology and money.

The conference hall, which holds up to 120 persons, is used frequently. Pharmacia holds quarterly meetings for 70-80 persons in the hall, and medical specialty associations hold monthly meetings. Activities include literature reviews, viewing videos and new films, and discussion of new problems. The conference hall is also the repository for promotional materials from various manufacturers, primarily foreign. Multiple copies are available, so visitors are permitted to take copies. Materials from as early as 1991 were seen, such as an article reprint on Sumatriptan from *European Neurology*, dated 5/31/91.

The Bibliographic Department has several functions. One copy of new materials is kept in this department for the first three months in-house. They received *Index Medicus* until 1974, no more recent copies were in evidence. Other references kept in the department are

- *Foreign Drugs in Russia,*
- *Pharmaceutical Agents* (M D Mashkovsky),
- *Registered Drugs in Russian* (ed Y F Krylov)
- *Physician's Desk Reference* 1990,
- *USSR Pharmacopeia*

This department orders a number of subscriptions, and photocopies the table of contents from several foreign journals, such as the *Annals of Internal Medicine*. The librarian and bibliographic specialist indicated that for most physicians, the materials they receive in Russian are perceived to be sufficient. Physicians who are proficient in foreign languages, however, do not find the resources sufficient. This bibliographic service is particularly helpful for them, since they can review the table of contents and request articles of interest from the Central Medical Library in Moscow, in the original language or translated into Russian. There is no fee to the library for this service. The library does, however, charge for photocopying.

One subscription is to *New Books from Beyond the Border*, a monthly publication that reviews all new foreign books, including medical books. It is published by the Russian Institute of Higher Education. Books can be requested from the Central Medical Library in Moscow, on loan basis, or purchased.

The library participates in an inter-library loan program with its satellites, libraries from other oblasts, and the Central Medical Library in Moscow. Including titles at satellite libraries, the number of titles in the Ryazan Oblast Scientific Medical Library system is 400,000. Since hospital physicians frequently collect information on their own, some of the satellites have very good references. Photocopying is available only at the central library.

No staff members are proficient in English, although English-speaking physicians visiting the library provide assistance when necessary. The library hopes to add an English-speaking staff member in the future. There is no drug information pharmacist on staff.

Some new books are also received through humanitarian sources.

The library also issues its own publications. At least some of the publications are computer-generated. These include

- *New Publications, A Complete Bibliographic Reference of Literature*), published quarterly. The publications are listed by category, such as pharmacology, public health, ecology, then by medical specialty. The publication also lists all free and for-fee services, the hours of operation, address, telephone, and all satellite libraries and the Medical University Library. Each library is assigned a number, this Roman numeral is used at the end of each citation to indicate where the publication has been received.
- *New Foreign Books Received in the Library*, published quarterly. The publications are listed by category, then alphabetically by author. The references are given first in the original language then translated into Russian.
- *New Information*, a monthly (occasionally bi-monthly) listing of all domestic articles by medical specialty, such as general medicine, acupuncture, surgery, AIDS, psychiatry. This goes to all hospitals by no-cost subscription.
- *Recommended list of articles from foreign journals received in the library*. This is not necessarily a complete list of articles or journals. To some extent the bibliographic specialist, who has some medical background, screens the entries.
- *Recommended list of articles taken from photocopies of main foreign journals*. This is also not an all-inclusive list, however, it gives the name in the original language and then in Russian translation. The attached copy was No. 1, 1993 and contained articles from *JAMA*, *Annals of Internal Medicine*, *New England Journal of Medicine*, from 1992.

C Central Resource Bureau

The Central Resource Bureau is a drug information center located on the premises of Ryazan Pharmacy #137. The center was initially organized as the Department of Service Information for the pharmacy in 1974. The CRB is staffed by four full-time pharmacists, one of whom is responsible for obtaining drug availability information from pharmacies. Currently, one pharmacist is on leave. The CRB provides information six days a week, it is closed on Sunday. Replacement of pharmacist by pharmacy technicians was considered in the past, but not implemented because staff are asked to supply clinical drug information.

The CRB is a department of Pharmacy #137, although operational expenses are funded by the Oblast Administration. The equipment at its disposal includes two telephones with direct lines to pharmacies, three regular telephones for city numbers, and 20 direct lines to six pharmacies and Pharmacia. Direct line connections were only made because the logistics of hooking up direct lines was feasible. There is also a telephone outside the CRB for use by patients on the premises. There did not appear to be any face-to-face contact with patients or other health professionals. Lack of funds have prevented the CRB from purchasing and using computer in its operation.

Although its function was intended to be that of a "drug information center," in practice, most information provided by the CRB primarily concerns **availability** of drugs. Other information provided is drug-specific, such as indications, side effects, and, occasionally, cost. The CRB answers 300 to 400 questions per day. Statistical information is gathered about total number of and source of questions. Data is not collected on types of questions asked, and estimates of the proportion of non-availability questions ranged from 5% to 30% (from 15 to 120 questions daily). Often, drug information is requested only after availability is determined. Previously, Pharmacia compiled a limited list of drugs used for the most common conditions seen in the oblast, and regulated what information was given for those drugs.

Availability information includes the location of a particular drug in the oblast and the dosage form of the drug in stock. Previously, pharmacists could also quote drug prices, but since all pharmacies set their own prices this is done only in exceptional cases. If the drug is in stock at pharmacy No. 137 the CRB pharmacists may refer the question to the appropriate department in the pharmacy by transferring the call to that department. If the question of availability cannot be answered by the CRB pharmacists or the staff of the pharmacy, or the drug cannot be located the question is then referred to the Pharmaceutical Committee. The table below describes the data collected about the number of calls received by the CRB. The data had not yet been compiled for the fourth quarter of 1993, but the staff felt that the number of calls had increased.

Type of Caller	Third Quarter 1993	% of Total	Second Quarter 1993	First Quarter 1993
Physician	869	0.5		
Pharmacy	61,225	36.3		
Patient	106,650	63.2		
TOTAL	168,754		150,030	146,400

Drug information available consists of a file system and textbook references. The CRB records certain information on index cards and files them in categories, such as new drugs, short descriptions of the therapeutics of new drugs, synonyms, analogs, domestic drugs no longer available, and drugs no longer produced by foreign manufacturers.

Other references include

- *Pharmaceutical Agents*, Volumes I and II (Mashkovsky, 1987)
- *Foreign Drugs in Russia*, 1993
- *Registered Drugs in Russia*, 1993
- *Reference Book for Drugs* (1993, Moscow, Ed. Kluyev, MA)
- *Reference Book of Synonyms*, (1991, Moscow, Lepakhin and G. V. Shashkova, SoyuzPharmacia)

Pharmacies have a weekly, scheduled time to call the CRB, to report which drugs they have in stock. The current list is comprised of some 750 most commonly used drug names. When the system was implemented, each pharmacy reported stock status for the entire list. Now, pharmacies only report those items in stock, and the dosage forms available. The letter "t" is entered in the appropriate column if a tablet is available, "a" for ampule, or "m" for malo (very little). Information is recorded in two notebooks, the pharmacies are grouped by rayon, so that if a patient calls about availability, the closest pharmacy stocking the drug can be recommended. Pharmacies are asked to call the CRB when stock of a particular drug is about to be depleted. All 47 public-sector pharmacies in Ryazan city participate, and one private pharmacy (Spray). All oblast pharmacies can participate if desired.

On the request of Oblast Administration, in October, 1993, the Pharmaceutical Committee studied three options for restructuring the CRB

- 1 Remain a department of Pharmacy #137, with the oblast providing funding for operational expenses. This is the current situation
- 2 Become part of the Pharmaceutical Committee, with funding provided by the oblast
- 3 Become an self-sustaining independent organization, not affiliated with Pharmacy #137, or the Pharmaceutical Committee

Based on study findings, the Pharmaceutical Committee has recommended that the CRB become part of the Pharmaceutical Committee (Option 2). Operating expenses would be minimized with this option because of preferential rates for utility expenses

D Ryazan Medical University Library

The library at Ryazan Medical University opened in 1950. At present, it is located in a new building, and has a capacity to serve 400-450 readers daily. The staff includes 29 librarians

The catalog of books kept at the library is designed to cover the university curriculum, and scientific research activities of professors and scholars. It contains of 457,177 volumes, including more than 158,000 student manuals

The library subscribes to 286 periodicals, including 108 medical journals. Among them are

- *Pharmacia*
- *Pharmaceutical Journal*
- *Antibiotics*
- *Experimental and Clinical Pharmacology*
- *Chemical-Pharmaceutical Journal*
- *Pharmacology and Toxicology*

Drug information reference books available for medical specialists of the university, and oblast medical practitioners include

- *Registered Drugs in Russia* (ed Y F Krylov, 1993)
- *Drugs of Foreign Producers in Russia* (reference, 1993)
- *Drugs Manual on Pharmacotherapy for Physicians* (M D Mashkovsky, 1993)
- *Drugs Properties, Usage, Contraindications* (ed M A Kluev, 1993)

The Ryazan Medical University faculty have produced several widely used sources of drug information, including

- *Modern Drugs* (V G Makarova, E A Stroev, E N Yakusheva, 1993)
- *Modern Drugs Part Two Antibiotics* (V G Makarova, M V Semenchenko, E N Yakusheva, 1994)
- *Phytotherapy and Phytotoxicology* (V G Makarova, G B Artemiev, 1994)
- *Drugs Excluded from the State Register (1983 - 1990)* (V G Makarova, et al, 1993)

The library also carries journals produced by Russian Institute of Scientific and Technical Information (VINITI), and the Scientific Research Association (SOYUZMEDINFORM), including

- *Pharmacology and Toxicology*
- *Biochemistry*
- *Biology Section Medicinal Herbs*
- *Pharmacia*
- *Novelties in Pharmacia*
- *New Drugs*
- *Adverse Drug Effects*
- *Pharmacology and Pharmacia*

Basic manuals for medical and pharmacy students are

- *Pharmacology Manual* (D A Kharkevich, 1993)
- *Drugs Manual on Pharmacotherapy for Physicians* (M D Mashkovsky, 1993)
- *State Pharmacopeia of USSR*, (1990)
- *Clinical Pharmacology* (D Lawrence, P Venmit, 1991)
- *Clinical Pharmacology* (ed V G Kukess, 1991)
- *Reference Book on Clinical Pharmacology and Pharmacotherapy* (ed I S Chekman, 1991)

The library maintains three types of manual card catalogues author, title, and subject. The subject card catalog system latter allows readers to retrieve information on chosen subjects obtained by the library since 1976

In 1991, the library began work on computerized catalogues, but the program is not yet operational

Library staff assist university scholars in research work through various methods of information dissemination

- The library conducts a monthly "day of information and exhibits on new arrivals of books", attended by faculty and students. Attendees are provided with cards listing new books on specific subjects
- Meetings are regularly held for specialists, in the form of "specialist days", or "department days"
- The Department of Bibliography and Information of the library issues information bulletins and recommended books on specific medical problems, organized by university department
- The university library participates in inter-library exchanges of materials, with other prominent Russian libraries

A list of all books pertaining to pharmaceuticals available in the library is found in Annex Twelve

E Oblast Hospital

The Oblast Hospital has a Drug Information Room, located in the pharmacy department, for use by hospital personnel. The room is staffed by a full-time pharmacist.

Reference books in the room included

- *Drug of Foreign Producers in Russia*, (1993)
- *Pharmaceutical Agents*, Volumes I and II (Mashkovsky, 1984)
- *Reference Book of Modern Drugs*, (V G Makarova, 1993)
- *Japanese Drugs Registered in Russia*, (1993)
- *State Pharmacopeia of the USSR*, Volumes I and II, (1990)

Other reference include

- albums containing package inserts from both Russian and imported drugs
- a picture reference book of medicinal plants

The hospital does not have a budget specifically for purchase of reference materials, but the hospital funds the purchase of reference materials for its library and Drug Information Room

In addition to the Drug Information Room, information is disseminated in meetings, and in written form by a newsletter. This newsletter informs staff of the availability of drugs, including receipt of new products. Clinical information such as indications, contraindications, drug interactions, pharmacology, and dosages are also included.

Two regularly scheduled meetings ("mini-conferences") are held weekly, in which drug availability information is disseminated, one is attended by nursing and pharmacy staff, and the other is attended by physicians and pharmacy staff. Regular agenda items at both meetings related to drugs include distribution within the hospital, availability, and new regulations. Clinical issues are not discussed at these meetings.

Ad hoc meetings are also held to present clinical information on new drugs received by the hospital. Information is presented by the deputy director of the pharmacy or the pharmacist-informator.

Patient education

The only formal patient education program, titled "How to Live with Diabetes" is used to train diabetic patients. Other patients may receive information on an individual basis from the physician or nurse.

The patient may also review information about diseases, herbs, food and medication in the form of "mute reference" consisting of reading information written by the head of the ward, and posted on the wall in the unit.

F Industry-Sponsored Activities

In 1990-1993, drug manufacturers, including Eli Lilly, Glaxo, Boeringer Ingelheim, Zdravlye, Upjohn, Merck Scharp and Dohme, and Medimpex, sponsored workshops to present information on new drugs being marketed by their companies. An average of 250 physicians and pharmacists from the oblast participated in each workshop.

G Formulary Manuals

There is no official national formulary manual for the public health care system in Russia. At the Ryazan Oblast level, the local publication, *Modern Drugs, a Reference Book* (Makarova, et al (Ryazan, 1993), is reported by some sources as the drug reference of choice, but as evidenced by preceding sections, several other references are also widely accepted.

Much interest was expressed in the possibility of a concise drug formulary for the Ryazan Oblast hospital.

H Drug Information Specialists

In the mid-1980's, there was a training program for clinical pharmacists at the Kursk Medical Institute, in Kursk Oblast. There were 50 specialists trained, however, only eleven found work as drug information specialists at large polyclinics/hospitals. The remainder found employment as regular dispensing pharmacists, or as managers. At this time, there are seven informants in Ryazan oblast hospitals working in drug information capacity.

I Areas of Concern Related to Drug Information

- Central Resource Bureau functions primarily as a center for information on *availability* of drugs. As the oblast drug supply situation stabilizes, for emphasis can be placed on provision of clinical drug information. This facility comes the closest to the US concept of a drug information center in that it is a site where interested parties can obtain information by telephone from a specialist with access to a body of current information assembled for that purpose.
- Drug manufacturers appear to be a constant presence in the oblast, providing biased information on their products, which are often new to the Russian market, to procurement decision makers and prescribers. There is limited access to current non-commercial information on Western drugs now being introduced in Russia.
- Ryazan oblast does not have a formulary manual that provides basic information to prescribers.
- There are very limited drug information activities aimed at patients.
- Funds for procurement of new drug references and periodicals are not readily available, similarly, a decreasing level of funds are available to support communications efforts such as newsletters by libraries and drug information centers. This will aggravate the situation as more new products are introduced, but less information is available to prescribers, dispensers and consumers.
- There is limited access to Russian translations of foreign literature on any drugs, old or new.

XIV UNIVERSITY AND POST GRADUATE TRAINING IN PHARMACY AND MEDICINE

Medical schools in Russia are detached from general universities and form a unique class of schools. There are three types of medical schools:

- Medical Institutes
- Medical Universities
- Medical Academies

The differences are minimal, and all train for the same levels of competence. The Ryazan Medical University is formally a "Medical University." It ranks among the most prestigious medical schools in the country. There are five schools within the university:

- Medical
- Pharmacy
- Dentistry
- Preventive Medicine
- Continuing Education Department for Physicians and Pharmacists

The schools are made up of a total of 55 departments.

Ryazan Medical University educates foreign students, primarily in the Pharmacy School. The Department of Pharmacology, within the Pharmacy School, provides training in pharmacology for all schools of the university. In addition, this department is responsible for courses in pharmacotherapy for pharmacy students.

A Role of the Pharmacology Department

The pharmacology department teaches students the theory of pharmacology, pharmacotherapeutics, and rules of proper prescribing. The main functions and activities of the department follow:

- Recently, the department has become instrumental in provision of information on newly introduced drugs, through the production of posters, pamphlets, and publications. In 1991, the department began providing information on unknown foreign drugs donated through humanitarian assistance programs.
- The department runs a drug information center, based mainly on data files containing information provided by manufacturers. Russian and foreign standard reference works (see below) are also available.
- The faculty conducts monthly conferences on selected topics.

- Pharmacology and Pharmacotherapy professors of the Pharmacology Department participate in meeting of various medical specialty associations two to four times yearly to provide information on new drugs
- The department has a consulting role in teaching clinical pharmacology to fifth year medical students, which is taught primarily within the Department of Hospital Therapy in the Medical School
- The department is active in researching the use of herbal preparations, such as multiple ingredient teas. They are also involved in alternative treatments, such as apo-therapy (the use of honey and flower dust collected by bees) to improve the performance of athletes, and for protection of the liver from intoxications. Some of the research is done as part of a collaborative agreement with a German firm that specializes in the production of homeopathic preparations

Recent publications of the department are

- B G Makarova, E N Stroev, E H Yakusheva *Modern drugs a Reference Book*, Ryazan, 1993
- B G Makarova, G Artemieva *Phytotherapy and Phytotoxicology*, Ryazan, 1994
- B G Makarova, E N Yakusheva, M V Semenchenko *Drugs Withdrawn in the Period 1983 - 1990*, Ryazan 1993
- B G Makarova, M V Semenchenko, E H Yakusheva *Drug Interactions*, Ryazan 1994

B Curriculum for Pharmacist Students

The number of students entering the pharmacy school has decreased in recent years, from a high of 160 in the 1980s, to 45 new students in 1993. Declining enrollment has been attributed to lower student quotas, and declining financial resources given by the central administration in Moscow. University faculty numbers have decreased with student enrollment.

The five year curriculum for pharmacist students is structured as follows:

Years one and two	Basic sciences (physics, mathematics, chemistry, etc.)
Year three and four (eighteen months)	Pharmaceutical Chemistry, Technology of Drug Production in Pharmacy and Manufacturing, Organization and Management of Drug Distribution, Pharmacognosy, Biochemistry, Pharmacology, and Handling of Drugs and Medical Supplies
Year four (six months)	Advanced pharmacological sciences and Pharmacotherapeutics
Year five	Advanced study of Organization and Management of Drug Distribution, Pharmaceutical Chemistry, Technology of Drug Compounding/Bioavailability of Compounded Products, nineteen week Internship in Community Pharmacy or Pharmaceutical Manufacturer

The third and fourth year program is presented in Annex Thirteen. The curriculum covers all major categories of drugs used in medical practice. During year four, students cover homeopathy, phytotherapy, and apo-therapy. Medical students are not taught in these subjects. Complications of drug therapy and drug interactions receive one teaching session each at the Pharmacology Department, at the end of the curriculum. For medical students, these areas are covered in detail during the fifth and sixth years in the Department of Clinical Pharmacology.

The Pharmacy School curriculum is *drug based*. Lectures are organized by drug categories and explain their application in specific disease categories, as opposed to *problem based learning*, where the units of study are medical problems, with drug therapy a part of overall case management.

A variety of in-house produced training materials are used. Some include information from brochures provided by pharmaceutical companies. There are 15-20 educational movies, produced in part by the university. In 1993, the head of the Department of Pharmacology requested information on new drugs being used in Ryazan from all departments of the institute. Training now includes information on the use of those drugs.

Major reference works available and in use in the school are

- *Medicinal Drugs*, Maskovsky, Volume I and II, 1993,
- *United States Pharmacopeia, Drug Information*, Volumes I-III, Fourteenth edition, 1994 (provided by RPM)
- *Formulary of Drugs of Some Foreign Companies in Russia*, Alperovitz, Moscow Medical University, 1993,
- *Drugs in Russia*, Y F Krylov, 1993,
- *Pharmacology A Textbook for Students of Medical Institutes*, Harkevitz, 1987

The university faculty recently began producing a color coded card system of drugs in use by the various clinics. The system, which is organized by brand name, contains approximately 200 drugs and is being expanded continuously. Information contained on the cards includes prescribing recommendations, synonym brand names, and locations where the drug is in use. Generic names are listed in the synonym section. The pharmacology department is also preparing short "formularies" on selected drug categories, such as antibiotics and cardiological drugs. These publications will present concise information on all Russian and foreign drugs currently available.

All third year students (pharmacists, medical doctors, and dentists) prepare personal formularies, using a variety of data sources, such as drug company information, package inserts, and newspaper articles.

Graduates of the Pharmacy School find employment in community pharmacies, hospitals, and in quality control labs. Graduates tend to return to their home oblast. In 1994, 10 of the 50 students were from Ryazan Oblast, where it is reported that pharmacist unemployment is a problem.

C Curriculum for Medical Students

The six-year curriculum for medical students is structured as follows

Year one and two	Basic sciences (physics, mathematics, chemistry, etc), anatomy, histology, biochemistry
Year three	Basics of therapy, surgery, pharmacology, pathology, anatomy and physiology
Years four and five	Clinical subjects: therapy, surgery, gynecology, clinical pharmacology, pediatrics
Year six	Specialization (advanced studies) in therapy, surgery, obstetrics and gynecology

Following graduation, students are qualified as physician specialists

Pharmacology is taught in the third and fifth years as follows

Year three	166 hours (74 hours lecture + 92 hours practicum), provided by the Pharmacology Department
Year five	Two weeks course in clinical pharmacology, given by clinical pharmacologists of the Therapy Faculty (four hours lecture, 52 hours practical (bed-side) training) Training takes place in sessions of six hours per day

The third year pharmacology program for medical students, which is a shortened version of that presented to pharmacist students, is presented in Annex Fourteen The program of the fifth year is presented in Annex Fifteen

Practical rotations are conducted during years three through six as follows

Years three-six	hospitals
Years five-six	polyclinics

During year three, hospital experience is mainly observational During years four and five, students gain more practical experience, including supervised prescribing Prior to year six, students do not prescribe without supervision

Medical students are taught a clinical approach to drug and non-drug patient treatment, based on individual patient parameters such as age and weight, the unique course of each patient's disease, complications and coexisting conditions Polypharmacy is discouraged, and students are instructed to prescribe only according to indication Adverse drug reactions and drug-drug interactions are also studied

D Post Graduate Training of Physicians and Other Medical Personnel in the Oblast

The post-graduate specialization of physicians and other medical personnel is supervised by the Oblast Administration Health Department Practical education is conducted in medical facilities in the oblast

Training activities by the Oblast Administration Health Department consists of

- post-graduate specialization of physicians in intervals of (maximally) 5 years, the so-called 'stagerovka'
- all in-service training of nurses

Specialization sessions are conducted both at the Continuing Education Department for Physicians and Pharmacists, and at hospitals of Ryazan, in order to upgrade the knowledge of physicians in such fields as new methods of diagnosis and treatment. These sessions last 1.5-3 months per specialty.

The decision to conduct specialization training in Ryazan, another oblast, or abroad, is made on a case-by-case basis, by the appropriate head specialists of the Oblast Administration Health Department, and hospital administration.

Ryazan presently does not have sufficient funds to send all physicians to other oblasts, or abroad, for this training. Training is mostly done within the oblast.

In 1994, the Oblast Administration Health Department is planning to send 200 physicians for specialization training. As of 1 June 1994, 90 physicians have been trained. Twelve specialists were sent to hospitals in other Russian oblasts. Six specialists have been sent abroad, with funding provided by the host institution.

Nurses receive specialization training at the Medical College for Continuing Education, on the premises of Ryazan Oblast Hospital. Additionally, the faculty of this school travel to outlying rayons to conduct training locally.

In order to maintain the validity of specialization certificates, physicians and nurses take additional 1.5 to 3 month courses every five years. Pharmacists must attend courses every five years to maintain their diploma.

Every few months, a seminar on selected clinical topics is organized in the medical library. Between 30 and 100 participants typically participate. Senior lecturers, or invited lecturers from other places, present on these occasions. Pharmaceutical companies are sometimes involved. Recently a seminar was organized on the growing problem of diphtheria.

Surveys taken at the health facility level during the assessment showed that health workers feel that they need additional training in the following areas:

Health Worker	Training Needs
Pharmacists	drug supply, rational drug use and general management
Pharmacy Technicians	drug supply, rational drug use
Physicians	drug supply and rational drug use

E Areas of Concern Related to Training

- The oblast has limited funds to send physicians for specialization training outside of Ryazan Oblast
- It is unclear how well current medical and pharmacy curricula present the issue of rational drug use. The lack of access to current international scientific information on pharmaceuticals, particularly those new to the Russian market, limits the ability to train students and graduates in rational use.
- Russian physicians are apparently trained to prescribe idiosyncratically. As discussed elsewhere, the concepts of limiting prescribing to a list of formulary drugs is unknown and the use of standard treatment protocols is in its infancy. As funds for procurement become tighter, it will be necessary to focus on these issues in medical and pharmacy training, and retrain practicing providers.

ANNEXES

Annex One List of Acronyms

List of Acronyms

CRB	Central Resource Bureau
CIF	Cost, Insurance and Freight included
DAP	Drug Action Programme (WHO)
DMP	Drug Management Program
DUR	Drug Utilization Review
EDL	<i>Essential Drugs List</i>
FEFO	First Expired, First Out
FIDEM	
Federal Foreign Trade Organization for the Purchase of Drugs and Medical Supplies for Emergency Situations	
FOB	Free on Board
FTE	Full-time Equivalent
GKI	Committee on Property
GMP	Good Manufacturing Practice
HNS	Health and Nutrition Sustainability Contract
INRUD	International Network for the Rational Use of Drugs
LAC	Latin American and Caribbean Region
MOF	Ministry of Finance (Foreign Trade)
MOH	Ministry of Health
MSH	Management Sciences for Health
NIS	Newly Independent States (former Soviet Union)
RPM	Rational Pharmaceutical Management Project
USAID	United States Agency for International Development
USP	United States Pharmacopeia
WHO	World Health Organization

Annex Two Documents Reviewed

Documents Reviewed**Appendix 1 to Russian Federation Decree of December 11, 1992, #970**

Foreign Drugs in Russia Moscow ASTRAPHARM, 1993

Information on Drug Supply of Ryazan Pharmacia for Each Purchased Consignment of Drugs from 10/1/93 through 4/1/94

Information on Drug Purchases by Ryazan Pharmacia for Each Drug from 10/1/93 through 4/1/94

Cluev, M A **Collection of Regulations and Acts of Pharmacy Services** Moscow 1979

Krylov, Y F **Register of Drugs in Russia 1994** Moscow Inpharmchem, 1994

Krylov, Y F **Register of Drugs in Russia 1993** Moscow Inpharmchem, 1993

Makarova, V , Stroevev, E , Yakusheva, E **Reference Modern Drugs** Ryazan 1993

Martindale, The Extra Pharmacopoeia London The Pharmaceutical Press, 1993

Mashkovsky, M D **Pharmaceutical Agents** Moscow 1993

Network of Medical Establishments in Regions of Ryazan Oblast, 1993-94

Pharmedinfo **List of Synonyms of Drugs Purchased by Ryazan Pharmacia** Moscow 1994

Russian List of Essential Drugs, 1992

Russian List of Essential Drugs, 1993

Statistical Department, Ryazan Oblast Hospital **The Most Frequent Causes of Morbidity of Ryazan Oblast in 1993-94** 1994 Ryazan

Statistical Department, Ryazan Oblast Hospital **The Most Frequent Causes of Death of Ryazan in 1993-1994** 1994 Ryazan

United States Pharmacopeia Convention, Inc **NIS Add-on Proposal** Rockville 1994

United States Pharmacopeial Convention, Inc **Drug Information For the Health Care Professional USP DI Volume 1 1994** Massachusettes Rand-McNally, 1994

Uzdenikov, Alexander **Market of Pharmaceuticals in Russia Present and Future** Moscow, 1994

World Development Report-1993 Oxford Oxford University Press, 1993

Annex Three Persons Met

Persons Met**USAID/Moscow**

Dr Nikita Afanasiev, Project Management Specialist

Dr Jack LeSar, Director, Office of Environment and Health

Pharmedinfo

Svetlana Koutchkovskaya, Head of Division International Cooperation and Advertising, Pharmedinfo

Oleg Levin, Head of Division of Automation, Pharmedinfo

Galina Shashkova, Director, Pharmedinfo

Other Moscow Organizations

Alexander Uzdenikov, Director General, Trade House of Drug Producers- "Drugs of Russia"

Ryazan Oblast Administration

Gennadiy K Merkulov, Head of the Ryazan Administration

Andrei V Tarasov, Deputy Head, Ryazan Region Administration

Ryazan Oblast Administration Financial Department

Rimma Naumova, Deputy Head of Ryazan Oblast Administration Department of Finance

Margarita Shavrina, Head of Ryazan Oblast Administration Department of Finance

Ryazan Oblast Administration Health Department

Valentin Dykin, Head of Ryazan Oblast Administration Health Department

Nina Frolova, Head of Financial Department, Ryazan Oblast Administration Health Department

Vladimir Pukhov, Head of the General Division

Alexander Romadin, Deputy Head of Ryazan Oblast Administration Health Department

Ryazan Pharmaceutical Committee of Oblast Administration

Valentina Grechenko, Head of the Committee for Pharmacological Activities

Natalia Mikhaleva, Pharmaceutical Committee, Head of Procurement Division

Nina Nechaeva, Pharmaceutical Committee, Economist

Svetlana I Potemkina, Chief Specialist, Pharmaceutical Committee, Head of Organizational Pharmaceutical Division

Ryazan Pharmacia

Viacheslav Baturin, Deputy Head of Pharmacia

Gennadi Kotov, Head of Automation Department of Ryazan Pharmacia

Natalia Popova, Pharmacia Director

Nina Ivanovna Proskurina, Pharmacist Informator, Trade Department

Alla Shchegolkova, Head of Trade Department of Ryazan Pharmacia

Artur Vardanian, Deputy Head of Pharmacia, Head of Supply Department

Federal Warehouse at Kiritsy

Nadejda Borisova, Deputy Director

Dimitry Ignatievich Kalinin, Director

Victor Mironov, Commercial Representative of the Kiritsy Warehouse in Ryazan

Irina Sibireva, Head of the Quality Control Department

L I Smighina, Head of the Distribution Department

Ryazan Medical University

Dr Anatoli Artamonov, Assistant Dean Medical School

Dr Svetlana Baturina, Hospital Therapy Faculty

Inessa Dubinina, Head of Endocrinology Faculty

Zinaida Kovateva, Head of University Library

Professor Valeri Krikov, Faculty of Organization of Economics of Pharmaceutical Activity

Dr Valentina Makarova, First Deputy Rector of the Ryazan Medical University, Head of the Pharmacology and Pharmacotherapy Faculty

Dr Victor Okorokov, Dean of Medical School

Dr Viacheslav Petrov, Faculty of Organization of Economics of Pharmaceutical Activity

Boris Romanov, Pharmacology and Pharmacotherapy Faculty

Dr Alexander Ryabkov, Pharmacology and Pharmacotherapy Faculty

Dr Sergei Derenko, Dean of Pharmacy School

Dr Nikolai Selezenev, Head of Faculty of Drug Production

Professor Vladimir Soloduhin Head of Faculty of Organization of Economics of Pharmaceutical Activity

Dr Eugenie A Stroeve, Rector of the Ryazan Medical University

Dr Dinara Uzbekova, Pharmacology and Pharmacotherapy Faculty

Dr Elena Yakusheva Pharmacology and Pharmacotherapy Faculty

Ryazan Scientific Medical Library

G H Ermakova, Head Bibliographer Library

Alexandra Tsvetkova Director of the Library

Ryazan Oblast Hospital

Ms Galina Ivanovskaya, Head Nurse, Vascular Department

Dr Lidiya Kedrova, Head Internal Medicine Department, Ryazan Oblast Hospital

Tamara Kuprianova, Head, Pharmacy Department

Michael Kuzin, Head of Endocrinology Department

Dr Lubov A Minashkina, Deputy Head Ryazan Oblast Hospital

Lubov Shapochkina, Deputy Head of Ryazan Oblast Hospital

Dr Alexander Pristupa, Hematology Department, Ryazan Oblast Hospital

Dr Dmitri Voronkov, Chief Physician of the Oblast Hospital

Tamara Yeremina, Provisor Informator, Pharmacy Department

Vyacheslav Zaigrov, Head of the Computer Department

Ryazan Oblast Health Facilities

Tatiana Dobrovolskaya, Provisor of Ryazan Emergency Care Hospital

Natalia V Gertseva, Director of Pharmacy #137, Central Resource Bureau

Ludmila K Krutchkova, Head of Ryazan Oblast Quality Control Laboratory

Iraida Slivina, Director of Ryazan Pharmacy #1

Spasski Rayon

Alexander P Gerasskin, Chief Physician, Spasski Rayon

Korablinski Rayon

Victor Batkin, Head of Rayon Administration

Rimma Klimina, Feldscher

Valentina Kochkina, Provision, Pharmacy #99

Victor Kostikov, Deputy Head of Rayon Administration

Lubov Shatilova, Director, Pharmacy #99

Victor Sorokin, Chief Physician for Rayon and Rayon Hospital

Skopinski Rayon

George Budyanu, Mayor of Scopin

Nina Korchagina, Head of Therapeutics Ward of Scopin Rayon Hospital

Uliana A Sivakova, Director of Central Rayon Pharmacy #128

Natalia F Terekhina, Deputy Director of Central Rayon Pharmacy #128

Vitali N Terekhin, Chief Physician, Skopinski Rayon

Anatoli N Yaneushkin, Deputy Mayor of Scopin

Private Sector

Viktor Yakushenko, General Director, Incor Limited

Nikolai Lyalin, General Director, Hippocrates

Central Resource Bureau

Natalia Alexeyevna, Pharmacist

Margareta Ivanovna, Pharmacist

Director of Pharmacy Number 137

Interpreters Used

Natashha Abakumova

Anton Annenkov

Lumilla Makhon

Svetlana Marchenko

Katya Svetlichnaya

Annex Four Data Collectors and Facilities

Data Collectors and Facilities

#	Name	Background	Facility
1	Natalia Mikhaleva	Pharmacist	Pharmaceutical Warehouse at Kiristy, Pharmacia
2	Svetlana Lebedeva	Pharmacist	Murmino Hospital & Pharmacy, Ryazan Rayon
3	Galina Chuhina	Epidemiologist	Pharmacy in Poliany Pharmacy in Varskie (Ryazan Rayon)
4	Galina Stepantseva	Pharmacist	Pharmacies # 170, 178,8
5	Lubov Petyukova	Epidemiologist	Pharmacies # 1, 4
6	Svetlana Philipova	Pharmacist	Children Oblast Hosp Children Polyclinic #3
7	Irina Gladkaya	Pharmacist	Ryazan City Hospital #11, Polyclinic # 11
8	Natalia Reshetniak	Pharmacist	Ryazan Emergency Care Hospital, Polyclinic #14
9	Lidia Artamonova	Pharmacist	Polyclinic #2
10	Lubov Kononygina	Pharmacist	Pharmacies # 181,159
11	Olga Medvedieva	Epidemiologist	Spasski Rayon 3 Health Facilities
12	Irina Nechushkina	Epidemiologist	3 Pharmacies
13	Irina Sokolova	Pharmacist	
14	V Kovilina	Pharmacist	Pharmacy Iskra Pharmacy Podviazie (Ryazan Rayon)
15	Galina Tishkina	Pharmacist	Korablinski Rayon 3 Health Facilities
16	Irina Panferova	Pharmacist	2 Pharmacies
17	Valentina Hlystova	Pharmacist	Skopinski Rayon 3 Health Facilities
18	Tatiana Larkina	Pharmacist	5 Pharmacies
19	Marina Frolova	Pharmacist	

#	Name	Background	Facility
20	Anna Yartseva	Pharmacist	Oblast Hospital Pharmacy #180
21	Irina Voronkina	Pharmacist	Oblast Consulting Polyclinic, Gynecological Polyclinic
22	Galina Kharchenko	Pharmacist	Ryazan Central Rayon Hospital
23	Vera Svichkar	Pharmacist	Kiritsy Hospital, Kiritsy Pharmacy
24	Tatiana Dobrovolskaya	Pharmacist	Pharmaceutical Warehouse at Kiritsy, Pharmacia

Ryazan Oblast Health Facilities and Community Pharmacies Surveyed

Health Facilities

XV	Ambulatory Zarechny Village
XVI	Central Hospital Spassky-Ryazansky
XVII	Central Hospital Skopinsky
XVIII	City Children's Polyclinic #3
XIX	Emergency Hospital
XX	Hospital Kistrus Village
XXI	Hospital Korablino
XXII	Hospital #2 Izhevskoje Village
XXIII	Hospital #2 Murmino Village
XXIV	Hospital #11
XXV	Hospital Korablino
XXVI	Kiritsy District Hospital
XXVII	Oblast Polyclinic
XXVIII	Polyclinic Korablino
XXIX	Polyclinic #2
XXX	Polyclinic #11
XXXI	Polyclinic #14
XXXII	Polyclinic Skopin
XXXIII	Regional Children's Hospital
XXXIV	Regional Clinical Hospital
XXXV	Ryazan Oblast Hospital
XXXVI	Village Hospital Kipchakovo

Community Pharmacies

XXXVII	Apteka #1
XXXVIII	Apteka #4
XXXIX	Apteka #8
XL	Apteka #20 Polyany Village
XLI	Apteka #26 Priokskoye Village
XLII	Apteka #46 Izhevskoye Village
XLIII	Apteka #52 Spassk
XLIV	Apteka #53 Skopin
XLV	Apteka #54 Kistrus Village
XLVI	Apteka #58 Kiritsy Pharmacy
XLVII	Apteka #99 Korablino Village
XLVIII	Apteka #111 Varskie Village
XLIX	Apteka #128
L	Apteka #129 Zarechny Village
LI	Apteka #130 Oktyabrsky Village
LII	Apteka #148 Metalurg Village
LIII	Apteka #152 Korablino Village
LIV	Apteka #159
LV	Apteka #166 Iskra Village
LVI	Apteka #167 Murmino Village
LVII	Apteka #170
LVIII	Apteka #178
LIX	Apteka #181
LX	Oblast Hospital Pharmacy
LXI	Skopinsky Central Pharmacy

Annex Six Russian Essential Drug List

Russian Essential Drug List - 1993

NAME	FORMS
Avisan - t	tabl
Azathioprin (Imuran) xx	tabl
Azithromycin (Sudamed)	caps ,susp
Actovegin - t	eye gel
Acritoin (Furagin)	tabl
Allapinin - t	tabl
Allapurinol xx	tabl
Allochol - t	tabl
Almagel - t	gel
Amitriptyline hydrochloride xx	tabl
Ampicillin trihydrate xx	caps , inj
Ampicillin natrium xx	inj
Ampiox - t	caps , inj
Antrasennin (Senade) - t	tabl
Arbidol	tabl
Atenolol (Prinorm, Tenormine) xx	tabl
Atropine sulfate	inj , eye drops
Acetazolamide (Diacarb) xx	tabl
Acetylcysteine (Mucomist, Mucosolvin) xx	inj
Acyclovir (Virolex, Zovirax) xx	tabl , inj , gel, cream
Bactisubtyl - t	caps
Baralgin - t	tabl , inj
Bellataminal - t	tabl
Benzobarbital (Benzonal) xx	
Benzilpenicillin xx	inj
Benzilbenzoat, medical	liquid
Betamethasone valerat (Bethnovate, Celestoderm-B)	ointment, cream
Betoxalol (Betoptic) xx	eye drops
Bisacodyl - t	tabl , dr , sup
Biseptol (Bactrim, Septrim) - t	tabl , susp
Bifikol - t	tabl , dosages
Blephamide - t	eye drops
Bromocriptine mesilat (Parlodol) xx	tabl
Verapamilhydrochlorid (Verapamil, Izoptin, Finoptin) xx	tabl , dr , inj
Haloperidol xx	tabl , inj
Hexachlorxilol (Cloxil)	tabl
Gentamycin sulfate x	eye drops, oint , inj
Gestonoroncaproat (Depostat) xx	solvent for inj in oil
Hydrocortisone acetat (Hydrocortisone) xx	susp for inj , eye oint
Hydroxuchloroquine (Plakvenil) xx	tabl
Hydrochlorthiazide(Hypothiazid, Dichlothiazid) xx	tabl
Homathropine hydrobromid - t	eye drops
Homadothropine, chorionic	inj

Russian Essential Drug List - 1993

NAME	FORMS	
Hormoplex - t	draje	
Desoxycorticosterone acetat	solvent for inj in oil, tabl	
Dexamethazone (Dexazone, Dexona, Maxidex) xx	tabl , inj , eye drops, eye oint	
Desmopressin (Adiuretine-CD) xx	inj	
Diazepam (Seduxen, Relanium, Sibazone) xx	tabl	
Digestal - t	draje	
Digoxin (Lanikor) xx	tabl , inj	
Diklofenak (Voltaren, Orthofen, Feloran) xx	tabl , inj , "candles"	retard
Dimethylsulfoxid (Dimexid) xx	liquid	
Dioxidin - t	oint	
Dioxicol - t	onment	
Ditec - t	aerosol	
Diphenhydraminhydrochloride (Dimedrol) xx	tabl , inj	
Diethylcarbamazin (Ditrazin citrat) xx	tabl	
Doxycycline (Vibramycin) xx	tabl , caps	
Drotaverne hydrochloride xx (No-spa)	tabl	
Ibuprofen (Brufen) xx	tabl	
Idoxuridene (Keracyd, Oftan-idu) xx	eye drops	
Izosorbid dinitrate (Nitrosorbid, Izodinit, Izo-mak, Izoket) xx	tabl	
Imipramin (Depsonyl, Imizin, Melipramin)	tabl , inj	
Iprathropin bromide (Athrovent) xx	aerosol for inhal	
Captopril (Capoten) xx	tabl	
Carbamezine (Finlensin, Tegretol) xx	tabl	
Qunex -t	eye drops	
Quifenadin hydrochloride (Fenkarol) xx	tabl	
Ketoconazole (Nizoral)	tabl	
Ketotifen (Zaditen) xx	Tabl , caps , syrup	
Aspirin	tabl , inj	
Pipemedin acid (Palin, Pimidel) xx	caps	
Ursodezoxikhol acid (Ursofalk) xx	caps	
Genodezoxikhol acid (Genofalk) xx	caps	
Clemastin Fumarat (Tavegil) xx	tabl , inj	
Clozapin (Azaleptin, Lenonex) xx	tabl	
Clonidin hydrochloride (Hemiton, Clofelin) xx	eye drops	
Clotrimazole (Canesten) xx	tabl , solution, cream	
Colibacterin - t	dosages, tabl	
Cortizone	tabl	
Cotarnin chloride - t	tabl	
Cofetamin - t	tabl	
Cromolyn sodium (Intal)	caps , eye drops	
Xantinol nicotinate (Teonikol, Xantinol) xx	tabl	
Xylomethazone hydrochloride (Galazolin) xx	drops	
Lactobacterin - t	tabl , indiv dosages	

Russian Essential Drug List - 1993

NAME	FORMS
Lanatozid C (Celanid, Xycain) xx	inj
Levotiroxin sodium (L-tiroxin) xx	tabl
Lidocaine (Lidocaine, Xycaine) xx	inj
Liquifilm - t	
Liobil - t	tabl
Lincomycin hydrochloride (Lincocin, Lincomycin) xx	caps , inj , oint
Liothironin	tabl
Loperamid hydrochloride (Immodium) xx	caps , syrup
Lithium carbonate (Mikalite, Contemnl)	tabl
Maalox (Geluxil-lak, topaal - t	tabl
Magnium sulfate - t	inj
Mebgidroline (Diazoline, Omeril) xx	draje
Mebendazol (Vermox) xx	tabl
Medazepam hydrochloride xx	tabl
Mezim-Forte	draje
Mezocarb xx	tabl
Metamizol sodium (Analgin) xx	tabl
Methylprednisolone (Methipred) xx	tabl , inj
Methylprednisolone sodium cucinat	inj
Metoclorpramid hydrochloride xx	tabl , inj
Metoxalen	
Methacynum iodid (Methacyn) xx	tabl , inj
Metronidazole xx	tabl , inj , oint
Mikozalon	
Mitotan xx	tabl
Moracyzin hydrochloride (Ethmozin) xx	tabl
Nandrolone deconoate	solution for inj in oil
Naproxen xx	tabl
Sodium Phtoride - t	tabl
Naphazoline xx	emulsion, drops
Nistatin xx	tabl , susp , oint
Nitrazepam xx	tabl
Nitroglycerin (Sustak, Nitragranulong)	tabl
Nitroxoline (5-HOK) xx	tabl
Nitrofurantoin (Furadonin) xx	tabl , pediatric tabl
Nifedipin (Cordafen, Coribfar, Fenigidin) xx	tabl , caps , draje
Nicergoline xx	tabl , inj
Oxoline oinment	
Oxacilline natrium xx	tabl , caps , inj
Ofloxacin (Tarivid) xx	tabl
Oftan Catachrom - t	eye drops
Panangin - t	tabl
Panzinorm Forte - t	draje

Russian Essential Drug List - 1993

NAME	FORMS	
Pancreatine - t	tabl	
Papaverin - t	indiv doses,tabl ,ped tabl ,inj	
Pentoxyphilline xx	draje, inj	
Permetrine xx	tabl	
Permixon (Capistan) - t	tabl	
Pefloxacin (Abaktal, Peflacin) xx	tabl	
Pycamylon - t	tabl	
Pilocarpine	eye drops in tube	
Pipofezine hydrochloride xx	tabl , inj	
Pyracetam xx (Nootropil)	tabl , caps , inj	
Pirenzepine hydrochloride xx	tabl , inj	
Pyricarbat xx (Parmidin, Prodektin)	tabl	
Pyrimetamin xx (Chloridin, Tyndurin)	tabl	
Pyritinol xx (Pyriditol)	tabl , susp , draje	
Pirlindole hydrochloride xx (Pirazidol)	tabl	
Prazikvantel xx	tabl	
Prednisolone xx	tabl , inj	
Prenoxidiazine hydrochloride xx (Libexin)	tabl	
Procain xx (Novokain)	inj	
Prefusin - t	gel	
Propranola hydrochloride xx (Obzidan, Anaprillin)	tabl , inj	
Ranizidine hydrochloride xx (Ranisan, Ranitin)	tabl , inj	
Salazosulfapyridine x (Sulfasazaline)	tabl	
Salazodine xx (Salazopyridazine)	tabl	
Salbutamol xx	aerosol	
Sennade - t, Senna - t	tabl	
Silbor - t	tabl	
Solizime - t	tabl	
Solcoseryl - t	ointment	
Somilasa - t	tabl	
Sucralfat xx (Venter)	tabl	
Sulpiride xx (Aglonyl)	caps , inj	
Sulfalen x	tabl	
Sulfamonomethoxin xx	tabl , inj	
Sulfaton - t	tabl , inj	
Sulfacetamide xx (Sulfacyl natrium)	indiv doses	
Tardiferon - t	draje	retard
	tabl	depo
Taurin	eye drops	
Theophylline	tabl , caps	
Theophyllamin	inj	
Tetracyclin - t	eye oint	
Thiamazole xx	eye drops	

Russian Essential Drug List - 1993

NAME	FORMS
Timolol xx (Arutimolol, Optimol)	eye drops
Tinidazol xx (Fazigin, Tinidazol)	tabl
Thioridazine xx (Sonopax, Melleril)	draje
Tramadol hydrochloride xx (Tramal)	caps , inj
Triampur compositum - t	tabl
Triamcinolon xx (Kenacort)	tabl
triamcinolon acetonid xx (Kenalog, Phtorocort, Polcortolol)	tabl , susp for inj
Trianol - t	caps
Trihexyphenidil hydrochloride xx (Parcopan, Cyclodol)	tabl
Trirezid K - t (Adelfan-ezidrex-K-t)	tabl
Trifluoperazine xx (Stelazin, Triftazin)	tabl , inj
Troventol - t (Salbutamol-t)	aerosol
Troxerutin xx (Troxevasin, Venoruton)	caps , gel, inj
Ultralan - t	oint
Uralit-U - t	granulas
Famotidine xx (Famotidine, Ulfamid)	tabl
Fenazepam - t	tabl
Phenindione xx (Phenilin)	tabl
Phenitoin xx (Diphenin)	
Phenoxymethylpenicilin	tabl susp
Phenobarbital xx (Luminal)	
Fenoterol hydrobromide xx (Berotek, Partusisten)	caps , aerosol
Ferbitol - t	inj
Ferrokal - t	tabl
Festal - t	draje
Flamin - t	pediatric granulas
Florenal - t	eye oint
Fludrocortizone acetat xx (Cortinef)	tabl
Flumecynol xx (Zixorin)	caps
Fluocinol acetonide xx (Flucinar, Sinalar)	oint
Phtalylsulfathiazole xx	tabl
Fusidat natrium	tabl
Fusidin	gel
Furosemide xx (Lazix)	tabl , inj
Quinidine Sulfate	tabl
Chloramphenikol xx (Levomectin)	eye drops, tabl
Chlordexidine xx (Hibitan, Plivasept)	solution
Cholenzium - t	tabl
Chloropyramin xx (Suprastin)	tabl
Cephazolin xx (Kefsol, Cephamezin)	inj
Cefaclor x (Alphacet, Ceclor)	caps , inj
Cephalexin xx (Keflex)	tabl , indiv for susp
Cephoperazone sodium xx (Cephobide)	inj

Russian Essential Drug List - 1993

NAME	FORMS
Cefotaxim sodium xx (Claforan)	inj
Ceftriaxon sodium xx (Rocefin, Longacef)	inj
Cyclophosphamide xx (Cyclophosphan, Endoxan)	tabl , inj
Cinnarizine xx (Stigeron)	tabl
Ciprotheron acetat xx (Andokur)	tabl
Ciproflaxacine hydrochloride xx	tabl
Cistenal - t	drops
Ciston - t	tabl
Epinephrine xx (Adrenaline)	inj
Ergometrine maleate xx (Ergometrine)	tabl , inj
Ergotal - t	tabl , inj
Ergotamin tartrate xx (Ergotamine, Cornutamine)	drops, draje
Erythromycin xx (Erik, Erthran, Erythromycin)	tabl , inj , "candles"
Eskuzan - t	drops
Ethamsylate xx (Dicyon, Ethamsylate)	tabl , inj
Ethacyzine - t	tabl
Etretinate (Tigazon)	
Ethinylestradiol xx (Mocrofolin)	tabl
Ephedrine hydrochloride	inj

MEDICAL SUPPLIES
Elastic bandage
Diagnostic strips for determining glucose contents in the blood
Excrements catheters
Urine catheters
Eye pipettes
Latex nipples
Bed pans

xx - Internationa non-patented names, approved by WHO
 x - International non-patented names, recommended by WHO
 t - the mostly known drug names
 no signs - names of the chemical compounds

Chairman of the Expert Committe on drugs under the MOH of the Russian Federation
 Navashin S M -signed

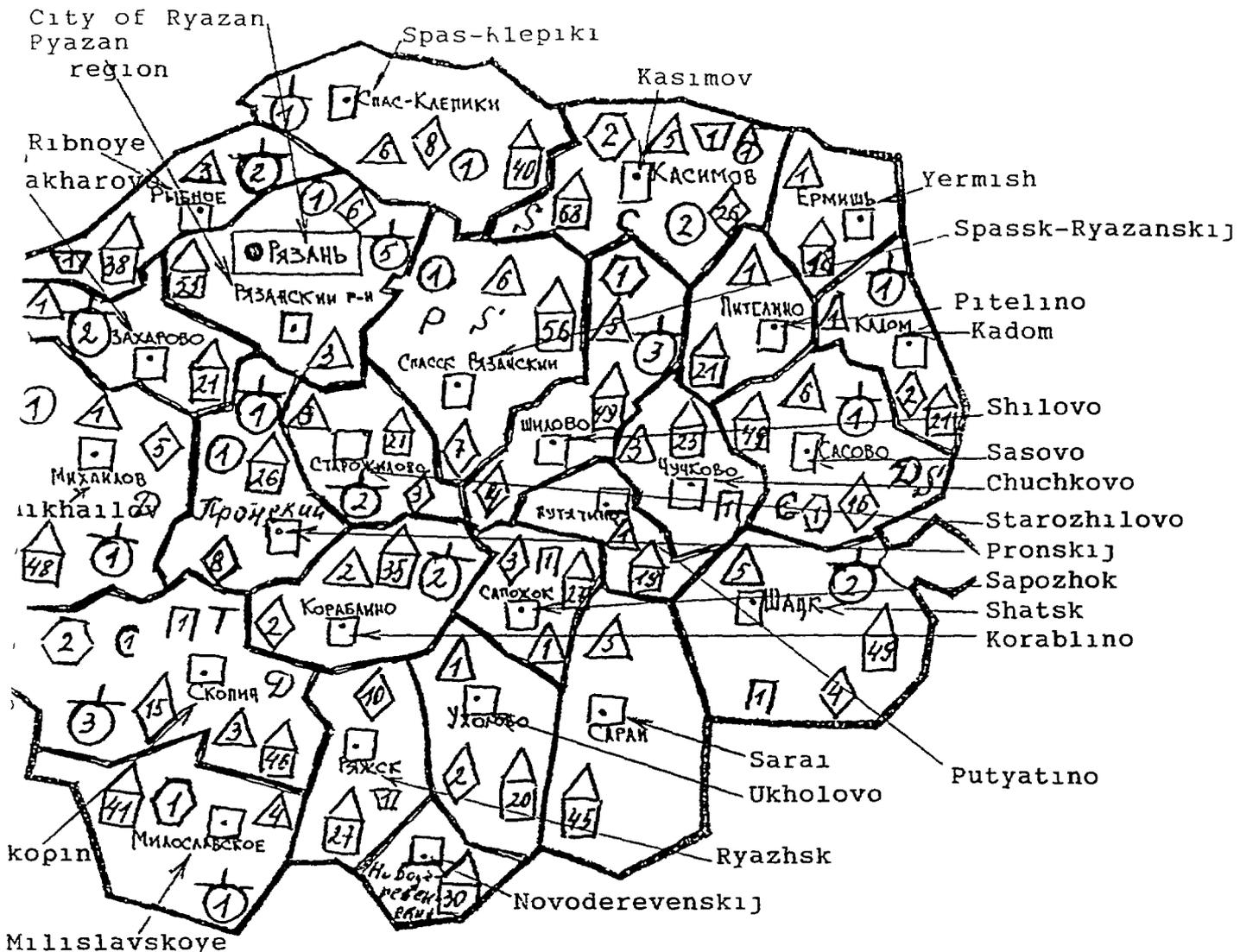
**Annex Seven Therapeutic Classification Scheme
for Russian Drugs**

Therapeutic Classification Scheme for Russian Drugs

01		General Anesthetics and Hypnotics
02		Sedatives
03	04	Neuroleptic and Tranquilizers
05	06	Narcotic Analgesics and Narcotic antitussives
07		Analgesics, Antipyretics and Anti-inflammatory Drugs, Pyrazolone Derivatives and Other Chemical Groups
08	09	Analgesics, Antipyretics and Anti-inflammatory Drugs Salicylic Acid and Paraaminophenol
10		Anticonvulsants and Anti-Parkinson Drugs
11		Psychostimulants and Antidepressants
12		Analeptics
13		Drugs of Strychnine Group and Various Drugs Stimulating the Central Nervous System
14		Acetylcholine, Cholinomimetics and Anticholinesterase Drugs
15		Cholinolytic Preparations of Atropa Delladonna
16		Other Cholinolytics
17		Ganglion-Blocking Agents
18		Adrenaline and Adrenomimetic Drugs
19		Curare Like and Antiadrenergic Drugs
20		Local Anesthetics
21		Mucilaginous, Adsorbent and Astringent Agents
22	23	Endings of Skin, Muscles and Mucosas, Bitters and Ammonia Containing Drugs
24		Other Drugs Irritating Mucosas and Skin
25		Emetics, Antiemetics, Non-narcotic Antitussives and Expectorants Drugs
26		Laxatives
27		Cardiac Glycosides
28		Other Drugs Containing Cardiac Glycosides
29		Antiarrhythmic Drugs
30	31	32 Antispasmodic and Hypotensive Drugs
33		Diuretics and Dehydration Drugs
34		Drugs Promoting Excretion of Uric Acid and Urine Concrement
35		Cholagogues
36		Preparations Affecting Uterus Musculature
37-44		Vitamins and Their Analogues
45		Blood Coagulants
46		Preparations of Hypophysis and Adrenal Cortex and their Analogues
47		Drugs Affecting Thyroid and Parathyroid Glands, Biogenic stimulants and Various Biogenic Drugs
48		Female and Male Sex Hormones and their Analogues
		Anabolic Steroids
49		Insulin Preparations and Other Antidiabetics
50		Enzymes and Antienzyme Preparations
51		Histamine and Antihistamines
52		Plasma Substitute Solutions

53		Amino Acids and Sugars
54		Acids, Alkali, Calcium and Potassium Preparations
55		Preparations Containing Phosphorous, Arsenic and Cobalt Antidotes and Complexones
56		Drugs Containing Iodine and Iodine Substitutes
57		Preparations Containing Iron
58		Other Preparations Affecting Processes of Tissue Metabolism (Hypocholestermic Agents, Anorexigenic Agents, Drugs Containing bee and Snake Poisons, Fotosensibilizing Agents and Drugs for Treatment of Alcoholism)
59		Antiviral Drugs
60		Penicillin and Cephalosporin Antibiotics
61		Streptomycin and Oxytetracycline Antibiotics
62		Tetracycline and Chlortetracycline Antibiotics
63		Laevomycesin and Synthomycin Antibiotics
64	65	Antibiotics with Various Structures
66	67	Sulfanilamide Drugs
68		Nitrofurans Derivatives and Various Chemotherapeutic Drugs
69	70	Anti-tuberculosis Drugs
71		Anti-malarials
72		Drugs for Treatment of Trichomoniasis, Leishmaniasis, Amebiasis and Other Protozoal Infections
74		Antimycotics, Protective Pastes and Dyes
75		Anti-helminthics
76		Antiseptic Preparations of Acids and Alkalis
77		Antiseptic Preparations of Haloids, Oxidizers and Aldehydes
78		Antiseptic Preparations of Heavy Metals
79		Antiseptic Preparations of Alcohol and Soap
80		Antiseptic Preparations of Phenol and Tar
81		Resins, Products of Oil Refining and Mineral Oils
82		Antiseptic Preparations of Balsams, Sulfur and Other Natural Compounds
84		Antineoplastic Drugs
85		Drugs Stimulating Leukopoiesis and Drugs for Prevention and Treatment of Radiation Sickness Syndrome
86		Diagnostics
87		Oils
88		Other Drugs
90		Bases, Corrective Agents and Auxiliary Aids for Medical Forms and Adhesive Agents
99		Reagents and Herbs

**Annex Eight Network of Medical Establishments in Regions of Ryazan
Oblast in 1993**



Условные обозначения

Conventional signs

- - центральная районная больница - Central regional hospital
- - Районная больница - Regional hospital
- △ - участковая больница - Division hospital
- ⬆ - медицинские пункты - First-aid stations
- - Врачебные амбулатории - Out-patient hospitals staffed with doctors
- ◇ - Санитарные пункты - Medical rooms
- ⬆ - Городские больницы - Municipal hospitals
- ⊗ - Диспансеры - Prophylactic centres
- Т - Туберкулезные больницы - TB hospitals
- Р - Дом ребенка - Infant's home
- ⬆ - Родильные дома - Maternity hospitals
- П - Психиатрические больницы - Mental hospitals
- С - Стоматологические поликлиники - Dental polyclinics
- - Другие ведомства - Hospitals of other departments
- ⬆ - Санатории - Sanatoriums

Внутри условных обозначений указывается количество учреждений по типу (Inside a conventional sign the number of establishments by types is indicated)

**Healthcare Establishments
City of Ryazan and Ryazan Oblast**

I City of Ryazan		
A	Municipal Hospitals (with a Polyclinic)	7
B	Independent Polyclinics	14
C	Maternity Advice Bureau	1
D	Oblast Prophylactic Centers	7
E	Children's Hospital (Independent)	1
F	Maternity Hospitals	2
G	Dental Polyclinics	
	1 Oblast	1
	2 For Adults	4
	3 For Children	1
H	Children's Polyclinics	6
I	Consultancy and Diagnostic Center for Children	1
J	Oblast Mental Hospital	1
K	Infectious Hospitals for Adults and Children	2
L	Healthcare Stations	
	1 Staffed with Doctors	3
	2 Staffed with Doctors' Assistants	153
M	Other Departments, including	3
	1 Polyclinic of the Home Affairs Department	
	2 Water Transport Department	
	3 Railways Department	
N	Oblast Hospital for Patriotic War Invalids	1
O	Oblast Blood Transfusion Center	1
P	Infants' Home	1
Q	Oblast Clinical Hospital	1
R	Oblast Children's Clinical Hospital	1
S	Clinical Hospital Named After N A Semashko	1
T	Oblast Center for Medical Prophylaxis	1
U	Center for Family Planning and Reproduction	1
V	Sanatoriums	1
 II Oblast Regions		
A	<i>Yermushunski Region</i>	
	1 Central Regional Hospital	1
	2 Division Hospital	1
	3 First Aid Stations	18

B	<i>Zakharovski Region</i>	
1	Central Regional Hospital	1
2	Division Hospital	1
3	Out-patient Hospitals Staffed with Doctors	2
4	First Aid Stations	21
C	<i>Kadomski Region</i>	
1	Central Regional Hospital	1
2	Division Hospital	1
3	Out-patient Hospital Staffed with Doctors	1
4	First Aid Stations	21
5	Medical Rooms Staffed with Doctors' Assistants	2
D	<i>Kasimovski Region</i>	
1	Central Regional Hospital	1
2	Municipal Hospitals	2
3	Division Hospitals	5
4	Regional Hospitals	2
5	Maternity Home	1
6	Dental Polyclinic for Adults	1
7	First Aid Stations	68
8	Medical Rooms Staffed with Doctors' Assistants	26
9	Other Departments, Including Hospital of the Water Transport Department	1
10	Sanatorium	1
E	<i>Klepikovski Region</i>	
1	Central Regional Hospital	1
2	Regional Hospital	1
3	Division Hospitals	6
4	Out-patient Hospital Staffed with Doctors	1
5	First Aid Stations	40
6	Medical Rooms Staffed with Doctors' Assistants	8
F	<i>Korablinski Region</i>	
1	Central Regional Hospital	1
2	Division Hospitals	2
3	Out-patient Hospitals	2
4	First Aid Stations	35
5	Medical Rooms Staffed with Doctors' Assistants	2

G	<i>Miloslavski Region</i>		
	1	Central Regional Hospital	1
	2	Municipal Hospital	1
	3	Division Hospitals	4
	4	Out-patient Hospital	1
	5	First Aid Stations	41
H	<i>Mikhailovski Region</i>		
	1	Central Regional Hospital	1
	2	Regional Hospital	1
	3	Division Hospital	1
	4	Out-patient Hospital	1
	5	Prophylactic Center	1
	6	First Aid Stations	48
7	Medical Rooms Staffed with Doctors' Assistants	5	
I	<i>Novoderevenski Region</i>		
	1	Central Regional Hospital	1
	2	First Aid Stations	30
J	<i>Pitelinski Region</i>		
	1	Central Regional Hospital	1
	2	Division Hospital	1
	3	First Aid Stations	21
K	<i>Pronski Region</i>		
	1	Central Regional Hospital	1
	2	Out-patient Hospital	1
	3	Regional Hospital	1
	4	First Aid Stations	26
	5	Medical Rooms Staffed with Doctors' Assistants	8
L	<i>Putyatinski Region</i>		
	1	Central Regional Hospital	1
	2	Division Hospital	1
	3	First Aid Stations	19
M	<i>Ribnovski Region</i>		
	1	Central Regional Hospital	1
	2	Division Hospitals	3
	3	Out-patient Hospitals	2
	4	First Aid Stations	38
	5	Other Departments, including Railway Department Polyclinic	1

N	<i>Ryazhski Region</i>	
	1 Central Regional Hospital	1
	2 First Aid Stations	27
	3 Medical Rooms	
	a Staffed with Doctors	2
	b Staffed with Doctors' Assistants	8
	4 Other Departments, including Railway Department Polyclinic	1
O	<i>Ryazanski Region</i>	
	1 Central Regional Hospital	1
	2 Regional Hospital	1
	3 Division Hospitals	3
	4 Out-patient Hospitals	5
	5 First Aid Stations	55
	6 Medical Rooms	
	a Staffed with Doctors	2
	b Staffed with Doctors' Assistants	4
P	<i>Sapozhkovski Region</i>	
	1 Central Regional Hospital	1
	2 Division Hospital	1
	3 Mental Hospital	1
	4 First Aid Stations	27
	5 Medical Rooms Staffed with Doctors' Assistants	3
Q	<i>Sarayevski Region</i>	
	1 Central Regional Hospital	1
	2 Division Hospitals	5
	3 First Aid Stations	45
R	<i>Sasovski Region</i>	
	1 Central Regional Hospital	1
	2 Division Hospitals	6
	3 Out-patient Hospital	1
	4 Health Center	1
	5 Dental Polyclinics	
	a for adults	1
	b for children	1
	6 Children's Polyclinics	1
	7 First Aid Stations	49
	8 Medical Rooms	
	a Staffed with Doctors	1
	b Staffed with Doctors' Assistants	15
	9 Sanitoriums	1

S	<i>Skopinski Region</i>	
	1 Central Rayon Hospital	1
	2 Municipal Hospitals	2
	3 TB Hospital for Adults	1
	4 District Hospitals	3
	5 Mental Hospitals	1
	6 Prophylactic Hospitals	1
	7 Rural Outpatient Clinic	3
	8 Dental Polyclinic for Adults	1
	9 Medical Room Staffed with Doctor's Assistants	15
	10 First Aid Stations	46
T	<i>Spasski Region</i>	
	1 Central Rayon Hospital	1
	2 Regional Hospitals	1
	3 District Hospitals	6
	4 Medical Room Staff with Doctor's Assistants	7
	5 First Aid Stations	56
	6 Sanatoriums	1
	7 Infants Home	1
U	<i>Starozhilovski Region</i>	
	1 Central Regional Hospital	1
	2 Division Hospitals	3
	3 Out-patient Hospitals	2
	4 First Aid Stations	21
	5 Medical Rooms Staffed with Doctors' Assistants	3
V	<i>Ukholovski Region</i>	
	1 Central Regional Hospital	1
	2 Division Hospital	1
	3 First Aid Stations	20
	4 Medical Rooms Staffed with Doctors' Assistants	2
W	<i>Chuchkovski Region</i>	
	1 Central Regional Hospital	1
	2 Division Hospitals	3
	3 Mental Hospital, Oblast Authority	1
	4 First Aid Stations	25
X	<i>Shatski Region</i>	
	1 Central Regional Hospital	1
	2 Division Hospitals	5
	3 Out-patient Hospitals	2
	4 Mental Hospitals, Oblast Authority	1
	5 First Aid Stations	49
	6 Medical Rooms Staffed with Doctors' Assistants	4

Y	<i>Shilovski Region</i>	
1	Central Regional Hospital	1
2	Municipal Hospital	1
3	Division Hospitals	5
4	Out-patient Hospitals	3
5	First Aid Stations	49
6	Medical Rooms	
	a Staffed with Doctors	2
	b Staffed with Doctors' Assistants	2

**Annex Nine Appendix 1 and 2 to the Russian Federation
Government
Decree of 11 December, 1992, #970**

**Appendix 1 to the Russian Federation Government
Decree of 11 December, 1992, #970**

L I S T

of population groups and categories of diseases the treatment of which give the outpatients the right to get drugs free of charge

Population Groups/Diseases	List of Drugs and Medical Supplies
<p>Veterans of Civil and Great Patriotic Wars who were in action on the fronts and belonged to military regiments, headquarters, or other military institutions of acting Army and Navy, and the partizans, undrafted personnel of the Army and Navy, regiments of the Ministry of Internal Affairs that were in action on the fronts, or in the cities, the defence of which gives the right for retirement benefits</p> <p>Invalids of the Great Patriotic War, and other invalids with the same rights</p>	<p>All drugs Treatment mineral waters (price of bottles not included), medical leeches, telescopic spectackles, supplies for patient care (urinals, bedpans), medical belts, magnetic applicators, pain-killing electric stimulators, elastic bandages and stockings Surgery patients also get bandages free of charge</p>
<p>Parents and widows of military men killed in action, or who died due to injuries or diseases contracted during their active duty, citizens of Leningrad, who worked on enterprizes, or in organizations during the seige, and who were awarded medals "For Defence of Leningrad", or "To the Citizen of Beseiged Leningrad"</p>	<p>All drugs</p>
<p>Then-minors, prisoners of concentration camps, ghettoes and prisons, built by fascists and their allies during the WW 2</p>	<p>All drugs</p>
<p>Veterans-internationalists, who were in action during the Afgan War, or wars on the territory of other countries</p>	<p>All drugs</p>
<p>Children aged 0-3, and children from families with many children aged 0-6 (three and more children)</p>	<p>All drugs</p>
<p>Disabled of Group 1, not working disabled of Group 2, disabled children aged 0-18</p>	<p>All drugs, means of medical rehabilitation, bedpans, urinals, and bandages</p>

Population Groups/Diseases	List of Drugs and Medical Supplies
<p>People who were exposed to radiation due to Chernobyl disaster, including</p> <p>a) people with radiation sickness, or other diseases caused by the radiation exposure due to Chernobyl disaster, or participation in Chernobyl disaster relief operations</p> <p>b) invalids due to Chernobyl disaster, including</p> <p>people who participated in relief operations inside the disaster zone, or operated other facilities of Chernobyl Nuclear Power Plant,</p> <p>military men drafted to participate in relief operations of the Chernobyl disaster irrespective of the place of deployment of their regiments, and commanders and soldiers of regiments of internal affairs who were (are) on duty in the disaster zone,</p> <p>people evacuated from the disaster zone, or those who left the zone voluntarily,</p> <p>bone marrow donors, irrespective of the time transplantation took place and time the disability due to it developed,</p>	<p>All drugs, free teeth prosthesis and its repair (except made from precious metals)</p>

Population Groups/Diseases	List of Drugs and Medical Supplies
<p>c) people (including those sent for a short time mission), who in 1986-87 participated in relief operations within disaster zone of Chernobyl, or were engaged in evacuation of population, farm animals, and assets, military men and drafted privates, summoned to relief operations, including civil engineering and aviation personnel, commanders and privates of militia, who were on active duty in disaster zone in 1986-87, military men and civilians, who in 1988-90 participated in constructing the "Shelter", and also physicians, nurses and other medical personnel (with exception of those whose direct duties are connected with work under radiation conditions), exposed to excess radiation while giving treatment to Chernobyl victims, who were the source of ionizing radiation, in April, 26 - June, 30, 1986</p>	<p>All drugs, free teeth prosthesis and its repair (except made from precious metals)</p>
<p>d) workers and military men of all ranks and regiments, who contracted diseases due to the impact of radiation within the disaster zone</p>	<p>All drugs, free teeth prosthesis and its repair (except made from precious metals)</p>
<p>e) people, who were evacuated (including those who left voluntarily) in 1986 from the disaster zone, including children, including children in-utero</p>	<p>All drugs, free teeth prosthesis and repair (except made from precious metals)</p>
<p>f) children and youth aged 0-18, living in evacuation zone, or zone with the right for evacuation, who were evacuated from these zones, including those in-utero, and children of the first and next generations, born after Chernobyl disaster in families, where one of the parents had been exposed to radiation (listed in a, b, c, d)</p>	<p>All drugs, prevention medications, bandages</p>
<p>g) children and youth, residents of the zone with beneficial socio-economic status</p>	<p>All drugs, prevention medications, bandages</p>
<p>h) children and youth, who contracted diseases due to Chernobyl disaster, or genetic pathology of their parents caused by radiation, and also children of the following generations with diseases, caused by the same reason</p>	<p>All drugs, Free teeth prosthesis and repair (except made from precious metals)</p>

Population Groups/Diseases	List of Drugs and Medical Supplies
i) people who currently reside (or work) in the zone with the right to be evacuated	All drugs
j) people, who currently reside (or work) in the zone with beneficial socio-economic status	All drugs
k) people, who reside or work in evacuation zone till they are evacuated to other regions	All drugs
<p>l) Drafted military personnel and civilian staff of Soviet Army, regiments of KGB, militia, railway forces, and other regiments, commanders and privates of regiments of special risk</p> <p>direct participants of nuclear arms tests in atmosphere, tests of combat radioactive agents, maneuvers with such weapons till the actual date of cessation of such maneuvers,</p> <p>direct participants of sub-terranean nuclear tests with accidental discharges of radiation, or other health damaging conditions,</p> <p>direct participants of relief and rescue operations during accidents on nuclear vessels and submarines, and other military objects,</p> <p>military personnel of special detachments engaged in the assembly of nuclear war-heads,</p> <p>direct participants of sub-terranean nuclear tests, and those engaged in collecting and storing nuclear materials and waste,</p>	<p>All drugs, Free teeth prosthesis and its repair (except made from precious metals)</p>
<p>People who contracted radiation sickness, or became disabled due to radiation accidents other than Chernobyl, at civil or military objects, or due to nuclear tests, or work at nuclear facilities, including nuclear weapons or space equipment</p>	<p>All drugs, free teeth prosthesis and its repair (except made from precious metals)</p>
<p>Native minorities of Far North in Chukchi, Koryak, Yamal, and Hanty-Mancy autonomous territories, in North-Evenki, Middle-Kanski, and Olski rayons of Magadan Oblast</p>	All drugs

Population Groups/Diseases	List of Drugs and Medical Supplies
CATEGORIES OF DISEASES	DRUGS AND MEDICAL SUPPLIES
Infantile cerebral paralysis	Drugs needed to treat this disease
Hepatocerebral dystrophy, and phenylketonuria	Protein-free food products, protein hydrolysates,enzymes, psychostimulators, vitamins, biostimulators
Mucoviscidosis (for children)	Enzymes
Acute porphyria	Analgesics, Beta-blockers, phosphadene,rboksene, androgens, adenyI
AIDS, HIV - infected	All drugs
Oncological diseases	All drugs, bandages for incurable patients
Hematological diseases, hemoblastosis, cytopenia, hereditary hemopathies	Cytostatics, immunosuppressors, immunomodulators, steroid and non-steroid hormones, antibiotics, and other drugs needed to treat these diseases and adverse effects of the treatment
Radiation disease	Drugs needed to treat this disease
Leprosy	All drugs
Tuberculosis	Anti-tuberculosis drugs, liver protecting drugs
Acute form of brucellosis	Antibiotics, analgesics, steroid and non-steroid anti-inflammation drugs
Severe chronic forms of cutaneous diseases	All drugs needed to treat the diseases
Bronchial asthma	All drugs prescribed to treat it
Rheumatism, rheumatoid arthritis, systemic LE, deforming spondylitis	Steroid hormones, cytostatics, colloid gold preparations, anti-inflammation non-steroid preparations, antibiotics, antihistamine preparations, cardiac glycosides, anti-angina drugs, Ca- channel blockers, potassium preparations, chondroprotectors, diuretics
Myocardial infarction (first six months)	Drugs needed to treat the disease
Condition after valves replacement	Anticoagulants

Population Groups/Diseases	List of Drugs and Medical Supplies
Organs and tissue transplantation	Immunodepressants, cytostatics, steroid hormones, anti-micotics, anti-herpetics, anti-immunoviral, antibiotics, uroseptics, anticoagulants, anticlogging, Ca-channel blockers, potassium preparations, hypotensives, spasmolytics, liver protectors, diuretics, pancreas enzymes
Diabetis	All drugs
Pituitary deficiency	anabolic steroids, sumatotropic hormones, gonadotropic hormones, insulin
Premature sexual development	steroid hormones, parlodel, androcure
Multiple sclerosis	Drugs needed to treat the disease
Myasthenia	inhibitors of choline-esterase, steroid hormones
Myopathy	Drugs needed to treat the disease
Marie's cerebellar ataxia	Drugs needed to treat the disease
Parkinson disease	anti-parkinson disease drugs
Chronic urinary diseases	Petzer cateters
Syphilis	antibiotics, bismuth preparations
Glaucoma, cataract	anticholinesterase, cholinomimetic, dehydrating, diuretics
psychiatric diseases (invalids of Groups 1 and 2, and also work therapy patients of psychiatric and psychoneurologic institutions)	All drugs

**Appendix 2 to Russian Federation Government Decree of
11 December, 1992. #970**

L I S T

of outpatients, who can buy prescribed drugs not included into the list of vital and essential drugs with 50% discount off existing market prices

- Pensioners with the minimal pensions
- Working invalids of Groups 1 and 2, officially acknowledged as unemployed
- People (including sent for short-term missions), who participated in 1988-1990 in relief operations within the disaster zone of Chernobyl, or who operated other facilities of Chernobyl NPP, military commanders, drafted personnel, and members of militia regiments, who were on active duty in disaster zone in 1988-90
- People unjustly imprisoned or exiled, and rehabilitated according to RF Law "On the Rehabilitation of the Victims of Political Repressions" (and also people forcefully placed into psychiatric clinics for political reasons, who are currently retired, or disabled)

Annex Ten List of Drugs Out of Stock at Pharmacia for Over a Month

List of Drugs Out of Stock at Pharmacia for Over a Month

Drug	Form
Alanton	Tablet
Allochol	Tablet
Activated Charcoal	Tablet
Adriablastine	Injection
Dactinomycin	Injection
Iduophtatam	Ophthalmological Drop
Lecozim	Injection
Mercaptopurin	Tablet
Oxazil	Tablet
Oxypheriscarbon	
Oraza	Granule
Platifylin	Injection
Platifylin	Powder
Prospidin	Injection
Riomacrodex	Injection
Trianol	Capsule
Phencarol	Tablet
Pharmarubitsin	
Cytocrom	Injection
Panzinorm	Drag
Contrical	Injection
Hyposol	Aerosol
Zyxorin	Tablet
Potassium Chloride 4%	Injection
Calcium Gluconate 10% (10ml)	Injection
Cotarnin Chloride	Tablet

Drug	Form
Criazanol	Injection
Liobyl	Tablet
Flamyn	Tablet
Lipocerebrine	Tablet
Lamimarid	Granule
Normaza	
Butylex	Drop
Marvelon	Tablet
Cidnopharm	Tablet
Kenalog	Injection
Crystapen	Drag
Corglycon	Injection
Ditek	Aerosol
Ediuritin	Injection
Nitron-Forte	Tablet
Pals Normal	Tablet
Tiamazole	Tablet
Cyclodol	Tablet
Etmozin	Tablet
Etacyzin	Tablet
Aminazin 1% (1 ml)	Injection
Encephabol	Tablet
Feroplex	Drag
Etamsylate	
Hexenal	Injection
Calipsol	Injection
Oxybutirate Sodium 20% (10 ml)	Injection
Phtorotan (50 ml)	

Drug	Form
Chloroform	
Chlorethyl	
Cotermopsis	Tablet
Coterpine	Tablet
Morphilone	Injection
Morphine	Injection
Omnopon	Injection
Promedol	Injection
Ethylmorphine	Ophthalmological Drop
Pentalgin	Tablet
Pircophen	Tablet
Rumalone	Tablet
Camphor 20% (2 ml)	Injection
Cordiagin	Injection
Dityline	
Lestenone	
Myorelaxine	
Pavulon	Injection
Tercuron	Injection
Dicoin	Single Dose
Trimecaine	Single Dose
Iodonate	
Chlorexidine Digluconate	Liquid
Virolex	Tablet
Virolex	Injection
Oxalin	Ointment
Rimantadine	Tablet

Drug	Form
Norsulfazole	Tablet
Sulphadimidine	Tablet
Sulphadimetoxine	Tablet
Saulphacyl Sodium	Single Dose
Plaquenil	Tablet
Quinine Hydrochloride	
Quinine Sulfate	

Annex Eleven
Selected Standard Treatment Guidelines, Ryazan Oblast Hospital 1993

Selected Standard Treatment Guidelines, Ryazan Oblast Hospital 1993

ACUTE PNEUMONIA	
Diagnostics	Treatment Options
Blood analysis	Antibiotics
Urine analysis	Penicillin
Sputum analysis	Oxacilin ampicillin
Sputum Gram	Ampi-Ox
Sputum culture	Cephalosporines
AB sensitivity	Gentamicin
Blood proteins plus fractions	Erythromycin
Seromucoid	Biceptol
Fibrinogen	Lincomycin
Wasserman s reaction	Bromhexine
Blood sugar	Mucaltin
ECG	Euphyllin
X-ray	Theopec
Spirography	Theophedrine
BCG	Haemodesum
Blood gasses	Aspirin
Physiotherapy consultation	Indomethacin
	Prednisolone
	Fuvazidum
	Vitamin A
	T-actvin
	Physiotherapy
	Massage
	Oxygen

HYPERTENSION	
Diagnostics	Treatment Options
Blood analysis Urine analysis Blood glucose Blood cholesterol B-lipoproteins Creatinine K ⁺ , Na ⁺ urea, nitrogen ECG Central hemodynamics Ophthalmological consultation	1 Antihypertensive drugs Dopegit Reserpine Haemiton, etc 2 Diuretic drugs K ⁺ saving diuretics Verospiron Saluretics Hypothiazid Furosemide 3 Peripheric vasodilators Prazosin Captopril etc 4 Ca blockers Cornfar, Cordafen, etc 5 B adreno blockers Obsidan, Anaprilin Atenolol etc 6 Tranquilizers Relanium Rudotel Fenazepam, etc Course of treatment 18-20 days

DIABETES MANAGEMENT IN OUT-PATIENT CARE	
Diagnostics	Treatment Options
<p><i>TYPE I</i></p> <p>Blood analysis</p> <p>Glycemic profile (3 times)</p> <p>Blood biochemistry (protein and fractions, B-lipoproteins, triglycerides, cholesterol, bilirubin, transaminases, liver tests, creatinine, urea, electrolytes)</p> <p>Wasserman's reaction</p> <p>Urine analysis</p> <p>24 hours urine glucose analysis</p> <p>Glucosuremic profile (3 times)</p> <p>Nechiparenko urine analysis</p> <p>Zimnitsky urine analysis</p> <p>Urine analysis for diastasis</p> <p>Urine analysis for acetone</p> <p>X-ray</p> <p>Ultrasonic examination of liver, kidneys, and pancreas</p> <p>Consultation of ophthalmologist, neurologist, ENT and gynecologist</p>	<p>Short acting insulin 1200</p> <p>Intermediate acting insulin 300</p> <p>Long acting insulin 1440</p> <p>Trental</p> <p>Doxium</p> <p>Nicotine acid</p> <p>Essentiale</p> <p>Kurantil</p> <p>Ascorutin</p> <p>Proserin</p> <p>Riboxin</p>
<p><i>TYPE II</i></p> <p>Blood analysis</p> <p>Urine analysis</p> <p>Blood biochemistry (protein and fractions B-lipoproteins, triglycerides, cholesterol, bilirubin, transaminases, liver tests, creatinine, urea, electrolytes)</p> <p>Prothrombin</p> <p>Wasserman's reaction</p> <p>Glycemic profile (3 times)</p> <p>24 hours urine glucose analysis</p> <p>Glucosuremic profile (3 times)</p> <p>Nechiparenko urine analysis</p> <p>Zimnitsky urine analysis</p> <p>Urine analysis for diastasis</p> <p>Urine analysis for acetone</p> <p>X-ray</p> <p>Ultrasonic examination of liver, kidneys and pancreas</p> <p>Consultation of ophthalmologist, neurologist, ENT and gynecologist</p>	<p>Maninil</p> <p>Betanase</p> <p>Glurenorm</p> <p>Mindiab</p> <p>Glibutide</p> <p>Doxium</p> <p>Prodoctin</p> <p>Divaccin</p> <p>Essentiale</p> <p>Proserin</p> <p>Nicotine acid</p> <p>Vitamin B1</p> <p>Vitamin B12</p> <p>Kurantil</p> <p>Trental</p> <p>Methionine</p> <p>Retabolil</p> <p>Insulin</p>

IRON DEFICIENCY ANEMIA	
Diagnostics	Treatment Options
Erythrocytes count Reticulocytes count Glucocytes count (with formula) Hemoglobin Hematocrit (if indicated) Price-Disons osmotic resistance curve Coomb s test Blood biochemistry (serum proteins and fractions transaminases, urea iron iron binding capacity K ⁺ Na ⁺ creatinine bilirubin and fractions alkaline phosphatase glucose coagulograms Blood group and rhesus factor Urine analysis Stool exam on worms and occult blood X-ray of thorax stomach Eye examination Ultrasonic examination of internal organs Australia antigen Wasserman s reaction Free blood Hb determination (if indicated) ECG	Ferroplex Ferrum Heamostimulin Ascorbine acid Tordiferon Ferro gradumet
Note	This investigative schedule should also be used for anemia of unknown origin

Annex Twelve Ryazan Medical University Catalog of Books on Drugs

Ryazan Medical University Catalog of Books on Drugs

1 Company Catalogs

Catalog Handbook of Fine Chemicals, Aldrich Chemical Company, Milwaukee (USA) 1992

2 Registers

G A Vyshkovski et al, Chief Editor Y F Krylov **Register of Russian Drugs**, Moscow Inpharmchim, JS PHARMAVITA, 1993

3 Reference Books on Foreign Companies

Compiled by N B Nikolaeva, et al **Pharmaceutical Preparations of Foreign Companies A Reference Book** Moscow ASTRAPHARMSERVICE, 1993

4 Journals

Antibiotics

1953 - 1961	vol 1 - 6
1962 - 1978	vol 1 - 12
1979 - 1990	vol 1 - 12
1993	vol 1 - 3

Chemical-Pharmaceutical Journal

1968 - 1993	vol 1 - 12
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Experimental and Clinical Pharmacology

1992	vol 1 - 6
1993	vol 1 - 4

Hungarian Pharmacotherapy

1969 - 1980	vol 1 - 4
1988	vol 1
1991	vol 1 - 2
1992	vol 1
1993	vol 2

Issues of Narcology

1991 - 1992	vol 1 - 4
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Pharmaceutical Journal

1968 - 1970	vol 1 - 6
1973 - 1978	vol 1 - 6
1979 - 1990	vol 1 - 6

Pharmacia

1944 - 1947 vol 1 - 6
1967 - 1992 vol 1 - 6
1993 vol 1-2

Pharmacology and Toxicology

1948 - 1956 vol 1 - 6
1957 - 1991 vol 1 - 6

Ukrainian Biochemical Journal

1967 - 1972 vol 1 - 6
1975 - 1978 vol 1 - 6
1979 - 1990 vol 1 - 6

5 Information and Reference Publications*Biochemistry Reference Journal*

1935 - 1941 vol 1 - 6
1944 - 1975 vol 1 - 6
1976 - 1992 vol 1 - 12
1993 vol 1 - 9

Biology Reference Journal, Section 54 Pharmacology, Toxicology

1961 - 1992 vol 1 - 12
1993 vol 1 - 9

Clinical Pharmacology Reference Journal, Special Edition

1979 vol 1 - 12
1980 - 1991 vol 1 - 12

Express Information New Drugs

1985 - 1991 vol 1 - 12
1992 vol 1 - 3
1993 vol 1 - 5

Express Information Side Effects of Drugs

1986 - 1991 vol 1 - 12
1992 vol 1-3
1993 vol 1 - 12

Medicinal Plants Reference Journal

1992 vol 1 - 12

1993 vol 1 - 4

News of Pharmacia and Medicine

1993 vol 1 -4

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1986 - 1990 vol 1-2

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Chernomordik, A B **Use of Antibiotics and other Chemiotherapeutic Drugs Reference Book** Kiev Vysha Shkola, 1988

Golikov, S N , ed **Acute Poisoning Emergency Care Reference Book on Toxicology** Moscow MEDICINA, 1977

Gusel, V A and Markova, I V **Reference Book of a Pediatrician on Clinical Pharmacology** Leningrad 1989

Kazachenok, T G **Pharmaceutical Dictionary, Latin - Russian - Latin, Second Edition** Minsk 1991

Kluev, M A and Babayan, E A **Drugs Allowed to be Used in USSR (supplement)** Leningrad 1984

Kudrin, A N , Belenki, E E , Kniazev, E N and Smirnova L M **Concise Prescription Reference Book (Pharmacotherapy)** Tashkent 1978

Kudrin, A N , ed **Prescription Manual** Ryazan 1962

Makarov, V A et al **Pharmacotherapy with Sulpha Drugs Manual** Kiev ZDOROV'E, 1991

- Makarova, V G and Stroeve, E N **Modern Drugs Reference Book** Yakusheva, Ryazan Medical University, 1993
- Martynov, I F **Foreign Drugs Concise Reference Book** Moscow 1970
- Metelitsa, V I **Cardiologist Reference Book on Clinical Pharmacology** Moscow MEDICINA, 1977
- Moskalenko **Reference Book on Analogue Drugs** Kiev, 1987
- Navashin, S N and I P Fomina **Rational Antibiotic Therapy Reference Book** Moscow MEDICINA, 1982
- Nikulin, A A **General Prescription Manual Reference Book for Students and Physicians** Ryazan 1960
- Satoskar, R S and S D Bandarkar **Pharmacology and Pharmacotherapy Reference Book** translated from English 2 volumes Moscow MEDICINA, 1986
- Sokolov, S V and I P Zamotaev **Reference on Medicinal Plants Phytotherapy 3rd edition** Moscow METALLURGIA, 1989
- Trinus, F P **Pharmacotherapeutic Reference Book** Kiev ZDOROV'YE, 1988
- Vorobiev, A I, ed **Practitioner's Reference Book** Moscow MEDICINA, 1982

7 Monographs

- Albert, A, translated from English **Selective Toxicity Physical-Chemical Grounds of Therapy**, 2 volumes Moscow MEDICINA, 1989
- Almazov, V A, ed **Regulation of Arterial Pressure, Normal and Pathological** Leningrad NAUKA, 1985
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- Ardaudov, G D **Drug Therapy** Sofia (Bulgaria) 1978
- Arushanian, E B, et al **Psychostimulating Drugs** Chita Chita Medical Institute, 1979
- Audell, G and C Weiss, translated from English **Physiology of Man** 3 volumes, Moscow MIR, 1986
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**Annex Thirteen Pharmacology Curriculum 3rd and 4th Year
Pharmacist School, Ryazan Medical University**

**Pharmacology Curriculum 3rd and 4th Year Pharmacist School,
Ryazan Medical University**

	Lectures	Practicum Preparation	Practicum
Month 1-9			
1	Introduction Brief overview of history	Introduction Prescribing Main prescribing rules for out-patients Drug dosages	Study of sample prescriptions
2	Pharmacokinetics	Prescribing of solid and liquid medications	Practice of drug prescribing 10-20 prescriptions per student
3	Pharmacodynamics	Prescribing of liquid, gas, and injectable medications	10-20 prescriptions per student
4	General anesthetics, astringents, adsorbents	Pharmacokinetics	Animal experiments Routes of administration, dose-effect relationship, resorption and local action of drugs
5	Cholinergic agents, anti-cholinergic agents	Pharmacodynamics	Experiment Effect of aminazin on ether
6	Cholinesterase inhibiting agents Muscle relaxants Toxicology of nicotine	Exercises on prescribing and general pharmacology	Test
7	Adrenergic blocking agents	Test on prescribing and general pharmacology	Test on prescribing and lecture materials
8	Drugs for general anaesthesia	Agents that suppress afferent innervation Local anesthetics, astringents, adsorbents	Prescribing drugs Experiment Effect of Decaine on nerve endings
9	Hypnotic agents, sedatives, and anticonvulsives	Agents stimulating afferent innervation Irritating anti-emetics, expectoration, purgatives	Prescribing drugs Experiment Effect of mustard plaster on the hand
10	Narcotic analgesics and antitussives	Cholinergic agents, anti-cholinergic agents	Prescribing drugs Experiment Effect of acetylcholine and atropine on the frog's heart
11	Non-narcotic analgesics	Cholinesterase inhibiting agents Muscle relaxants Toxicology of nicotine Cholinesterase activators	Prescribing drugs Experiment Antagonism of prozerine and muscle relaxants Effect of prozerine on skeletal muscles

	Lectures	Practicum Preparation	Practicum
12	Pharmacology and toxicology of alcohol	Adrenergic agents	Prescribing drugs Experiment Effect of adrenalin on the pupil Effect of adrenalin on the frog's heart
13	Neuroleptic agents and tranquilizers	Test Drugs affecting the vegetative nervous system	Test
14	Psychoactive agents and nootropine (?)	Drugs for general anaesthesia	Prescribing drugs Experiment Narcosis by ether and thiopental
Month 10-18			
1	Analeptic agents and antidepressants	Sedatives, anticonvulsive agents	Prescribing drugs Experiment Effect of sedatives on drugs for general anaesthesia
2	Glycosides and non glycoside inotropic agents	Narcotic analgesics	Prescribing drugs Analysis of written experiment Effect of morphine on the intestinal function
3	Antiarrhythmic agents	Non-narcotic analgesics	Prescribing drugs
4	Hypotensive and spasmolytic agents used in the treatment of spasms of smooth muscles	Neuroleptics and tranquilizers Pharmacology and toxicology of alcohol	Prescribing drugs Experiment Effect of aminazin on drugs for general anaesthesia
5	Anti-angina pectoris agents	Psychoactive agents and nootropy	Prescribing drugs Experiment Effect of caffeine in alcohol poisoning
6	Diuretic agents	Analeptic agents and antidepressants	Prescribing drugs Experiment Convulsive effect of korazol and strychnine
7	Drugs affecting coagulation	Test Drugs affecting CNS	Test
8	Drugs affecting erythropoiesis Steroid and non-steroid anabolic agents	Glycosides and non-glycoside inotropic agents	Prescribing drugs Experiment Effect of cardiac glycosides on the frog's heart
9	Uterus affecting agents and bile secretion stimulating agents	Antiarrhythmic agents	Prescribing drugs

	Lectures	Practicum Preparation	Practicum
10	Hormones and anti-hormones Types and principles of hormonal therapy	Hypotensive and spasmolytic agents	Prescribing drugs Analysis of written experiment Effect of hypotensive drugs on arterial blood pressure
11	Vitamins Types and principles of vitamin therapy	Anti-angina pectoris drugs Cholesterol lowering agents Drugs that stimulate the blood flow to the brain	Prescribing drugs Experiment Effect of aminitrile (?) on condition of the healthy volunteer
12	Drugs stimulating metabolic processes	Diuretic agents Uricosuria	Prescribing drugs
13		Drugs affecting blood coagulation	Prescribing drugs Experiment The effect of heparin sodium and chlorite potassium on blood coagulation
14		Uterus affecting agents Bile secretion stimulating agents	Prescribing drugs Analysis of written experiment Comparative evaluation of uterus affecting agents
15		Drugs that stimulate erythropoiesis	Prescribing drugs
16		Test Drugs affecting the executive (?) organs and systems	Test
17		Principles of hormonal therapy	Prescribing drugs
Month 19-24			
1	Introduction to homeopathy	Rules of collecting medicinal plants and drug preparation Principles of combining herbs Use of medicinal plants in cardiovascular diseases	
2	Homeopathic drugs	Phytotherapy in gastrointestinal diseases	
3	Antibiotics	Phytotherapy in respiratory and renal diseases	
4	Antibiotics, Sulfonamides, nitrofurantoin, etc	Use of plants with anti-allergenic, immune-modulating, radio-protecting and glucose decreasing action	

	Lectures	Practicum Preparation	Practicum
5	Antiviral and antifungal agents	Clinical and pharmacological characteristics of drugs in apitherapy (?)	
6	Immunopharmacology	Test Drugs affecting metabolism	Test
7	Immunopharmacology (cont)	Antiseptic and disinfecting agents	Prescribing drugs Test
8	Complications of pharmacotherapy	Antiprotozoal and antisyphilitic agents	Prescribing drugs Test
9	Principles of treating poisoning	Sulfonamides nitrofurantoin, etc	Prescribing drugs Test
10	Drug interaction	Antibiotics	Prescribing drugs Test
11	Antiblastomic (?) agents	Antibiotics and complications caused by antibiotic therapy	Prescribing drugs Test
12		Antiviral and antifungal agents	Prescribing drugs Test
13		Immunopharmacology	Prescribing drugs Test
14		Final test Chemotherapy and immunopharmacology	Final test (cont)
15		Complications of pharmacotherapy	Prescribing drugs Test
16		Principles of treating poisoning	Typical problems in poisoning Analysis of problems Video
17		Drug interaction	Typical problems in drug interaction and their analysis
18		Antiblastomic agents	Prescribing drugs Test
19		Test	Student reporting

**Annex Fourteen Pharmacology Curriculum 3rd year Medical School,
Ryazan Medical University**

Pharmacology Curriculum 3rd year Medical School, Ryazan Medical University

	Lectures	Practicum Preparation	Practicum
First Semester			
1		Introduction Prescribing Man prescribing rules for out-patients Drug dosages	Study of sample prescriptions
2	Introduction Brief overview of history of pharmacology and pharmacokinetics	Prescribing of solid and liquid medications	Practice of drug prescribing 10- 20 prescriptions per student
3	Pharmacodynamics	Prescribing of liquid, gas, and injectable medications	10-20 prescriptions per student
4	Local anesthetics, adstringents, adsorbents, irritating agents, emetic agents, antiemetic agents, stool softeners	General pharmacology, pharmacokinetics, pharmacodynamics	Animal experiments Routes of administration, dose-effect relationship, resorption and local action of drugs
5	Cholinergic agents, anti- cholinergic agents	Test Prescribing and general pharmacology	Questions based on lecture materials
6	Cholinesterase inhibiting agents Muscle relaxants	Drugs affecting peripheral nerves Local anesthetics, etc	Prescribing drugs Effect of Decaine (?) on nerve endings
7	Adrenergic blocking agents	Drugs stimulating peripheral nerves Locally irritating agents Effect of vomiting Effect of expectoration	Prescribing drugs Experiment "Mustard plaster" on skin of hand
8	Drugs for general anaesthesia	M and H (?) cholinergics Acetylcholine, pilocarpine, M- anti-cholinergic agents, atropine, etc	Prescribing drugs Experiment Effect of acetylcholine and atropine on a frog's heart
9	CNS depressing agents, sedatives, hypnotic agents, anticonvulsives	Cholinesterase inhibitors Ganglioblockers Muscle relaxants Toxicology of nicotine Reactivation of cholinesterase	Prescribing drugs Experiment Antagonism of prozerine (?) on skeletal muscles
10	Narcotic analgesics Problems of narcodepend- ency, antitussives	Adrenergic agents	Prescribing drugs Experiment Effect of adrenalin on the pupil Effect of adrenalin on the frog's heart
11		Test Drugs affecting vegetative nervous system	Test

	Lectures	Practicum Preparation	Practicum
12	Non-narcotic analgesics	Drugs used in general anaesthesia Hypnotic agents and sedatives	Prescribing drugs Experiment Narcosis by ether and thiopental Influence of hypnotic agents on the effectiveness of anaesthetic agents
13	Pharmacology and toxicology of alcohol	Narcotic analgesics and antitussives	Prescribing drugs Analysis of written experiment Effect of morphine on the intestinal function
14	Neuroleptic agents and tranquilizers	Non-narcotic analgesics Toxicology of alcohol	Prescribing drugs Analysis of written experiment Relationship indomethacin dose and prostaglandin concentration in spinal cord fluid Film
15	Psychoactive agents and nootropic (?)	Neuroleptic agents and tranquilizers	Prescribing drugs Experiment Effect of aminazin (?) on narcotic agents Video
16	Analeptic agents and antidepressants	Psychoactivating and normalizing agents Nootropy (?)	Prescribing drugs Experiment Effect of caffeine in alcohol poisoning
17	Glycosides and non glycoside inotropic agents	Analeptic agents and antidepressants	Prescribing drugs Experiment Convulsive effect of korazol and strychnine
18	Antiarrhythmic agents	Test Drugs affecting the CNS	Test
19	Hypotensive agents Spasmolytic agents	Glycosides and non-glycoside inotropic agents	Prescribing drugs Experiment Effect of cardiac glycosides on the frog's heart
Second Semester			
1	Diuretic agents	Comparative characteristics of cardiac glycosides Antiarrhythmic agents	Prescribing drugs Experiment Effect of cardiac glycosides on the frog's heart
2	Bile secretion stimulating agents Uterus affecting agents	Hypotensive agents Spasmolytic agents	Prescribing drugs Analysis of written experiment Effect of hypotensive drugs on arterial blood pressure

	Lectures	Practicum Preparation	Practicum
3	Drugs affecting coagulation	Anti-angina pectoris drugs Cholesterol lowering agents Drugs that stimulate the blood flow to the brain	Prescribing drugs Experiment Effect of amilnitrite (?) on condition of the healthy volunteer
4	Drugs affecting erythropoiesis Steroid and non-steroid anabolic agents	Diuretic agents Uterus affecting agents Bile secretion stimulating agents	Prescribing drugs Analysis of written experiment Comparative evaluation of uterus affecting agents
5	Hormones Principles of hormonal therapy	Drugs affecting blood coagulation, regeneration and erythropoiesis	Prescribing drugs Experiment Effect of heparin sodium and chlorite potassium on blood coagulation
6	Vitamins Types and principles of vitamin therapy	Hormonal and anti-hormonal agents	Prescribing drugs Experiment Insulin hypoglycemia and its significance
7	Drugs stimulating metabolic processes	Vitamins, pro-vitamins and their practical use	Prescribing drugs Experiment Comparative action of toxic doses of cocarboxylase and thiamin
8	Acids and alkaloids Plasma substituting solutions Drugs correcting acid balance	Drugs that stimulate metabolic processes	Prescribing drugs
	Ferments, co-ferments, and anti-ferments Preparation of micro-elements	Acids and alkaloids Plasma substituting solutions Drugs correcting acid balance	Prescribing drugs Experiment Effect of acid and base on mucous membranes of the frog's stomach
10	Antibiotics	Test Drugs affecting the executive (?) organs, systems and metabolism	Test
11	Antibiotics Sulfonamides, nitrofurantoin, etc	Antisepsis and anthelmintic agents	Prescribing drugs Test
12	Antiviral and antifungal drugs	Antiprotozoal and antisyphilitic agents Sulfonamides, nitrofurantoin, etc	Prescribing drugs Test
13	Immunopharmacology	Antibiotics Some effects caused by antibiotic therapy	Prescribing drugs Test
14	Immunopharmacology (cont)	Antiviral and antifungal drugs	Prescribing drugs Test

245

	Lectures	Practicum Preparation	Practicum
15	Antiblastomic (?) drugs	Immunopharmacology	Prescribing drugs Test Experiment Shock caused by histamine and prevention by using dimetrol (?)
16	Drug interaction	Test Chemotherapy and immunopharmacology	Test
17	Principles of treatment of poisoning	Drug interaction	Typical problems in drug interaction Analysis of problems
18	Complications of pharmacotherapy	Principles of treatment of poisoning	Typical problems in poisoning Analysis of problems Video

Annex Fifteen 5th Year Medical School Curriculum

**Annex Five Ryazan Oblast Health Facilities and Community
Pharmacies Surveyed**

5th Year Medical School Curriculum

1st (autumn) term 1993/1994 (24 hours)

- 1 Introduction and general problems in Clinical Pharmacology Clinical pharmacokinetics and pharmacodynamics of drugs
- 2 Combined action of drugs
Multiple prescriptions and drug interactions
Relationship between food intake and drug absorption
- 3 Side effects of drugs and methods to prevent or correct them
- 4 Clinical pharmacology of cardiotonic drugs
- 5 Clinical pharmacology of antiarrhythmic drugs
- 6 Final class Drug interaction between various pharmacological classes Pharmacotherapeutics of internal medicine

2nd term 1993/1994 (16 hours)

- 1 Clinical pharmacology of antihypertensive and antidiuretic drugs
- 2 Clinical pharmacology of drugs for ischemic heart disease
- 3 Clinical pharmacology of chemotherapeutic drugs
- 4 Clinical pharmacology of drugs used to correct gastrointestinal problems

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REFS (A) PIO/T NO 110-0004-3-366-2156 NIS ADD-ON TO MSH COOPERATIVE AGREEMENT, (B) BONI/SAVELLI-AFANASIEV FAX DATED MAY 3 1994

1 SUMMARY G/RD/HEALTH CONFIRMS PROPOSED TRAVEL TO

RUSSIA BY THE FOLLOWING TEAM DURING THE PERIOD MAY 14-JUNE 11, 1994 TO CONDUCT A PHARMACEUTICAL SECTOR ASSESSMENT IN RYAZAN OBLAST NO TEAM MEMBERS HAVE USG SECURITY CLEARANCES

-JAMES RANKIN (DIRECTOR, NPM/RPM PROJECT AND MSH DRUG MANAGEMENT PROGRAM)

ANTHONY SAVELLI (MSH RPM PROJECT MANAGER FOR HIS ADD ON ASSESSMENT TEAM LEADER)

-JEAN PIERRE SALLET (MSH RPM MANAGEMENT INFORMATION SYSTEMS COORDINATOR)

-DENISHA TROUARD (MSH/RPM SENIOR PROGRAM ASSISTANT)

OLYA DUZEY (MSH/RPM COMMUNITY PHARMACY CONSULTANT)

-DR HILBRAND HAAK (MSH/RPM PUBLIC HEALTH PHYSICIAN CONSULTANT)

2 BACKGROUND IN NOVEMBER 1993 AND FEBRUARY 1994 AN RPM TEAM (USAID, MSH AND USP) CONDUCTED REGIONAL VISITS TO ST. PETERSBURG, PERM, RYAZAN AND KAZAN BASED ON PRE-ESTABLISHED SELECTION CRITERIA RYAZAN WAS CHOSEN AS THE SITE FOR A DEMONSTRATION PROJECT WHICH WILL BEGIN WITH AN ASSESSMENT OF THE PHARMACEUTICAL SECTOR

3 PURPOSE AND STRATEGY THE PURPOSE OF THIS VISIT IS TO CONDUCT A PHARMACEUTICAL SECTOR ASSESSMENT IN RYAZAN

OBLAST INFORMATION AND DATA OBTAINED DURING THE ASSESSMENT WILL BE USED TO PLAN A WORKSHOP IN RYAZAN LATER IN 1994 AS WELL AS A LONG TERM PROGRAM OF TECHNICAL INTERVENTIONS RELATING TO PRODUCT SELECTION, PROCUREMENT, INVENTORY MANAGEMENT, FORMULARY DEVELOPMENT AND RATIONAL DRUG USE. THE ACTIVITY WILL TAKE PLACE IN 3 PHASES

-RPM PROJECT DIRECTOR JIM RANKIN AND PROJECT MANAGER TONY SAVELLI WILL ARRIVE ON THE WEEKEND OF 14 IS MAY. RANKIN WILL PRESENT RPM IN MEETINGS WITH USAID IN MOSCOW AND WITH THE MSH IN BOTH MOSCOW AND RYAZAN TO DISCUSS OVERALL PROJECT STRATEGIES. SAVELLI WILL PARTICIPATE IN THE INITIAL MEETING WITH USAID AND THEN TRAVEL TO RYAZAN TO TRAIN LOCAL DATA COLLECTORS

-OTHER TEAM MEMBERS WILL ARRIVE ON 24 MAY AND 30 MAY TO BEGIN WORK AFTER DATA COLLECTORS HAVE BEEN TRAINED

4 SPECIFIC ACTIVITIES TO BE UNDERTAKEN THE RPS SSP MT WILL BE CARRIED OUT AS A COMPLETE INTERVENTION DEVELOPED FOR RYAZAN BY THE RPM PROJECT WITH DIRECT INPUT FROM OBLAST OFFICIALS

THE TEAM WILL IN CONDUCT INTERVIEWS WITH HEALTH OFFICIALS IN RYAZAN OBLAST AND (B) TRAIN LOCAL DATA COLLECTORS TO OBTAIN DATA AND INFORMATION FROM SAMPLE HOSPITALS, POLYCLINICS AND HEALTH CENTERS

SPECIFIC SCOPES OF WORK FOR TEAM MEMBERS ARE AS FOLLOWS -ANTHONY SAVELLI WILL CONDUCT TRAINING OF LOCAL DATA COLLECTORS THEN ASSESS THE RYAZAN OBLAST HOSPITAL, PHARMACY AND MEDICAL POLICY AND LEGISLATION PROC

REGISTRATION, TRAINING, MONITORING AND EVALUATION AND QUALITY ASSURANCE

-JIM RANKIN WILL MEET WITH USAID PERSONNEL FOR THE PURPOSE OF DISCUSSING COORDINATION OF RPM ACTIVITIES IN RUSSIA. THESE MEETINGS WILL TAKE PLACE PRIOR TO THE BEGINNING OF THE ASSESSMENT AND BEFORE HIS DEPARTURE. HE WILL ALSO MEET WITH RUSSIAN OFFICIALS TO EXPLAIN THE ASSESSMENT PROCESS AND WITH MSH OFFICIALS IN MOSCOW TO DETERMINE APPROPRIATE COLLABORATIVE PROCEDURES FOR RPM INTERVENTIONS

-JEAN PIERRE SALLET WILL DETERMINE HIS REQUIREMENTS IN PHARMACEUTICAL WAREHOUSES IN RYAZAN AND KIRITSY AND RYAZAN OBLAST HOSPITALS. COLLECT DATA ON COST RECOVERY PROGRAM AND OBLAST BUDGET, ALLOCATION, TOLU AND PHARMACIA WAREHOUSES IN THE AREAS OF PROCUREMENT, PRODUCT RECEIPT, DISTRIBUTION AND FINANCE. HE WILL ALSO DEMONSTRATE "INTEC" INVENTORY MANAGEMENT AND DPLC ESTIMATION SOFTWARE TO PHARMACIA AND KIRITSY OFFICIALS AND DETERMINE FEASIBILITY OF US AC THESE PROGRAMS DURING THE TECHNICAL ACTIVITIES PHASE OF THE PROJECT

DENISHA TROUARD WILL PROVIDE BASIC

INTERPRETATION/TRANSLATION SERVICES FOR TEAM ARRIVAL AND COORDINATE LOCAL TRANSPORTATION AND OTHER INTERPRETER SERVICES. MANAGE TEAM FINANCES. INPUT DATA RECEIVED FROM LOCAL DATA COLLECTORS INTO SURVEY SOFTWARE PROGRAM AND ASSIST IN PREPARATION OF CHART REPORT

OLYA DUZEY WILL ASSESS PUBLIC AND PRIVATE COMMUNITY PHARMACY POLICIES AND PRACTICE AND OBTAIN OBLAST INFORMATION SERVICES IN THE OBLAST AND THE RYAZAN AND

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PHARMACIA WAREHOUSES IN THE AREAS OF STAFFING INFRASTRUCTURE AND STORAGE

-HILBRAND MARK WILL ASSESS THE EDUCATION OF MEDICAL AND PHARMACY STUDENTS IN THERAPEUTICS AND RATIONAL USE OF DRUGS DETERMINE THE ADEQUACY OF DRUG STANDARD TREATMENT GUIDELINES, AND DETERMINE THE FEASIBILITY OF IMPLEMENTING FORMULARY SYSTEMS

5 POTENTIAL ANTICIPATED CONTACTS USAID OBLAST ADMINISTRATION PHARMEDINFO FOR PHARMACEUTICAL DISTRIBUTORS, PUBLIC AND PRIVATE PHARMACIES MEDICAL AND PHARMACY SCHOOLS

6 LOGISTICS NO SPECIFIC MISSION SUPPORT REQUIRED PROPOSED ARRIVALS ARE AS FOLLOWS SAVELLI SUNDAY MAY 15 RANKIN MONDAY MAY 16 SALLET, TROUARD AND HAZEN

TUESDAY MAY 24, DUZEY MONDAY MAY 30 RANKIN WILL DEPART ON MAY 21 THE REMAINDER OF THE TEAM WILL DEPART ON OR AROUND JUNE 11

7 FUNDING THE PROPOSED WORK WILL BE SUPPORTED BY A15 ADD-ON FUNDS FOR RANKIN SAVELLI SALLET TROUARD DUZEY AND HAZEN

8 ACTION NO USAID ACTION REQUIRED APPRECIATE MISSION COOPERATION CHRISTOPHER

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251