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**HEALTH CARE STATUS AND
REFORM TRENDS ANALYSIS
IN ZHITOMIR OBLAST**

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HEALTH CARE STATUS AND REFORM TRENDS ANALYSIS IN ZHITOMIR OBLAST

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INTRODUCTION

This analytical report is the result of a two-day visit to Zhitomir Oblast made by the *ZdravReform* Program (ZRP). Similar reports are available for Ternopil, Nikolayev, Rovno, Ivano-Frankovsk, Kharkov, Lugansk and Zakarpatiya oblasts.

During the trip, meetings were held with oblast health administrators, the Chief Doctor of Zhitomir Oblast Hospital, chief doctors of family medicine (FM) polyclinics, and health care workers. The Zhitomir Oblast Clinical Hospital was visited as well as the Children's Oblast Clinical Hospital, FM polyclinics and outpatient facilities. The purpose of the visits was to study their experience in health care delivery, its main objectives, and prospects for future work.

To optimize the work, a particular set of indicators was selected which were studied over time (1993-1995). This set of indicators includes: change in bed capacity, restructuring of the health care facility (HCF) network (closing, conversion of inpatient into outpatient facilities, etc.), and changes in organizational forms of health care (FM implementation, user fees etc.). Also examined were the health care reforms under way, and their appropriateness to the socio-demographic requirements of the oblast population.

In addition to information obtained directly from the Oblast Health Administration (OHA) and HCFs, a series of statistical data (mainly to make comparative assessments) were obtained from the Ministry of Statistics, the National Institute of Health, the Ministry of Health (MOH), and the Vernadskiy Central Scientific Medical Library, among others.

During work with the oblast health administrators, the chief doctors of oblast hospitals, the heads of polyclinics and FM outpatient facilities, and the health workers, their willingness to seek innovative new methods of health care management and new medical techniques was evident and impressive. This is verified by substantial reform changes in health care in this oblast as compared with other oblasts of Ukraine. Many health care managers are well aware of ZRP's activities in Ukraine, appreciate the capabilities and knowledge of ZRP experts, and are very interested in collaboration. (Dr. Y. Galinskiy and Z. R. Fits had the opportunity to participate in a two-week ZRP-sponsored training course in health care management, in the United States in 1995). While evaluating the reforms that have been implemented in the oblast, it is important to remember that there is no medical university in Zhitomir as there is in most oblasts, and that all reforms (curricula for retraining of doctors, economic methods of management, etc.) were developed by health workers (managers, administrators, doctors, economists, etc.) Dr. V.D. Pariy has paid several visits to Moscow's Semashko National Institute of Health of Russia to study methods to evaluate and control quality of care (1994). In addition, much information gathering and dissemination has been done, and numerous conferences have been held on the results of the trips and information and mentioned periodically in the press.

During preparation of this report attention was paid to the fact that there is considerable variation in data among some of the same kinds of statistical information obtained from different sources. The author realizes this, and offers his apologies, and requests that anyone who reads this and possesses other information, please share it with him.

METHODOLOGY USED TO STUDY THE STATUS OF HEALTH CARE IN ZHITOMIR OBLAST

During the two days spent in Zhitomir, meetings were held with both Zhitomir oblast health administrators and with people who are direct initiators and participants in reforms in the health care system. Their names and positions are listed below.

First name & Patronymic	Position	Telephone
Galinskiy Yuriy Yakovlevitch	Deputy head of Zhitomir oblast health administration	
Shatilo Victor Iosipovitch	Deputy head of Zhitomir oblast health administration on Chernobyl issues	
Pariy Valentin Dmitrievitch	Head of therapeutic and preventive department of Zhitomir oblast health administration	(0412) 372480
Borschivskiy Mikhail Ivanovitch	Chief doctor of Zhitomir oblast clinical hospital	(0412) 370442
Hrenov Vladimir Ivanovitch	Chief doctor of the medical center "Zdoroviye" (Health)	(0412) 228727
Ter-Tumasov Oleg Aramovitch	Head of GP polyclinic	(0412) 260297
Fitts Zinoviy Romanovitch (interviewed over the phone)	Chief doctor of Olevsk rayon hospital	(04135) 231867

The table above lists the key counterparts in meetings on this visit, but does not mention the many health workers of the Zhitomir Oblast Hospital, Oblast Children's Hospital, FM outpatient facility, and other facilities who graciously permitted the visitors to observe their operations and question them on their views about and experience in health care reform.

A second essential source of information was the data obtained from printed materials produced by the health administration as well as methodological materials developed in medical institutions of Zhitomir (collection of articles), materials on the centenary of the oblast clinical hospital, and the *Puls* (Pulse) newspaper published by the medical community of the city.

A third important source of information were statistics on Zhitomir and Zhitomir Oblast received from the Vernadskiy Central Scientific Library of Ukraine (Kiev) and the MOH.

GENERAL INFORMATION

The Zhitomir Oblast (ZhO) was formed in 1937. It is situated on the right bank of the Dnieper River. In the east the oblast borders the Kyiv Oblast, in the south it borders Vinnitsa Oblast, and in the north it is bordered by Belarus. The total area of ZhO is 29,900 square kilometers, which constitutes 4.9% of the territory of Ukraine (one of the biggest oblasts of Ukraine—in fifth place after the Odessa, Dnepropetrovsk, Kharkov and Chernigov oblasts in terms of land area. The resident population is 1,505,900 (832,200 urban and 668,000 rural). Ukrainians make up 85.5% of the population. The oblast is subdivided into 22 administrative rayons. It has eight cities, 39 small towns, and 1,688 other settlements. The climate is moderately continental, with mild winters and warm summers. The average temperature in January is -5,6°C, in June +18,4°C. The oblast center is the city of Zhitomir, which has a population of 420,000 (28% of the oblast population). The population density is 50.4 people per square kilometer (one of the three most sparsely populated oblasts in Ukraine). The number of people employed in agriculture and industry is approximately equal.

In terms of ecology ZhO is in close proximity to the Chernobyl power station and is one of the oblasts that was most heavily hit by the April 1986 disaster. Five hundred thousand people (of whom 150,000 are children) were identified as having been affected, which constitutes 33.2% of the oblast population.

SOCIAL OVERVIEW

The sex structure of the population is like that of other oblasts and has not changed for the last eight years: in 1994 the female-male ratio was 864 men per 1,000 women (to compare, the highest number of men per 1,000 women is in the Zakarpatiya oblast [931], the lowest in the Chernigov oblast [814].) Pensioners make up 31.4% of the population. 71% of the population are village-dwellers. 52.7% of the population are of able-bodied age. During the last few years the oblast has had a negative population growth rate (-8.4) with the death rate surpassing the birth rate, as in other oblasts of Ukraine.

The main killers are (in order of incidence) circulatory diseases (804/100,000 population), tumors (197/100,000), accidents and poisonings (117/100,000), and respiratory diseases (114/100,000). From 1960 through 1994 the oblast's rural mortality rate increased from 6/1000 to 17.4/1000, mainly among men of able-bodied age (age 21 and over).

The infant mortality is 12.6 per 1,000. Until 1995 this indicator remained steady at 14.4 per 1,000 but in 1996 it was successfully reduced. The main causes of death are conditions emerging in the perinatal period and congenital abnormalities. Among fifty percent of the children who died, the mothers suffered from various diseases (according to the *Puls* issue # 31).

PUBLIC HEALTH CARE SERVICE

- *Resources providing health care to the population*

At present 872 feldsher-obstetric stations, 93 doctor's outpatient facilities, 70 district hospitals, 23 rayon hospitals, two oblast hospitals, and six special dispensaries provide health services to the population (see table 1).

Table 1

Resources providing health care to the population

	type of facility	number
1	feldsher-obstetric stations	872
2	district rural hospitals	70
3	doctor's outpatient facilities	93
4	central rayon hospitals	23
6	oblast hospitals	2
7	special dispensaries	4
8	radiation protection centers	4
9	modern diagnostic centers	2
total:		1125

All in all, the network of oblast, central rayon and district hospitals in ZhO (as of late 1993) totals 8,690 beds (0.59 beds per 1000 population), which is the average indicator for Ukraine. 12.3% of beds are concentrated in oblast hospitals, 63% in central rayon hospitals and 24.7% in district hospitals. Taking into account that the the urban population constitutes 55.5% of the total, such bed capacity distribution is in line with the the average indicator across Ukraine.

- *Morbidity of the population*

The analysis shows that some changes occurred during the last two years in ZhO. It is difficult to pinpoint the main reasons for this, but it is apparent that the growing overall socio-economic problems and after-effects of Chernobyl account for much of the change. Incidence of all diseases increased during this period from 107,748/100,000 population to 111,635/100,000. See table 2 for data.

The first column indicates the incidence rates of various diseases, the second column indicates new cases of disease during a given year. Without going into details, the upward trend in the growth of incidence of all diseases nationally is notable (except perhaps infectious diseases and certain forms of pathologies of the thyroid gland). At the same time in ZhO there is a notable downward trend in oncopathy, endocrine, mental and cutaneous pathologies, circulatory disorders, and frequency of injuries and poisonings.

Table 2

Some comparative socio-demographic indicators in ZhO (1995)

Social indicators	across Ukraine (thousands)	in Zhitomir oblast		
		(thousands)	%	place in the overall statistics of other 24 oblasts of Ukraine (relative to maximum)
total population	52100	1505.9	100	15
municipal	35401	832.8	55.2	16
rural	16714	673.1	44.7	10
men	24200	698	46.4	13
women	27900	808	53.6	14
<i>number of pensioners (total)</i>	14477	473	31.4	13
- retirees	10865	352	23.4	10
- disability pensioners	1477	51	3.4	14
<i>number of invalids (total)</i>	2127.9	74.5	3.5	13
- 1 st group invalids	278.2	11.3	4.1	9
- 2 nd group invalids	1239.8	46.0	3.7	13
- 3 rd group invalids	505.3	14.1	2.8	17
- handicapped children	104.6	3.1	3	14
- invalids per 1000	41	50	-	4
able-bodied population	28924.8	792.7	52.7	14
children and adolescents	11645.5	340.4	22.6	14
number of neonates	10.7	12.4	0.82	6
number of deceased	14.2	15.2	1.01	8
population growth rate	- 3.5	- 2.8	-	13
Mortality rate indicators	across Ukraine (per 1 000)	across Zhitomir oblast		
		per 1 000	%	place in the overall statistics of other 24 oblasts of Ukraine (relative to maximum)
total mortality	142100	151700	100	9
- circulatory diseases	78300	80400	52	11
- tumors	20100	19700	13	16
- accidents and injuries	13100	11700	7.7	17
- respiratory organs	8100	11400	7.5	6
infant mortality	14.9	12.6	0.01	10

To complete the data tabulated above, it is noteworthy that in the first half of 1996 infectious disease morbidity increased by 6.2%. In just one year (1994-1995) the number of persons with newly detected TB increased from 57% to 68.4%, as preventive fluorography shows. During the first half of 1996 morbidity with all forms of active TB increased by 23.5%.

There was a marked growth in oncological diseases over the ten-year period 1984-1994. The number affected per 1,000 increased from 239.81 to 311. During the last ten years the average morbidity rate grew by 16.2% whereas across the oblast this indicator equals 29.7% (exceeding the national rate by 1.8 times). The structure of oncopathies also changed. For example, ten years ago stomach cancer occupied

first place (40.4/100,000), but in the 1990s lung cancer has taken over first place. The highest oncological growth rate is for breast cancer. Thyroid cancer morbidity has increased fourfold since 1986.

The structure of adult morbidity among adults residing in contaminated territories also changed substantially. In 1986 respiratory diseases were in first place (38.9%), second were circulatory diseases (24.6%), third were digestive system disorders (11.2%), and finally osseo-muscular and connective tissue diseases (8%). In 1994 circulatory diseases occupied first place (32.2%), second were endocrine system diseases (19.7%), third were nervous system disorders (12%), fourth were respiratory diseases (11.5%), and fifth were muscular and connective tissue diseases (9.3%). Thus there has been a considerable upward growth trend in endocrine system disease, in particular regarding thyroid gland diseases (from 2.62 to 198.53 per 1,000) and diabetes (from 1.18 to 7.81 per 1,000). It should be noted that the highest morbidity rate was in the age group 15-17 and mainly among women.

The dynamics of overall morbidity among children showed that during the last ten years its frequency increased substantially, and not only in contaminated territories. In 1986 the frequency of new cases among children was 110.7 per 1,000 in the oblast and 865 per 1,000 in the radiation control zone. In 1994 these indicators were as follows: 998 per 1,000 and 1,008 per 1,000 respectively. During 1993-1995 a steady growth in chromosome pathology was registered during medical genetic check-ups (9.5% in 1993, and 10.5% in 1995). During a five-year period (1990-1996) there was a slight increase in congenital disease from 20.5% to 28%. Many children develop symptoms of immune deficiency and immune deficiency conditions.

To sum up the above information, it is apparent that extremely negative changes have taken place due to a decline in health care quality, insufficient preventive control, inadequate measures taken to meet people's medical requirements, and ecological catastrophes.

The unfavorable trends discovered in Zhitomir can be explained by analyzing the status of the health care system over the last several years, and the effectiveness of efforts to reform it.

- *Health care status, trends and strategies in reform*

In a brief report like this one, it makes sense to give an overall summary of the health care system in the oblast, directions of its development, main negative trends, and subsequent main reform strategies followed and results obtained. Thus, to reiterate the information mentioned above that was obtained from various sources, we can make the following general conclusions.

The need for health care reform became most pressing in mid-1991, when ZhO health care administrators carried out an analysis of the health sector. The analysis identified the following reasons for the need for health care reform and reforms of its economic mechanisms:

- Budgetary sources of funds (steadily shrinking). In 1996 the oblast received less than 33% of the budgetary funds it required (without taking inflation into account) Funds allocated for oblast health care are irrationally distributed among various subdivisions of the health sector, depleting scarce resources.
- Health sector expenditures were aggravated by the growth in the number of health care staff. From 1993 to 1995, the number of doctors grew by 98+. At present 411 young doctors are interns at facilities in ZhO and will thus be seeking employment in the oblast. Expenditures were also aggravated by bed capacity growth. Between 1991 and 1994 the number of beds in the oblast increased by about 4000, which, when compared with 1980, was a 10% increase. The growth rate in beds considerably exceeded the population growth rate. Length of treatment was extended and financial emphasis was placed on more expensive secondary care.

The combination of such factors as decreases in the population's income and growth in the number of poor and socially disadvantaged families resulted in hospitals beginning to perform social functions rather than therapeutic ones. (In 1995, 90% of patients in oblast hospitals did not need inpatient care, 30-50% in rayon and municipal hospitals did not, and 15-20% in oblast hospitals did not). The daily cost of a hospital stay (exclusive of treatment) is now \$8.6-20.5. An analysis in one rayon (Korostensk) territorial medical association showed that hospitalizations without good reasons lead to unwarranted expenditures (\$18 million spent in half of 1996). High levels of hospitalization without good reasons are related to health workers' desire to fill unutilized beds. This desire is understandable in that the health facility financing system has, up to now, been based on numbers of beds, and reduction of the latter would unequivocally lead to reduced budgetary financing to facilities. With these economic and social incentives in the system, development or even maintenance of present medical technologies became impossible.

- Overexpenditures in health care are intensified by duplication of the diagnostic process (repeating diagnostic tests, including expensive ones, for the same patient both in the polyclinic and in the inpatient facility). Inpatient facilities, in turn, carry out expensive diagnostic procedures without good reasons. The doctors' hours of work are irrationally distributed; doctors devote 40% of their time to medical paper work (according to data from investigations in the oblast).
- The volume of PHC and preventive care was observed to be decreasing, though these kinds of care are the most socially and economically advantageous. The existing network of outpatient and polyclinic facilities, which is the focal point of PHC, performs the functions of a dispatching facility rather than a therapeutic one (on the average only 5% of calls for a district internist and 10% of calls for a pediatrician are related to therapeutic and preventive care delivery across ZhO in general). It was also discovered that 2% of certificates claiming incapacity to work written out by doctors remained unclaimed. This is accounted for by 24% of cases of doctors' overestimating the degree of patients' incapacity and 10.3% of patients' reluctance to leave work. In addition, within the health community the profession of a doctor who does not work in an inpatient facility has lost its prestige. This perception has also increased the decline in outpatient and

polyclinic care and caused a drain of the best staff to inpatient facilities. The above reasons lead to the following statistic: in 1990 every fourth resident of Zhitomir Oblast received inpatient care.

- The deteriorating socio-economic conditions gave rise to considerable social changes both in health care workers' environment (outflow of the best staff, absence of incentives to work, rights to financial independence and equity) and among the whole population, with the quality of health care (both therapeutic and preventive) declining.

KEY HEALTH CARE REFORM DIRECTIONS IN THE OBLAST

As the above problems became more and more obvious, the oblast health administration took steps to reform health care. The first stage was the approval on December 24, 1990 of a Resolution of the People's Deputies Council (which took effect at the start of 1991) which sanctions the change from line-item funding to per capita funding, health care restructuring and creation of territorial medical associations (TMA's), as well as financing of feldsher-obstetric stations from TMA.

Due to such measures taken in Zhitomir, for the first time in Ukraine in recent years, health professionals succeeded in putting a stop to the unjust system of financing, oriented to the number of beds, number of visits, staff indicators and mainly based on the previous year's budget. Most importantly, it became possible to assign a salary for TMA regardless of the bed capacity but depending on the number of assigned population.

Besides changes in the system of financing during 1991-1992, oblast health administrators began new approaches to planning and evaluating performance of HCFs on all levels. Final outcomes became criteria for efficacy of treatment of diseases, based on the quality of preventive care. The quality of the therapeutic and diagnostic process in different nosological cases was evaluated by diagnosis-related groups (DRG). CSG classified diseases similarly to MCD9, with an appropriate system of examination and recommended treatment. Such standardization allowed to then make a transition to mathematical modeling (based on the correlation-regressive analysis) and made it possible to develop a mechanism for financial incentives for health workers. These methods were developed as computer software and were approved as an experiment in the oblast clinical hospital and the children's oblast clinical hospital.

With the application of the above methods of health care delivery reform, the following objectives were achieved:

1. An economic way of thinking was planted in the heads of health administrators (on all levels, from department heads to oblast health administrators).
2. Medical care has moved into the sphere of relative values of commodities.
3. Health workers' salaries are now dependent on the volume and quality of medical care.
4. During 1991-1992, there were reductions of 1,600 or more "surplus" beds.

The worsening state of the economy in the USSR delayed future development of economic methods of management. But at the same time, the foundation of reforms that had been laid, analysis of the status of outpatient-polyclinic care, analysis of staff, and inventory and assessment of the technical potential of health care in the oblast confirmed the need for complete restructuring of **outpatient polyclinic care**, first of all, and stricter control over hospitalizations.

- *Primary Health Care (PHC)*

PHC reform was based on FM development. The experience of the leading countries of the world (United States, Germany, Britain, and Cuba) was studied, and demonstrated that the transition should be gradual and phased.

During the first (preparatory) stage a plan was developed to organize FM rural outpatient facilities in those areas where district hospitals were reorganized into outpatient facilities. This was regulated under a decree of the oblast Rada of People's Deputies issued 28.3.95. At the same time specialists from the oblast health administration developed a full-time and extra-mural curriculum for training family doctors. The core of the curriculum is based on the experience of leading countries of the world (Germany, Britain etc.).

This retraining curriculum is a voluminous collection of material including all doctors' procedures, necessary skills, and knowledge. This methodological material was also prepared with allowance made for specialty doctors who undergo retraining. For example, if a doctor worked formerly as a cardiologist, his training would be focused on those spheres of medicine which he rarely encountered in his practice (for example, birth delivery, neurology, skin diseases etc.). Training is provided not in one center or hospital but in different facilities, specializing in various specialties. Actual implementation of this program started in June 1995.

In the second stage (1995-1996), the PHC activity intensified through organization of an obstetric/therapeutic/pediatric complex, development of a program to reform the infrastructure, and development of FM in various regions of the oblast with intensive training of family doctors and nursing staff.

At present there are two FM polyclinics in Zhitomir: a medical center called "Zdoroviye" directed by Dr. Hrenov V.I. and "a PG polyclinic" of the Bogunsk precinct of Zhitomir, headed by Dr. Ter-Tumasov O.A.

The **Health center "Zdoroviye,"** which is actually a FM polyclinic, has a catchment area of 15,000 people. It was created some three years ago by merging three enterprises: a medical sanitary unit, a physical exercise health center, and the rayon polyclinic. The center is conveniently located within 5-15 minutes' walk from the industrial enterprises of Zhitomir, with which the polyclinic made agreements to provide health care to workers on the basis of insurance medicine. The polyclinic organized a mix of financing (budgetary financing on the basis of insurance agreements). Eight day care beds were opened at the polyclinic.

The doctors' work is organized so as to provide care to the maximum number of the population and workers of enterprises. With this system it is possible to create four shifts of patients. The polyclinic starts its work at 8.00 a.m. when most people can undergo necessary check-ups (e.g. make an electrocardiogram for patients with stenocardia), or procedures before they go to work at 9.00 a.m. This is the first shift. During the enterprises' lunch break (from 12.00 to 14.00) is the second shift. People can also visit the polyclinic after the work day (from 18.00 to 19.00). This is the third shift. The fourth shift consists of non-working people (mainly retirees), who visit the polyclinic at different hours of the day. Thus the eight day care beds are occupied from two to four times per day (depending on the number of patients).

On weekends, when the polyclinic is closed, there is a schedule for home care doctors (hung on the front door of the polyclinic) who can provide emergency care. The polyclinic administration and doctors consider preventive care to be a priority in their work, and an area of substantial success. For example, there was not a single case of infarction among people with myocardial infarction risk (severe stenocardia) registered at the polyclinic during 1996.

The doctors' work is organized on the principle of group practice (GP) brigades (internist/pediatrician/obstetrician/gynecologist), and there are also three family doctors who underwent retraining as described above. The oblast health administration appreciated the family doctors' high professionalism, and allowed them to provide health care services to children from 4 years of age up, although they are not trained as pediatricians.

In 1996 the polyclinic administration introduced differential paid services (criomassage, conventional massage, series of physical procedures, etc.). Some families in Zhitomir were able to buy a half year of health insurance from the polyclinic.

A printing department was created at the polyclinic. It publishes a weekly newspaper called "*Puls*" which is actually the only periodical in the oblast reflecting the state of medicine in Ukraine and in the oblast.

A FM outpatient facility was opened to serve the most remote part of the polyclinic catchment area. The polyclinic rents three rooms at the students' residence hall (dormitory) where this ambulatory facility is situated and provides services to 2,000 residents in the densely populated high-rise buildings nearby. There is always a doctor and a nurse in the ambulatory, except on week-ends (which are days off). While nurses provide active preventive care to the population (15-25 visits per day on the average), doctors and nurses who live in the vicinity are also available for patient any time of day or night.

The GP Polyclinic of the Bogunsk precinct of Zhitomir was established in January 1994 on the initiative of OHA deputy head Pariy V.D., as part of the precinct's polyclinic in the premises formerly used as a perinatal clinic. This GP polyclinic was started and subsequently headed by Dr. Ter-Tumasov O.A. The legal

basis for the work of the polyclinic became the decree from the oblast health administration "On Family Doctor Polyclinics."

Because this facility used to deal with women in different stages of pregnancy, for its first three months the main work entailed providing consultations to pregnant women, with gradual expansion of care (adding other types of health consultations). Doctors (including Dr. Ter-Tumasov) went through retraining and development of new skills through the above-mentioned specialization courses. At present the polyclinic has 30 day care beds (10 surgery, 10 therapeutic, and 10 gynecological) and is expanding the range and volume of pathologies treated. The work is organized in such a way that beds are occupied twice a day (a total of 60 patients actually undergo treatment).

An economic analysis of day care beds compared with inpatient beds that was carried out in 1995 showed that while the quality of care is equivalent, the cost of day care beds is ten times lower than inpatient beds. Polyclinic doctors simultaneously receive outpatients and monitor care in the day care beds.

During two years of work they have changed patients' attitudes. In the past a patient who felt heart pains sought a cardiologist on his own; a patient suffering from a cough sought a pulmonologist; a patient with a stomach ache sought a gastroenterologist, and so forth. Now all categories of patients are received by the day care inpatient department, where GPs only call specialists in when it is absolutely necessary.

The polyclinic has expanded the volume of surgical care (by quantity and degree of complexity). Relatives of surgical patients provide 70% of post-operative care to them after receiving the necessary instructions.

The city administration has allowed the polyclinic to receive patients from 14 years of age, and an agreement was reached that, if this goes successfully and no complaints are filed, the age of the patients who can be treated may be reduced by one year annually (in 1997 patients from 13 years of age, in 1998 from 12 years of age, etc.).

Such age restrictions have to do with the fact that in this polyclinic all medical care is provided by family doctors who are former internists, as opposed to the situation in the polyclinic "Zdoroviye" where, in addition to family doctors and doctor's brigades, there is a pediatrician with a legal right to treat children. Because this specialty of family doctor still has no official status (it is not regulated by government decree, and it is sanctioned only by the oblast executive committee), to avoid scandals (which are always numerous in the field of pediatrics), it was decided to make a gradual transition to service delivery to patients of younger ages.

The main problem facing the polyclinic administration is development and assertion of rights to legal and financial autonomy. In addition to the two above-mentioned FM polyclinics, during 1996, 13 new outpatient facilities were organized

in the oblast, and 10 district hospitals were converted into doctor's outpatient facilities.

Across the whole oblast inpatient day care constitutes the bulk of all kinds of care. As of January 1, 1995 the oblast had 126 inpatient day care beds at all outpatient-polyclinic facilities, and in 1996 they totaled more than 1,156 and provided services to 3,000 patients.

The ZhO health administration believes that the main conditions for full-capacity functioning of PHC services are as follows:

- priority allocation of staff, material and financial resources for PHC development (not less than 40% of all allocations for medicine).
- increased efficiency and enhanced prestige and status of the PHC service, especially GPs.
- improvement of the labor remuneration system for PHC workers.
- improvement of the system of training and retraining of doctors and nursing staff in the PHC sphere.

However, the development of PHC based on the tenets of family medicine is the most important but not the only direction of health care reform in Zhitomir. Another important development has been the restructuring of inpatient medical care. In this respect the Zhitomir oblast hospital experience deserves most attention, and is important because it is the pace-setter in the oblast, setting the example in health care to be imitated by other health facilities.

OBLAST HOSPITAL OF ZHITOMIR CITY (OH)

Before 1992 the OH developed in one general direction, i.e. gradually increasing the number of beds, opening new departments (specialty ones), and the hospital became oversized (the number of beds in 1992 reached 1,085). Again, length of treatment was extended without good reasons just as it has been elsewhere, with as many as 17.5 days for therapeutic type treatments and 23 for the hematological department. Hospital wards were underfilled by 10-15%. Surgical activity at surgical departments did not exceed 53%. Increasing the number of beds partially reflected a rather ineffective system of funding (by number of beds) and the state's policy at that time.

Beginning in 1992 the hospital started to introduce a new economic mechanism which allowed greater efficiency in bed capacity use in 1993. However, subjective and objective flaws in the new economic mechanism did not produce the desired results and, aggravated by economic problems, caused the administration to give up on it. But they did not stop searching for efficient ways to use the hospital's capabilities.

In 1994 a 30-bed resuscitation and intensive therapy unit for postoperative patients was created at the hospital, which in 1995 allowed a transition to a new way of organizing health care delivery to surgical patients in the creation of a

surgery center. The center was based on surgery units interlinked with functions without rigid determination.

The idea to create the center was born after the analysis of worldwide experience, when it became apparent that every unit was functioning badly. As units were not closely connected in a joint mechanism, hospital stays were protracted and quality of care deteriorated. For example, a patient in the surgical department might wait a long time for laboratory test results carried out in some other (laboratory) department. Or, after an operation for tumor removal, the results of a microscopic analysis might take a long time to come from the pathologo-anatomic department, which extends the patient's stay, and does not make it possible to start early radiotherapy of the tumor (if it is malignant). There are many similar examples.

Following the trend to create centers to optimize the treatment process, the hospital opened a burn center, neurosurgical center, and orthopedic center. As the result of this reorganization bed use intensified in 1995. During the same period 17,105 patients were treated—350 patients more, or the equivalent work of an additional department with 35-40 beds. Optimization of bed utility allowed for reductions in numbers from 1075 to 880, reduced length of hospital stay, enhanced practice of surgery, reductions in postoperative death (table 3).

Table 3
Efficiency of use of bed capacity before and after reform

Indicator	1995	1996
Number of beds	960	880
ALOS in bed	17.4	15.5
Death rate	1.9	1.8
Surgical activity	60.4	67.0
Average number of days in bed before the operation:	3.8	3.0
after the operation:	12.9	12.5
Percentage of patients who stay in hospital more than 30 days	8.0	5.6

After the above measures were taken, an analysis of the economic effect was carried out. The total saved was estimated to be 952,265 gryvnas (appr. \$600 000).

Presently the administration has introduced a position of a anesthesiologist in the consolation polyclinic. Thanks to this surgical patients undergo preparatory check-ups for operations and are admitted as inpatients on the day of the operation. The preoperative bed-day is equal to zero (0).

CHILDREN'S OBLAST CLINICAL HOSPITAL

The Children's Oblast Clinical Hospital (COCH) of Zhitomir oblast was recognized as the best children's hospital in Ukraine in 1995 for organization of work and sanitary conditions.

The hospital has done much reorganizing, which has improved quality of care and created possibilities for curing complicated congenital diseases (such as esophageal atresia). For the first time in the oblast and perhaps in the country the hospital developed an integral system of care quality and diagnostic process control.

The system for evaluating quality of care has four levels. **The first level** is the head of a subdivision who evaluates 100% of medical cards and assesses every case in accordance with developed models of final outcomes (outcomes of diseases). The second stage at this level is the evaluation of the quality of the therapeutic and diagnostic process. This is done by means of analytical comparison of a given case with developed clinical protocols which contain information (based on MCD9) about optimum cures and diagnosis of various diseases. **The second level** is the deputy chief doctor of medical work, who checks 20-30% of cards according to a similar scheme. **The third level** is a monthly meeting chaired by the chief doctor with an expert panel which includes the deputy chief doctor for economics. **The fourth level** is the expert panel of the oblast health administration, which is convened every month.

This system was developed into computer software, in which the whole treatment process (except qualitative evaluation) is assessed from an economic standpoint, with the input of each health worker involved in the treatment process. All the above indicators serve as a basis for calculation of salary bonuses to certain facilities, departments and health care workers.

In addition to the above-mentioned health care facilities that are most actively working for health care reform, a large amount of work has also been done in other HCFs of the oblast. Without describing each of them, it is reasonable to give the general picture of the dynamics of health care restructuring.

GENERAL DYNAMICS OF HEALTH CARE RESTRUCTURING

In only one year (1994-1995) **115** beds were reduced in oblast hospitals. This is considerably higher than in other oblasts. Approximately the same number were reduced in the Vinnitsa oblast (100), yet in five other oblasts the number of beds in oblast hospitals actually increased (e.g. Ivano-Frankovsk oblast added 150 beds).

Central rayon hospitals made much greater reductions in numbers of beds (**720**). Their bed capacity constituted 63% of all oblast beds. In the general statistics of Ukraine this is also one of the main indicators. The **district hospital** closed **690** beds.

Thus during this period, the oblast reduced a total of 1,525 beds or 17% of the entire bed capacity. The number of beds per capita in the above system of

inpatient facilities decreased from 0.59 to 0.48 (per 1,000 resident population). All in all in the Zhitomir oblast 1,939 beds were reduced in different types of hospitals during this period. In the first half of 1996 alone, 1,725 beds were cut.

As compared with 1994 the number of beds was reduced by 42%. During four years and nine months 5,566 beds were reduced in total. However, according to the latest information, despite reductions, 11.5% of beds continue to be unutilized.

It was discovered that from 10% to 33% of patients in district hospitals do not require inpatient care; in central rayon hospitals the figure is 40%; and in oblast hospitals 18%. All these patients could be in day care outpatient facilities.

Another essential mechanism for reducing inpatient length of stay is the practice of pre-hospitalization and preoperative outpatient check-up which started in the oblast hospital, and which helps achieve two ends:

- 1) screening of patients and establishing valid reasons for the coming hospitalization;
- 2) reducing the inpatient stay and treatment time (on average 3-4 days), or to put it simply, each patient saves up to \$82.

In addition to bed capacity reductions in outpatient polyclinic facilities during 1994-1995 the number of outpatient facility beds considerably increased (by 408%); this indicator places the oblast first in Ukraine. At the same time the number of home care facilities grew in number (by 34.7%).

The oblast is in first place in bed reductions in oblast and central rayon hospitals during 1994-1995 and in third place in district hospitals (after the Odessa and Chernigov oblasts). In only one year the number of outpatient facilities increased fourfold (from 32 to 125), with the number of beds increasing fivefold (from 225 to 1145). This led to a fourfold expansion of outpatient care (from 5,244 to 20,747 patients).

These indicators are the highest anywhere in Ukraine and considerably exceed indicators from other oblasts. The number of patients per 100,000 population treated in outpatient facilities and home-care inpatient facilities during 1994-1995 grew considerably as compared with comparable health care organizations in other oblasts.

A more detailed analysis shows that in ZhO the practice of organizing day care facilities achieved the greatest gains. This unquestionable innovation put the oblast ahead of other oblasts on the road to reducing the cost of health care delivery.

Table 4

year	type of HCFs	number of beds reduced
1990-1995	district, rural, rayon	3281

	hospitals	
	city, oblast hospitals	1275
	total	4556
first half of 1996	district, rural, rayon	1025
	hospitals	
	city, oblast hospitals	555
	total	1580

CONCLUSIONS

It is very important that health care reform is being implemented in stages and with awareness that it is necessary for all levels health care managers, and that there is a "team of like-minded people" headed by the deputy head of the oblast health administration, Dr. Paramonov. Thus there is coordination of activities in all divisions of medicine without any deviations. This is confirmed by the fact that the oblast clinical hospital and children's oblast clinical hospital were among the first to begin reforms. As the central force in the oblast medical community, they set an example that inspired other health facilities.

Regarding PHC restructuring, it is important that it develops from "inside" the present system, gradually restructuring the existing system: small hospitals converted into outpatient facilities, beds reduced, redundant health workers cut. As a result the health care delivery system becomes less expensive without detriment, but with improved quality of care for patients. Most oblasts, where family medicine polyclinics and family doctors are simply added on to the existing health care system without restructuring of this system, make the system more cost inefficient.

Thanks to coordination by the oblast administration, specialists are trained, as are family doctors, quality criteria for the therapeutic and diagnostic process and economic methods of management are developed and introduced. This is significant as Ukraine moves to a market economy. Once new laws are passed, (e.g. on insurance medicine), the oblast will already have developed and practiced methodologies.

At present, ZhO is in a very favorable situation as compared with other oblasts. Its entire medical community follows a developed concept without awaiting directives from Kiev, and is implementing reforms gradually, in stages. The health professionals see it as the only way out of the current situation. The scale of the oblast allows for reforms to be implemented and results to be assessed over a relatively short period of time.

Based on results of numerous meetings and observations, and on comparative analysis with other oblasts, it stands to reason that ZhO is perhaps the leader in health care reform in Ukraine. The health administration has repeatedly expressed its willingness to closely and continuously collaborate with ZRP.

Table 5

Comparative indicators of incidence of some diseases and morbidity rate in Ukraine and ZhO

Disease	Ukraine (per 100.000)				ZhO (per 100.000)			
	1994		1995		1994		1995	
	incidence	new cases	incidence	new cases	incidence	new cases	incidence	new cases
all diseases	119 711	60 582	124 279	63 160	107 750	51 164	111 635	54 242
infectious diseases	4 350	3 043	4 262	2 919	4 694	3 059	4 974	3 114
tumors	2 659	631	2 722	635	2 533	567	2 484	560
metabolic diseases	3 447	552	3 487	527	2 897	392	2 926	451
endemic and sporadic goiter	76	13.6	81	14.9	169	46	202	54.7
nodular goiter	102	21.4	113	21.3	161	40.3	187	45.2
thyrotoxicosis	78	10.5	78	9.5	79	16.3	73	10.3
autoimmune thyroiditis	68	18.7	81	15.9	71	30.3	91	18.9
diabetes	1 717	106	1 732	99	1 402	80.6	1 387	80.5
blood and hemopoetic organs diseases	896	341	1 000	371	1 124	431.5	1 247	497.3
mental aberrations	4 381	488	4 435	518	4 579	693	4 354	601
nervous system disorders	12 184	5 825	12 505	5 894	8 378	3 859	9 068	4 215
circulatory diseases	23 440	2 698	24 557	2 697	21 195	1 915	20 740	1 716
diseases of respiratory organs	32 913	27 923	35 483	30 477	26 816	21 869	29 416	24 723
diseases of digestive system	10 854	2 677	11 119	2 585	11 226	2 668	11 552	2 602
diseases of urino-genital system	5 499	2 868	5 691	2 997	6 693	3 944	7 042	4 241
complications after labor, in labor and before labor	4 527	3 923	4 678	4 068	7 585	6 612	8 074	7 184
skin diseases	4 920	4 112	4 960	4 160	3 781	3 120	3 574	2 943
diseases of osseo-muscular system connective tissue	6 715	2 771	6 719	2 747	6 258	2 071	6 777	2 188
congenital anomalies	407	94.7	418	91.1	425	73.7	437	68.3
symptoms and unidentified states	279	182	267	181	652	359	593	335
injuries and poisonings	5 415	5 208	5 341	5 136	4 473	4 279	4 289	4 078

Some comparative indicators of length of treatment and hospital deaths in Ukraine and ZhO (1995)

Table 6

Pathology	Ukraine				ZhO					
	1994		1995		1994		1995			
	length of treatment	deaths	length of treatment	deaths	length of treatment	deaths	length of treatment	*	deaths	**
Total	17.50	1.2	17.4	1.31	18.9	1.3	18.5	23	1.41	20
infectious hepatitis	22.20	0.1	22.19	0.07	20.8	0.00	20.21	1	0.11	18
malignant tumors	20.80	6.60	22.63	6.33	20.6	4.9	20.8	3	5.3	9
diabetes	20.9	2.3	20.96	2.15	19.9	2.6	19.5	4	2.4	18
circulatory diseases	19.20	3.5	18.97	3.55	18.2	2.4	17.68	4	2.42	6
hypertensive disease	16.50	0.00	16.63	0.02	15.3	0.00	14.7	1	0.00	same as other 15 oblasts
myocardial infarction	25.4	15.50	25.04	15.00	34.00	19.9	28.81	22	16.22	19
cerebra-vascular diseases	20.8	5.7	20.56	6.03	20.2	4.2	19.84	6	4.27	6
pneumonia	19.7	0.9	19.61	1.15	21.10	1.2	20.87	24	1.74	24
chronic bronchitis, emphysema	17.8	1.4	17.4	1.39	17.3	1.1	16.09	2	1.15	8
bronchial asthma	18.9	0.50	18.55	0.4	17.3	0.6	16.68	3	0.46	17
intestinal ulcer	20.4	0.8	19.75	0.82	17.9	0.6	12.7	1	1.04	21
chronic glomerulonephritis	19.4	5.10	18.14	5.18	24.9	5.6	22.05	16	4.42	3
calculus in kidneys	13.00	0.50	12.99	0.51	13.3	0.4	12.99	11	0.28	6
connective tissue diseases rheumatism, spondylarthritis	21.6	0.4	21.3	0.42	20.2	0.6	20.8	10	0.38	11
burns(scalds)	18.5	3.10	18.15	3.32	16.8	1.9	16.3	2	2.65	9
Notes:	* - Length of treatment compared with other 24 oblasts in 1995 (relative to the minimum);									
	** - Death rate compared with other 24 oblasts in 1995 (relative to the minimum).									

Table 7

Type of HCFs	Ukraine			Zhitomir Oblast					
	1994	1995	difference	1994		1995		difference	as compared with other oblasts of Ukraine
	absolute number	absolute number	94/95; (%)	absolute number	*	absolute number	**	1994 /1995; (%)	
oblast hospitals	27150	27307	+157(0.6)	1075		960		- 115 (10.7)	1
central rayon hospitals	164368	156770	-7598(4.6)	5475		4755		- 720 (13)	1
district hospitals	48744	42427	-6317(13)	2140		1450		- 690 (32.2)	3
day care facilities at polyclinics	10813	13111	+2298 (21.2)	225		1145		+ 920 (408)	1
home care facilities (number of patients treated)	484650	553768	+69118(14.3)	3697		4981		+ 1284 (34.7)	16
Symbols:	* - place ZhO occupies regarding per capita number of beds in 1994 as compared with other oblasts (relative to the minimum indicators). ** - place ZhO occupies regarding per capita number of beds in 1995 as compared with other oblasts (relative to the minimum indicators).								

Table 8

Indicator	Ukraine				ZhO				
	1994		1995		1994		1995		1995-1994=
	total	per 10 000	total	per 10 000	total	per 10 000	total	per 10000	
medical positions	296260.3	57.6	296930.3	57.7	7698.0	51.8	7753.0	52.6	55
occupied	273488.0	53.1	272899.8	53.4	6554.0	44.1	6669.0	45.3	115
nursing staff positions	637360.3	123.8	625787.0	122.5	17576.0	118.3	17321.0	117.6	- 255
occupied	603326.5	117.2	595349.0	116.6	16687.0	112.3	16603.0	112.7	- 84
district city doctors (internists)	12858.9	4.6	13081.0	4.6	324.0	5.0	314.0	4.9	- 10
district city doctors (pediatricians)	8859.0	12.1	8773.0	12.4	219.0	11.9	220.0	12.2	- 1
number of doctors in district hospitals	5007.00	-	4856.00	-	150.00	-	134.00	-	- 16
number of doctors in rural outpatient facilities	3461.00	-	3609.00	-	65.00	-	88.00	-	23
medical health stations	256	-	240	-	11	-	16	-	5
feldsher health stations	5244	-	4500	-	142	-	137	-	- 5
feldsher-obstetric stations	16500	-	16428	-	886	-	872	-	- 14

**Table 9: Dynamics of bed capacity change in oblast hospitals
of oblasts of Ukraine
(late 1995 data)**

Oblast	number of population	1994		1995		1995-1994
		total number of beds	per 1000	total number of beds	per 1000	
Ukraine	51276600	27150	0.53	27307	0.53	157
The republic of the Crimea	2184900	1036	0.47	1046	0.47	+ 10
Vinitskaya	1871100	1100	0.59	1000	0.53	100
Volinskaya	1073900	1025	0.95	1025	0.95	0
Dniepropetrovskaya	3859000	1300	0.34	1362	0.35	62
Donetskaya	5212100	1738	0.33	1738	0.33	0
Zhitomirskaya	1479100	1075	0.73	960	0.65	115
Zakarpatskaya	1281400	825	0.64	825	0.64	0
Zaporozhskaya	2078500	1030	0.49	1030	0.49	0
Ivano-Frankovskaya	1456600	935	0.64	1085	0.74	+ 151
Kievskaya	1898100	1315	0.69	1360	0.72	+ 45
Kirovogradskaya	1219200	1160	0.95	1160	0.95	0
Luganskaya	2802100	1300	0.46	1300	0.46	0
Lvovskaya	2745600	1160	0.42	1160	0.42	0
Nikolaevskaya	1345400	1020	0.76	1020	0.76	0
Odessa	2578100	1120	0.43	1120	0.43	0
Poltavskaya	1741700	940	0.54	940	0.54	0
Rovenskaya	1188900	915	0.77	900	0.76	15
Sumskaya	1399300	711	0.51	711	0.43	0
Ternopolskaya	1171700	795	0.68	795	0.68	0
Kharkovskaya	3085500	1735	0.56	1735	0.56	0
Khersonskaya	1267500	980	0.77	980	0.77	0
Khmelmitskaya	1507300	910	0.60	910	0.60	0
Cherkasskaya	1506900	1250	0.83	1250	0.83	0
Chernovitskaya	947300	815	0.86	895	0.94	+ 80
Chernigovskaya	1355300	960	0.71	1000	0.74	+ 40

**Table 10: Dynamics of bed capacity change in central rayon hospitals
of oblasts of Ukraine
(late 1995 data)**

Oblast	number of population	1994		1995		1995-1994
		total number of beds	per 1000	total number of beds	per 1000	
Ukraine	51276600	164368	3.2	156770	3.0	7598
The republic of the Crimea	2184900	5555	2.5	5455	2.49	100
Vinitzkaya	1871100	9680	5.17	9022	4.82	658
Volinskaya	1073900	5472	5.09	5275	4.9	200
Dnepropetrovskaya	3859000	7040	1.8	6725	1.37	315
Donetskaya	5212100	6315	1.2	6050	1.16	265
Zhitomirskaya	1479100	5475	3.7	4755	3.2	720
Zakarpatskaya	1281400	6466	5.0	6185	4.8	281
Zaporozhskaya	2078500	6313	3.0	6011	2.9	302
Ivano-Frankovskaya	1456600	5175	3.55	5230	3.59	+ 55
Kievskaya	1898100	8835	4.6	8525	4.5	310
Kirovogradskaya	1219200	6370	5.2	5700	4.6	670
Luganskaya	2802100	5375	1.9	5295	1.88	80
Lvovskaya	2745600	6731	2.45	6226	2.27	505
Nikolaevskaya	1345400	6580	4.8	6218	4.6	362
Odessa	2578100	9250	3.58	7900	3.06	1350
Poltavskaya	1741700	7650	4.39	7650	4.39	0
Rovenskaya	1188900	5735	4.8	5735	4.8	0
Sumskaya	1399300	7315	5.23	7170	5.1	145
Ternopolskaya	1171700	5642	4.8	5418	4.62	232
Kharkovskaya	3085500	8725	2.8	8720	2.8	5
Khersonskaya	1267500	4750	3.7	4580	3.6	170
Khmelmitskaya	1507300	7529	5.0	7365	4.88	164
Cherkasskaya	1506900	6490	4.3	5925	3.93	565
Chernovitskaya	947300	3725	3.9	3530	3.7	195
Chernigovskaya	1355300	6175	4.5	6105	4.5	70

**Table 11: Dynamics of bed capacity change in district hospitals
of oblasts of Ukraine
(late 1995 data)**

Oblast	number of population	1994		1995		1995-1994
		total number of beds	per 1000	total number of beds	per 1000	
Ukraine	51276600	48744	0.95	42427	0.82	6317
The republic of the Crimea	2184900	1470	0.67	1395	0.64	75
Vinit'skaya	1871100	3920	2.09	3360	1.79	560
Volinskaya	1073900	509	0.47	473	0.44	36
Dniepropetrovskaya	3859000	2835	0.73	2600	0.67	235
Donetskaya	5212100	1230	0.23	1105	0.21	125
Zhitomir'skaya	1479100	2140	1.45	1450	0.93	690
Zakarpatskaya	1281400	1395	1.1	1375	1.07	20
Zaporozh'skaya	2078500	2595	1.25	2405	1.16	190
Ivano-Frankov'skaya	1456600	545	0.37	530	0.36	15
Kiev'skaya	1898100	3195	1.68	2950	1.55	245
Kirovograd'skaya	1219200	1686	1.38	1095	0.9	591
Luganskaya	2802100	790	0.28	775	0.27	15
L'vov'skaya	2745600	1185	0.43	935	0.34	250
Nikolaev'skaya	1345400	1495	1.11	1260	0.94	235
Odessa	2578100	3285	1.27	2145	0.83	1140
Poltav'skaya	1741700	3185	1.83	3185	1.83	0
Rovenskaya	1188900	1025	0.86	1025	0.86	0
Sum'skaya	1399300	2600	1.86	2320	1.66	280
Ternopol'skaya	1171700	1090	0.93	1034	0.88	56
Kharkov'skaya	3085500	2365	0.77	2275	0.74	90
Kherson'skaya	1267500	1510	1.19	1405	1.11	105
Khmel'nits'kaya	1507300	2287	1.52	2074	1.38	213
Cherkasskaya	1506900	2780	1.84	1920	1.27	860
Chernovitskaya	947300	997	1.05	846	0.89	151
Chernigov'skaya	1355300	2570	1.89	2430	1.79	140