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EFFECTIVENESS OF CEPHALOSPORIN ANTIBIOTIC TREATMENT IN THE AMBULATORY PATIENTS WITH SEVERE AND MODERATELY SEVER INFECTIONS

Popovich Zh.O., Fedosova T.V., Kalacheva A.A., Medenbaeva A.H. Barlybaeva K.Zh., Baktybaev E.G.

MEN'S SPOUSAL COMMUNICATION REGARDING REPRODUCTIVE HEALTH ISSUES AND FACTORS AFFECTING IT

M Shahjahan[1], M Kabir[2] and HA Rashid[1]

Key Words: Spousal Communication, Reproductive Health Issues.

Introduction

Promoting spousal communication on reproductive health has frequently been advocated as a viable policy tool for narrowing the gender gap, of men's fertility intentions in developing countries[1,2,3]. A gender-based approach to the reproductive health is required for understanding both male and female health related knowledge, attitudes and behavior. Subsequent research has persistently demonstrated a positive relationship between inter spousal communication and contraceptive use.

Unfortunately, lack of inter spousal communication about family planning was identified as one reason for low level of contraceptive use among women. Use is dramatically higher among couples who have discussed family planning with each other, and it may be that couples who do discuss family planning find, to their surprise, that both of them support the use of contraceptives but that neither was aware of the other's positive view[4]. In societies where men have a dominant role over their wives reproductive decisions, their attitudes, behaviors significantly determine inter spousal communication.

This article presents data from a survey conducted on men's views regarding their spousal communication about reproductive health matters and factors affecting it.

Methodology

The study was carried in some selected NGOs working both in urban slums and rural areas of Bangladesh. Currently married males who used to attend the evening clinic constituted the sampling frame. A total of 615 men were randomly selected for the study. Six study sites were taken for the study. They are Dhaka (Agargoan) Narayangonj, Norshindi, Tangail, Narail and Gaibandha. From each of these six sites, one hundred men interviewed employing systematic sampling technique. The questionnaire was designed to collect the information on socio-demographic, psychosocial, cultural factors, opinion and use of family planning, antenatal and post-natal care, male involvement in reproductive health. Information on extra-marital sex exposure was also collected. Data were analyzed by computer using SPSS. Associations between variables were conduced applying chi-square analysis. Multivariate logistic regression analysis was applied to assess the effects of the risk factors on the reproductive health.

Findings

Table-1 shows the distribution of male respondents according to their socio-demographic and economic characteristics. The mean age of the married men is 35 years, mean monthly income is taka 3438 and mean amount of land is 37.5decemal. Table 2 shows that more than 94 percent of men discussed about family planning method with their wives before using it; 88 percent of the men discuss about their desired number of children; 66 percent discuss about reproductive health matters with their wives. Table 3 shows that 27 percent of the men shared about use of contraceptives. Only 6 percent of the couples collect the methods jointly and 81 percent of the couples decide together whether or not to have a baby. Table 4 indicates that the logistics regression analysis on spousal discussion on reproductive health matters. The independent variables education, occupation, number of living children and access to mass media are the important determinants of spousal communication on reproductive health.

Discussion and conclusions

We assume that communication between husband & wife about family planning discourages a couple from having unwanted children and encourages contraceptive use[5]. In many previous studies husband-wife communication has been found to be the most significant indicator of contraceptive use[6.] However, these studies defined communication in different ways followed all three dimensions of effective communications between husbands and wives-agreement in approval, discussion between partners and spousal perceptions of the partner's approval of family planning.

Other studies have used discussion as the only measure of communication between husband and wife[7]. In this study analysis about discussion on reproductive health issues and discuss about desired number of children had the expected significant association with approval of contraception.

The findings of the study suggest that information; education and communication activities to promote family planning in Bangladesh should continue to focus on the importance of dialogue between husband and wife. In this regard, men should also be targeted for family planning information, education and communication efforts. The need to increase men's participation and sharing of responsibility in the practice of family planning was a recommendation of the 1994 International Conference on Population and Development[8.] Men can obtain more information on available family planning methods, can initiate discussion of family planning, can support their wives' use of family planning or can take responsibility themselves for contraceptive use.

Table-1: Socio-demographic & economic characteristics of the respondents.

Variables	Number	Percent
Age (in years)		
<24	75	12.2
25-29	136	22.1
30-34	148	24.1
35-39	128	20.8
40-45	81	13.2
45+	47	7.6
(Mean age=35yrs)		
Education		
Illiterate	272	44.2
Up to class Five	132	21.5
Up to HSC Pass	201	32.7
Graduate and Above	10	1.6
(Mean Education=3.7, SD=±4.1)		
Occupation		
Farming	56	9.1
Day labor	72	11.7
Service	91	14.8
Rickshaw puller/Driver	206	33.5
Business	169	27.5
Others	21	03.4
Land Holding (in decimal)		
No land	171	27.8
<49	314	51.0
50-149	84	13.7
150+	46	7.5

(Mean = 37.5,SD=±82.8)		
Monthly Income		
1500	54	08.8
1501-3000	302	49.1
3001-4500	134	21.8
4501-6000	76	12.4
6001+	34	05.5
Don't know	15	02.4
(Mean Monthly income 3438, SD =±1787.7)		
Access to Electricity	450	73.2
Access to Media		
News paper	118	19.2
Radio	315	51.2
TV	227	36.9

Table-2: Distribution of Respondents by their Inter Spousal Communication.

Discussion	Number	Percent
Discussion before use of FP		
Yes	367	94.6
No	21	5.4
Discussion about desired # of children		
Yes	540	87.8
No	64	10.4
Others	11	1.8
Discussion about reproductive health		
Yes	406	66.0
No	197	32.0
Don't Know	12	2.0
Discussion about Family development		
Discussion about Family development	556	90.4
Increase income	323	52.5
Children's education	205	33.3

Others	48	7.8

Table 3: Decision taken by whom regarding use of family planning.

Variables	Number	Percent
Decision taken by whom FP use		
Husband	234	38.0
Wife	185	30.0
Both	166	27.0
Others	30	5.0
Collection of FP methods by whom		
Husband	264	43.0
Wife	209	34.0
Both	37	6.0
Others	105	17.0
Decision taken by whom for a new baby		
Husband	71	11.5
Wife	32	5.2
Both	498	81.0
No decision	14	2.2

Table 4: Logistic regression estimates of the effect of different socio-economic and demographic characteristics on discussion about reproductive health issues.

Independent variables	B	Significance	Exp(B)
Education of husband			
No education	Reference		
Up to primary	0.352	0.142	1.422
Secondary and above	1.101	0.000	3.006

Occupation of husband			
Farming	Reference		
Day labor	0.706	0.078	2.026
Service	0.995	0.023	2.706
Rickshaw puller/driver	1.830	0.583	1.201
Business	1.057	0.005	2.878
Others	0.219	0.725	1.245
Monthly income			
Upto3000	Reference		
3001-4500	0.191	0.474	1.211
4501+	-0.017	0.960	0.983
No. of living children			
More than two	Reference		
No child	0.066	0.831	1.068
One	0.557	0.031	1.746
Two	0.439	0.083	1.551
Access to Media			
No Access	Reference		
Have Access	0.889	0.000	2.433
Constant	-1.088	0.001	0.337

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CURRENT DEVELOPMENT OF NURSING EDUCATION

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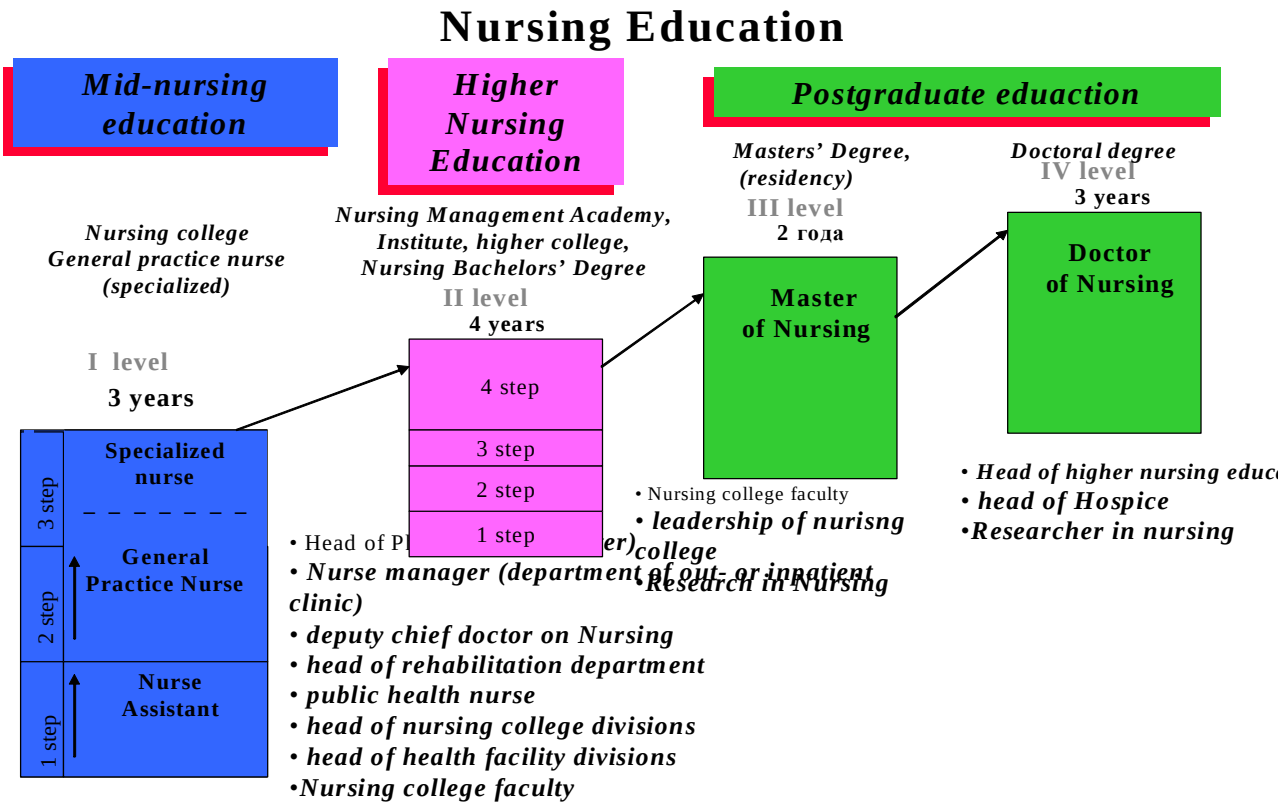
Education in our era has become one of the most important areas of human activities providing certain level of human cognitive needs and abilities development, and preparation to some type of practical performance.

During last 10-15 years problems that can't be solved within traditional methodological approaches have been raised. These problems are related to a crisis of education. Society development requires new system of education, so called "innovative education" that would form an ability to think logically, feel responsibility for the future, self confidence in own professionals skills.

Educational reforms were identified by the President in his Message to the people of Kazakhstan March 19, 2004 and were reflected in the National Program on health development and reforms, and National program on educational reforms for 2005-2010.

Medical education as a part of general educational system requires serious changes. Both health system leadership and faculty of medical educational facilities are searching new ways of educational reform. In April 2005 there was a republican workshop dedicated to the issues of medical and pharmaceutical education development. Ministry of Health presented a Concept of medical and pharmaceutical education of the Republic of Kazakhstan until 2010. The Concept is a summary of gained experience in medical training of the schools of Kazakhstan, as well as rethinking the content and medical education system. It identified new requirements to professional training and global trends of medical

and pharmaceutical education. The Concept aims at preparing health professionals able to provide qualified health services to population.



Presented Concept reflected philosophy of Nursing as a separate area of medicine, i.e. strict distinction of medical doctors and nursing education providing expansion of professional scope of nursing performance in maintaining health of an individual, a family, a community, diseases prevention and solving many societal problems. The Concept has also considered nursing training model developed by Almaty nursing college based on many years of experience in this area. It presents principles for nursing education according to multilevel system with further undergraduate, graduate, and doctoral degrees.

Developed model consists of 4 level nursing education. Nursing College which has 3 steps with length of 3 years. First step is a training of nurse assistant. Importance of this step becomes even higher with a trend to decrease length of stay in the hospital and increased need in providing qualified home care. Second step is trainindical Education (BME) oriented at working in healthcare facilities and public health. Third step might train nurses specialized in different healthcare areas (family practice nurse, TB nurse, pediatric nurse, etc.) based on local needs and requests of health organizations. This step gives an opportunity to continue nursing education getting higher nursing education with academic degrees at following second, third and forth levels.

Second level of higher nursing education is a bachelor of Nursing (four years of training). This level trains nursing managers that would be able to work as deputy chief doctors on nursing, directors of Health centers (staffed with medical assistant and obstetrician), trainers, heads of different subdivisions in health facilities and nursing colleges. Graduates of high schools and nursing schools are eligible to enter this level. Higher nursing education can be provided in higher educational facilities (Academy of Nursing Management, institute, higher nursing college). Postgraduate education includes Master and Doctoral studies, third and fourth levels accordingly. Specialists after completing their education at those levels might perform research and administrative activities in the area of nursing. Suggested model for nursing education will allow to solve many socioeconomic tasks in the area of healthcare and will create предпосылки для появления:

- Nursing human resources that possess modern technologies, and able to solve the issues of providing primary and specialized health services;
- Public health administrators, managers, and nursing leaders;
- Specialists of new generation, nurses with higher education aimed at educational and research activities in the area of nursing;
- Established nursing educational facilities with new status starting from nurse assistant to dgree nurses.

Implementation of the Concept requires:

- Development of Classificatory for specialties of mid level and higher nursing education;
- Create a list of medical specialties and qualifications according to specialty classificatory;
- Development of National standards of education for the specialty “Nursing”;
- Set differentiated labor remuneration of nurses based on position and qualification.

Thus, the country is developing a reform program for medical and pharmaceutical education that would serve as a basis for training new generation of specialists satisfying international requirements, and identifies verticals for training health human resources, both doctoral and nursing.

METHODICAL APPROACHES FOR COMPREHENSIVE EXPERT EVALUATION OF LIFE STYLE OF RURAL POPULATION

N.A. Aitmuhambetov, T.I. Slazhaneva

Key words: health of population, lifestyle.

Lifestyle is one of the most important aspects in public health. It is very important to understand that a comprehensive lifestyle concept must unite different aspects of human behavior as well as role of society in the environment.

We would like to address the concept of lifestyle as set of goals which are shaped by a person or group of people. Healthy lifestyle – is a model of behavior and interaction with surrounding environment that provides health preservation and improvement.

Healthy lifestyle is not a uniform scientific term. Rural and urban population lifestyles have different criteria. A different criterion should also be applied to different gender and age groups.

It should be clear that hazardous habits such as smoking, excessive alcohol consumption, stress, hypodynamia, and poor diet are all factors that create risks for people's health.

In general if assume S as level of individual security, then it can be divided into two parts – controllable and non-controllable by a person, hence

$$S = S_1 + S_2,$$

where S_1 – external security, which reflects condition of environment and social structure,

S_2 – internal security, which reflects individual behavior, degree of overcoming of potential risks.

Propagation of healthy lifestyle – is actually degree of propagation of healthy behavior.

If H- level of health of population, then to a significant extent

$$H = F(S) = F(S_1)F(S_2).$$

Examination of ratio of external and internal part of security is of great scientific interest. We have proposed the following model of evaluation of lifestyle for a certain region (place of inhabitance):

$$S = (I^2\ K\ A\ R\ F\ G\ O\ E)^{1/9},$$

Where parameters signify five point evaluation system of the following characteristics:

I – degree of population's knowledge on principles of healthy lifestyle/healthy behavior (the higher the point the better),

K – level of smoking (the higher the point the lower level of smoking),

A – level of alcohol consumption (the higher the point the lower level of alcohol consumption),

R – features of reproductive health (the higher the point, the better reproductive health),

F – propagation of principles of balanced healthy nutrition (the higher the point the better),

G – propagation of active lifestyle (the higher the point the better),

O – level of working conditions (the higher the point the better),

E – environment's conditions (the higher the point the better).

This method was piloted in the Zhylyiskiy region, Atyrau oblast – the region going through intensive development, where rural lifestyle is combined with great industrial growth.

We have interviewed 45 experts in the region and received an average point on every parameter for three places of inhabitance in Zhylyiskiy region, Atyrau oblast – Kulsary, Akkiztogai and Sarykamys.

Results of calculation are displayed in table 1.

Table 1. Calculation of integral expert evaluation of lifestyle in places of inhabitance in Zhylyiskiy region

Population Place of inhabitance	Evaluated parameters								
	Knowledge	Smoking	Alcohol	Reproductive health	Nutrition	Hypodynamia	Working conditions	Environment	Integral index
Sarykamys	3	1	2	4	4	4	2	3	2,670685
Akkiztogai	2	3	3	4	3	4	3	4	3,017422
Kulsary	4	4	3	3	4	3	4	3	3,519911

For interpretation of results we have proposed scale mentioned in table 2

Table 2. Interpretation of integral index of lifestyle

Coefficient S	Level of lifestyle
S>4.5	High
4.5≥S>3.5	Satisfactory
3.5≥S>2.5	Medium
2.5≥S>1.5	Below medium
1.5≥S≥1	Low

Thus we have demonstrated that according to expert evaluation which included internal and external factors, lifestyle of population in Zhylyiskiy region can be classified as medium and satisfactory.

In villages Akkiztogai and Sarykamys lifestyle is classified as medium, while in town Kulsary – as satisfactory.

The proposed method allows to conduct comparative evaluation of the situation in different places of inhabitances, which can be used as a platform for goal – oriented activities.

INFLUENCE OF GOAL-ORIENTED SETTINGS ON EFFICIENCY OF REHABILITATION TREATMENT

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Rehabilitation treatment remains as one of the integral element in a modern structure of public health /1, 2/. Medical workers possess a very good understanding of natural and recreational resources application in rehabilitation treatment of patients' /3/. Issues of efficient organization of rehabilitation treatment are particularly important for Kazakhstan where vast areas of recreation require further development /4/.

Altogether it should be noted that in the course reforming of the national healthcare system the activity of rehabilitation system has changed to a certain extent. Nowadays rehabilitation facilities potential is used more often for strengthening health of citizens and for preventing various diseases. That is why scientific and theoretical justification of the method becomes a hot issue.

We have conducted a thorough investigation of rehabilitation treatment specific features of the population of Kazakhstan in new given conditions of social-economic development. In order to do so we have defined a representative pool of patients in three rehabilitation – recreational facilities "Almaty", "Alatau" and "Ok-Zhetpes".

The table 1 presents data on selected participants.

Table 1. Structure of selected participants

	Number of interviewed				**"Almaty"**		**"Alatau"**	
"Ok-Zhetpes"	**Total**							
	Num.	%	Num.	%	Num.	%	Num	%
Males and	601	100	609	100	496	100	1706	100
Females, incl.:								
Under 18	2	0,33	15	2,46	22		4,44	
	39	2,29						
18-29 years	51		8,49	111		18,23		
71	14,31		233	13,66				
30-39 years	103		17,14		131			

				21,51	74	14,92	308	18,05
40-49 years	115	19,13	130	21,35	91	18,35	336	19,7
50-59 years	135	22,46	106	17,41	80	16,13	321	18,82
60-69 years	88	14,64	50	8,21	43	8,67	181	10,61
70 years, older	63	10,48	20	3,28	20	4,03	103	6,04
Males, total**:**	239	39,77	262	43,02	191	38,51	692	40,56
under18 years	1	0,17	5	0,82	13	2,62	19	1,11
18-29 years	17	2,83	51	8,37	27	5,44	95	5,57
30-39 years	42	6,99	59	9,69	28	5,65	129	7,56
40-49 years	47	7,82	59	9,69	39	7,86	145	8,5
50-59 years	53	8,82	46	7,55	31	6,25	130	7,62
60-69 years	42	6,99	21	3,45	23	4,64	86	5,04
70 years and older	30	4,99	7	1,15	9	1,81	46	2,7
Females, total:	330	54,91	334	54,84	255	51,41	919	53,87
Under 18 years	1	0,17	10	1,64	9	1,81	20	1,17
18-29 years	34	5,66	60	9,85	44	8,87	138	8,09
30-39 years	61	10,15	72	11,82	46	9,27	179	10,49
40-49 years	68	11,31	71	11,66	52	10,48	191	11,2
50-59 years	82	13,64	60	9,85	49	9,88	191	11,2
60-69 years	46	7,65	29	4,76	20	4,03	95	5,57
70 years and	33	5,49	13	2,13				

11	2,22	57	3,34
		older	

Thus, patients of all ages are equally represented in the interviewed poll with maximum number of patients in the age group of 40-49 years.

Number of women has prevailed among the total number of patients on rehabilitation facilities (53,8 %).

According to social status mostly civil servants were presented (30,5 %), workers from other sectors (37,0 %), retired people (16,12 %), unemployed (10,82 %), students (5,53 %).

We have identified three groups in the investigated pool in accordance with goal-oriented presence of patients in rehabilitation facilities:

- people who are present solely for recreation purpose;
- people who are present for recreation purpose as well as for treatment and disease prevention;
- people who are present not for recreation.

It was revealed that 25,0 % of interviewed came to a rehabilitation facility for recreation, for 25,5 % recreation is not the only purpose and for 46,6 % of interviewed recreation was not a purpose of arriving.

Patients who had solely recreational purpose (25%) are of special interest for investigators.

Obviously that this group of patients is comprised of, (1) people with no pathologic alterations, “essentially healthy”, (2) patients with undiagnosed diseases, (3) patients with diseases who however do not deem rehabilitating facility as a mean to enhance health.

This group of patients is actively using rehabilitation facilities services which demands development of a special program for rendering such.

46,6 % of interviewed do not have recreational purpose and come to rehabilitating facilities in order to prevent or treat a disease.

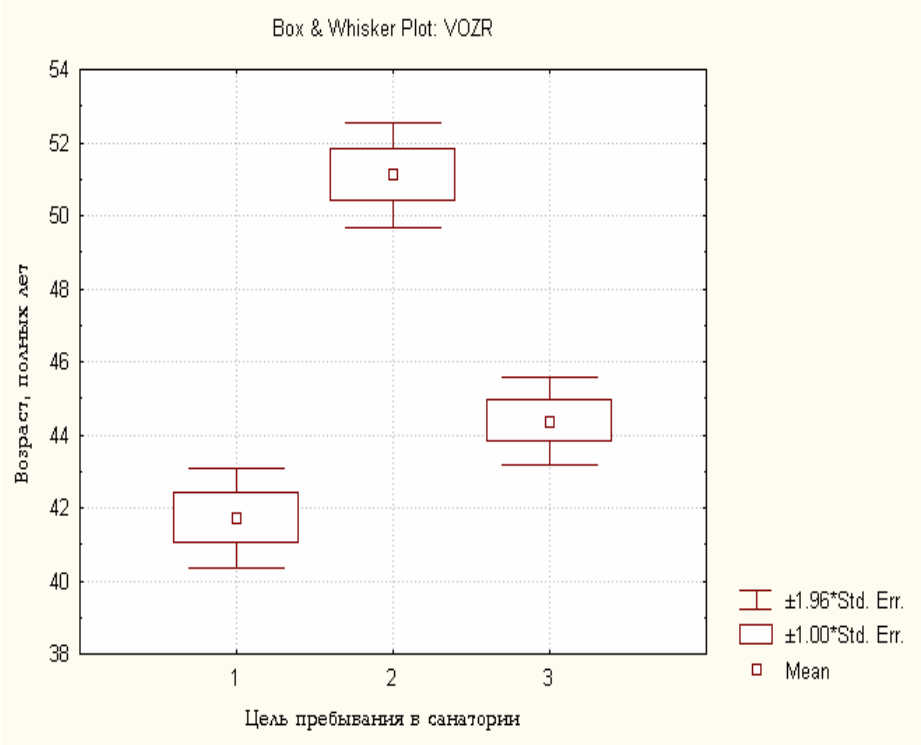
Figure demonstrates 1 group distribution by age structure.

Group distribution by age structure

Thus, studied groups statistically differ by age structure. People who come to rehabilitation facilities solely for a recreation purpose generally belong to a younger group of patients, with mean age of 41,71±0,56 years old. Recreation is one of the reasons for coming to a facility for people aged around 51,1±0,57 years. Recreation is not a reason for coming for people within the age group of 44,3±1,07 years.

Subjective estimation of “general condition” in the studied groups

1 – recreation is a sole reason, 2 – recreation is one of reasons, 3 – recreation is not a reason



1 – recreation is a sole reason, 2 – recreation is one of reasons, 3 – recreation is not a reason

Figure 1

Figure 2.

This data confirms the fact that rehabilitation facilities are started to be deemed not only as a mean to improve one's health after certain diseases, but also as a "place for rest". Elderly people prefer to combine recreation with improvement and restoration of their health while visiting rehabilitation facilities.

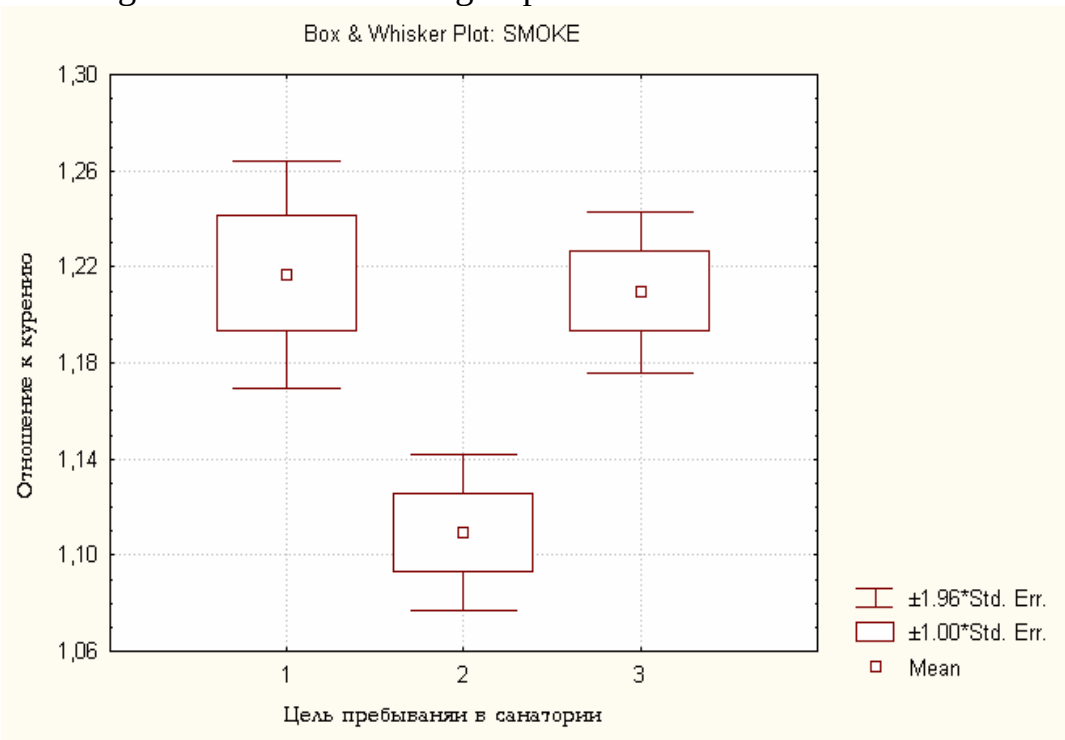
At the same time, it should be pointed out that people with mixed purpose have a significantly lower self-esteem of their own health compared to other two groups (figure 2).

Such fact should be interpreted taking into account that need for “rest” evidences feeling of being unwell.

People who come to rehabilitation facility to treat and prevent diseases on average feel better than do people who only emphasize their need for “rest».

Also it was noted that in the group with mixed purpose of staying in a facility smoking is less popular compared to other groups (figure 3).

Smoking habits in the studied groups



1 – recreation is a sole reason, 2 – recreation is one of reasons, 3 – recreation is not a reason

Scale of “smoking habits” has a tendency to increase with growing number of smokers as well with a number of intensive smokers

Figure 3

We have used a criteria for determining self- esteem of treatment efficiency in rehabilitation facility. All interviewed people were asked to depict following signs of improving health, such as fatigue decrease, sleeping improvement, pain vanishing, shortness of breath disappearance, elimination of cardiac rhythm abnormalities, lessening of gastrointestinal complaints, joint motility increase, weight normalization and other sings of health improvement.

Suggested criterion is an indicator, defined as

$IMPACT = \sum a_i$,

Where a_i – accordingly 1 or 0 depending on answers received on health improvement.
According to multifactorial regression analysis we have developed a forecast function, which allows for predicting efficiency level of rehabilitation treatment as follows:

IMPACT ~ 3,5 +0,026 DAYS +0,027 AGE +0,3 OTD (P<0,05),
Where IMPACT – efficiency indicator, DAYS – period of time in a facility (days), AGE – age (years), OTD - purpose of staying in a facility (0 - recreation is not a reason, 1 - recreation is a sole reason, 2 – recreation is one of reasons).
Suggested model is demonstrated on figure 4.

Correlation between rehabilitation treatment efficiency and period of time spent in a facility and subjective goal-oriented setting

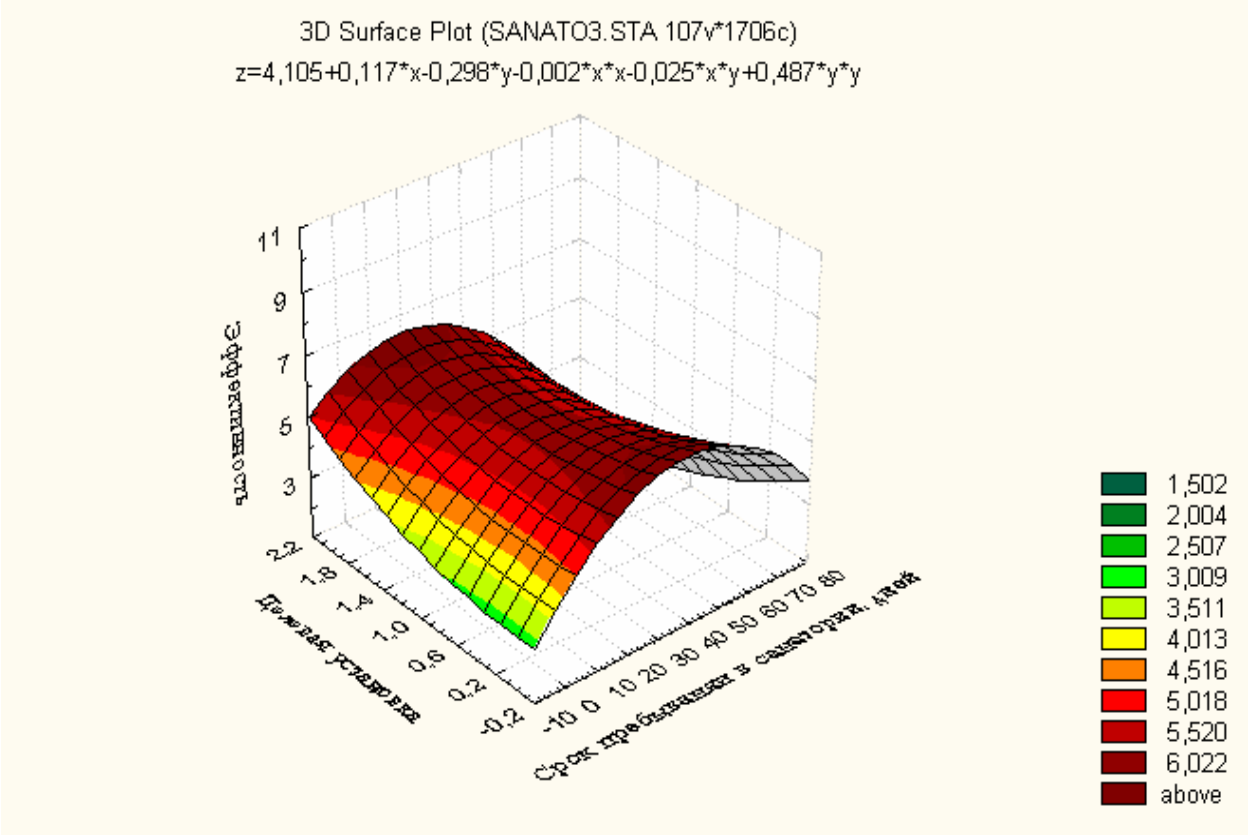


Figure 4.

Important factor, influencing treatment efficiency is a goal – oriented setting of rehabilitation treatment. The maximum treatment effect is obtained in the group of patients where recreation was combined with disease prevention.
Other significant factors are age (efficiency grows with age) and time of staying in a facility (efficiency grows with number of days spent).

Conclusion:

1. Goal – oriented setting is an important aspect, which creates motivation for population to turn for rehabilitation treatment.
2. Significant amount of people, while coming for rehabilitation treatment, is staying solely for recreation purpose. Average age in this group of patients is the youngest, and subjective estimation of one's health is medium among other groups with different goals.
3. Rehabilitation treatment efficiency, defined by the level of differentiated subjective improvement of health, depends on the age of a patient, time spent in a facility as well as on goal-oriented setting, with this the maximum treatment effect is obtained in the group of patients where recreation was combined with disease prevention.

DETERMINANTS OF HUMAN RESOURCE SUPPLY FOR TERRITORIAL BRANCHES OF STATE SANITARY-EPIDEMIOLOGICAL CONTROL IN THE REPUBLIC OF KAZAKHSTAN

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Current situation. Presently the structure of sanitary – epidemiological service is being reformed according to the Law on Sanitary – epidemiological well-being of population № 361-II LRK dated 04.12.02. The elevated importance of political and social aspects is stipulated in sections 5.2.3., «Provision of sanitary-epidemiological well-being» in «State program on reforming and enhancing health care system in the Republic of Kazakhstan in years 2005 – 2010».

The major part of specialized investigations on organization of sanitary-epidemiological system activities was carried out in the Soviet Union. However with changes in public and political spheres under conditions of reformed service, results of these investigations are not applicable on a large due to differences in legislative basis and approached towards reforming the system.

Problems with human resources supply for Kazakhstan are particularly significant due to service division into branches of state sanitary-epidemiological control (SSEC) and organizations of sanitary-epidemiological service – centers of sanitary – epidemiological expertise. With this recruitment of personnel for organs of SSEC is carried out on a totally new basis, regulated by corresponding provisions on state service. A number of legislative acts control forms and methods of activities.

Aim of the study - to determine and to analyze basic activity indicators of sanitary-epidemiological service in the Republic of Kazakhstan, which are necessary for further justification of principles and development criteria for typical personnel standards during reformation time.

In order to achieve the set goal, it was necessary to find solution for a major issue – to define basic activity indicators for organs and organizations of sanitary – epidemiological control, which can be applied to choosing approaches, criteria elaboration and ground principles for typical human resources standard in branches and organizations of sanitary (sanepid) service.

Objects and methods of investigation. Report form #18 was used as a basis for receiving convincing data on functioning of service organizations. All data was grouped and processed according to modern requirements of statistics using computer software.

Results of the study. It was revealed that the most significant features that define the scope of activities of branches and organizations are the size of the population residing on the corresponding territory and number of units, and people subject to sanitary epidemiological control.

While analyzing the number of units, subjects to sanitary-epidemiological (sanepid) control were calculated per 10000 populations.

Number of units subject to sanitary epidemiological control per 10000 population in rural area is significantly (by 11 %) higher compared to urban areas ($p < 0,001$).

The total number epidemiological controls per 10000 populations are bigger in rural area, than in urban – mostly due to reasons on children and teenage hygiene and institutions on commune hygiene. In general the majority of controlled objects are under commune hygiene organs (39, 9 % in rural regions and 27, 8 % in towns) and under organs on nutrition hygiene (accordingly 36,1 and 48,2 percent).

For branches of sanepid control at the regional level there is a correlation between number of objects of control and size of population on the corresponding territory.

Thus, in accordance with abovementioned when determining staff list standards in branches of sanitary epidemiological control, the size of the population should be used as a defining factor. However, special coefficients must be calculated considering the bigger number of objects of inspection per 10000 populations in rural regions and also in Astana.

Differences between number of inspected sources by regional sanepid branches in minor cities and oblast organs are not statistically significant. Significant differences were revealed only between number of sources inspected by city control branches from one side and three other branches of different levels from another side ($p < 0, 05$). High variability of number of sources is due to regional specific features and infectious incidence rate. This fact should be taken into consideration while determining list of members of staff in organs of sanitary epidemiological control.

Conclusions and recommendations

1. The most important features that characterize scope of activities of territorial branches of SSEC include number of objects of control and amount of infection sources on the corresponding territory, which are expressed in relative

values per 10000 of population which together with other features allow to provide sound and differentiated suggestions on human resources supply.

2. Revealed correlation between number of objects of control and size of population on the corresponding territory laid the ground for advisement to determine list of staff members according to size of population on the interested territory.

3. The number of units-subjects to sanitary epidemiological control per 10000 population in rural area is significantly (by 11 %) higher compared to urban areas. The total number of objects of sanitary epidemiological control per 10000 populations is bigger in rural area, than in urban – mostly due to objects on children and teenage hygiene and institutions on commune hygiene. In general the majority of controlled objects are under commune hygiene branches (39, 9 % in rural regions and 27, 8 % in towns) and under branches on nutrition hygiene (accordingly 36, 1 and 48, 2 percent).

4. The number of staff members per 10000 of population in sanepid branches on regional level in rural areas should by 10 % bigger than in branches acting in urban areas, while in Astana this number should by 20 % higher that in city administration departments.

5. High variability of number of sources is due to regional specific features and infectious incidence rate. This fact should be taken into consideration while determining list of members of staff in branches of sanitary epidemiological control. Number of inspected sources of infection must serve as a standard for determining size of staff members, including: for regional administrations of SSEC $\approx 150 \div 202$; for administrations SSEC in small towns $\approx 300 \div 596$; administrations of SSEC in oblast towns $\approx 1143 \div 2115$; for oblast departments of SSEC $\approx 290 \div 720$.

6. These results can be used as a scientific approach for planning and further conducting a thorough investigation on problems of optimizing human resources supply for branches of sanitary epidemiological control.

ROLE OF SERTAIN MEDICO-SOCIAL AND SANITARY-EPIDEMIOLOGICAL FACTORS IN ASSESSMENT OF QUALITY AND AVAILABILITY OF MEDICAL ASSISTANCE

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The message of the President of the Republic of Kazakhstan called “Kazakhstan – 2030” states that: prosperity, safety and welfare of citizens of Kazakhstan” incorporates a program aiming to increase welfare of the population and which underlines that the highest priority is given to development of public

healthcare and strengthening health of the population. These questions are addressed by "State program on reforming and enhancing public health in the Republic of Kazakhstan for 2005-2010".

According to the abovementioned documents it can be concluded that preventive approach should be oriented towards improving administration in the sector and perfecting quality and availability of medical service. At the same time special attention should paid to the system rationalizing sanitary – epidemiological norms as an essential element of quality and availability of medical service. As a rule work of medical establishment is evaluated on the basis of professional analysis of different indicators without considering patient's and medical personnel opinion with regard to the quality of rendered medical services /1/. While in our point of view patient's opinion survey has a very significant role.

In the available literature we have found a few investigations dedicated to this issue.

In order to study patients' opinion on the question of functioning of in-patient care department Likstanov M.I. and co-authors undertook anonymous questioning survey of hospitalized patients. Over 5 types of questionnaire forms were elaborated, where patients were asked to asses: satisfaction with results of medical assistance; satisfaction with doctor's, nurses' and attending staff quality of care in the hospital; satisfaction with quality of diagnostics; satisfaction with drug supply. Also waiting time in the admission area was assessed as under 30 minutes, up to 60 minutes, over 60 minutes as well as quality of information provided by doctors and nurses.

Thus, patient survey helps to navigate in problematic issues of quality of rendered medical service, to assess priority directions in the process of organization /2/.

The similar sociologic investigation was conducted by T.Sh. Abildaev and coauthors in 2001 in Zhambyl oblast. Two types of questionnaire forms for population and doctors' survey were developed. Patients' satisfaction issues with regard to medical care were studied as well as main reasons and factors that influence its quality. Also it was suggested to introduce ideas on further enhancement of healthcare system on the concrete territory /3/.

Majority of the publications show quality of medical care as patient's satisfaction with rendered medical service, however questions of patient's satisfaction with the entire medical establishment, in particular with it's sanitary condition, facilities accomplishment, geographical availabilities as an integral indicator of town planning are rarely addressed. Moreover problems of long waiting period, overcrowding of a medical establishment with patients are directly related with capacity and localization of medical institution's compliance with construction and sanitary norms and rules.

Any services including medical must be of a high quality meaning they must meet all established standards and requirements for this type of activity /2/. All mentioned allows to recognization of all standards and requirements as social and sanitary-hygienic conditions.

In order to study influence of sanitary-hygienic factors on quality and availability of primary medico-sanitary help (PMSH) for population we have used material of World investigation of Health conducted by World Health Organization in collaboration with Highs School of Public Health in 2002. We have chosen sections that included issue on related problem, in particular: assessment by population of "geographical availability and waiting time", medical establishment facilities (infrastructure, which includes sufficiency of places of rest, premises conditions, heating system during cold and warm period of year) and so on. With this purpose over 635 people were questioned, out of whom 298 resided in Taraz and 337 in Almaty.

Analysis results have revealed the following:

1. analyzing section "Ambulatory – policlinic care" of the questionnaire we found out that 64,3% to 91,4% of interviewed in Taraz and Almaty assessed such parameters as geographical availability, waiting time, facilities accomplishment and medical establishment's interaction with an outside world as "immensely important" and "very important". With that number of people who responded this way was significantly higher in Almaty.

2. Citizens of Taraz and Almaty spend the same amount of time on the way to a medical establishment, thus up to 30 minutes spend 93,9% of patients in Taraz and 90,9% of patients in Almaty, which is a good indicator for medical care geographical availability, despite the fact that the city is an oblast center and the second is city of republican significance. However average time spent on the way to a medical establishment 70,7% of interviewed in Almaty assessed as "very good" and "good", while in Taraz only 58,8% of citizens gave this estimate ($p<0,05$).

3. 46,8% of interviewed in Almaty have used means of public transportation and 2,8% - ambulance car which was statistically significant ($p<0,05$) compared to the data from Taraz where residents have mostly walked to medical facility – 37,9%.

4. Waiting time for medical service, sufficient space in waiting areas and examination rooms, tidiness of out-patient care facilities including restrooms, both groups of interviewed assessed similarly.

5. Analyzing "Emergency care" section of the questionnaire we have obtained the following results:

Time spent on the way to the clinic all respondents considered the same, only 7% of patients in Almaty have spent from 60 to 90 minutes which was statistically significant. However residents of Almaty have employed ambulance cars three times or by 24,1% more often than resident in Taraz ($p<0,05$). While in Taraz 14,3% of residents, which is 10 times more than in Almaty, have walker to in-patient care facility ($p<0,05$). Equal amount of interviewed have used private and public means of transportation.

6. Average time spent on the way to hospital, tidiness of out-patient care facilities, sufficient space in waiting areas, for both groups of residents evaluated similarly.

Analysis of obtained results confirms that an issue of addressing problems of enhancing medico-sanitary conditions as an aspect of providing high quality and available medical care plays a very important role for satisfying patient's needs. One needs to consider not only satisfaction with quality of rendered medical care, but also satisfaction with conditions in which such medical care was provided. This lays the ground for more thorough examination of current situation where patients are dissatisfied and in order to achieve higher quality of medical care.

ENHANCING THE STRUCTURE AND HUMAN RESOURCES SUPPLY OF SANITARY-QUARANTINE UNITS

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System of sanitary defense within the boundaries and territory of the Republic of Kazakhstan is a basic requirement for the entire system of national security. This system stipulates complexity of state activities to control the process of passage of people and goods shipment through the boundaries in order to prevent introduction of infections, parasites and substances potentially dangerous for the citizens.

According to the current legislation, sanitary–quarantine control of the boundary is carried out by the territorial departments of the authorized agency within the sanitary-epidemiological system. /2, 3, 4/.

These departments on the national boundary are sanitary – quarantine and sanitary – control units (SCU). All people and shipment crossing the boundary are subject to inspection by SCU.

Currently, there are 47 sanitary – quarantine and sanitary – control operating units including: 30 transportation sanitary –quarantine units; 2 sea SCU (port Aktau and Bautino); 11 – at the international airports; 1 – at the frontier railway station "Druzhba" and 3 sanitary – control units at the railway stations (Almaty –1, Almaty 2, Astana). It is important to remember that organization of SCU is defined only by its necessity to be present at the site, but not by the level of service the personnel should provide.

The existing number of transportation SCU do not reflect the actual requirement. There are 51 passing points through the state boundaries on big roads. However only 31 SCU exist. There are no SCU on 4 roads bordering with Kyrgyz republic (Zhambyl oblast), on 2 roads with Uzbekistan (Kyzylordinskaya oblast), on 8 roads borders with Russia (west Kazakhstan, Kostanai oblast).

All sanitary control units are manned in accordance with financial ability of the region. Very often SCU do not have sufficient human resources. For example, SCU are manned with medical personnel only in 30,7% of cases

Table 1

Medical personnel supply at the road SCU.

Human resources	Number of shifts, working regime	Number of SCUs	Recommended number of total employees	Number of employees confirmed by local	Actual number of working people	% of availability of recommended personnel MH RK	% of availability of employees confirmed by local
Doctors	1	5	5	6	6	120,0%	100,0%
	2	7	14	7	6	42,86%	85,71%
	3	18	54	17	12	22,22%	70,59%
Nurses	1	5	10	6	6	60,0%	100,0%
	2	7	28	11	11	39,29%	100,0%
	3	18	108	30	19	17,59%	63,33%
paramedical personnel	1	5	5	6	6	120,0%	100,0%
	2	7	14	6	6	42,86%	100,0%
	3	18	36	12	12	33,33%	100,0%
Total:	3	5	20	18	18	90,0	100,0
	6	7	56	24	23	41,1	95,8
	9	18	198	59	43	21,7	72,9
TOTAL:	-	30	274	101	84	30,7	83,2

According to collected data, there were 825552 crossings of the border by people using roads of Kazakhstan in 2003. Thus, one team of transportation SCU per shift has 165110 people and 10210 units of transport to examine per year. This means 453 people examined/interviewed per shift, or 56 – 57 people per hour.

The similar situation is taking place in the air transportation system. There are 16 airports in the country that are capable of handling international flights (14 in the oblast centers, and in Almaty and Astana). However only 12 of them possess international status, 1 airport is out service (Kostanai). Permanent SCUs is organized in 7 operating airports, (Astana, Almaty, Atyrau, Taraz, Karaganda, Aktau, and Shimkent), while the the other 4 airports do not have permanent SCU. Given the absence of permanent SCU periodical sanitary in these airports (Ust-Kamenogorsk, Semei, Kostanai, Pavlodar), the epidemiological control is carried out upon request from frontier and customs service by teams operating within department of sanitary. Organizationally, 6 SCUs comprise the structure of oblast sanitary – epidemiological control system in Atyrau, Usk-Kamenogorsk, Semei, Taraz, Aktau and Shimkent. Currently medical personnel supply at the airport

SCU is 56, 3% according to the decree № 235 and 90,0% according to the human resources list authorized by local (oblast) organs of power (table 2).

According to collected data, work obligations for each SCU team per one shift at the airport were:

- Astana, Almaty airports - 863 air flights and 67285 passengers per year (2,4 air flights and 185 passengers per day);
- Atyrau, Taraz, Aktau, Karaganda and Shimkent airports 225 air flights and 10412 passengers per year. (0,6 air flights and 25 passengers per day).

SCU of sea ports "Aktau" and "Bautino" are part of the organization and employees of Mangystau oblast department of State sanitary-epidemiological control. The SCU sea ports medical personnel provision is 22% according to the decree # 235, and 100% according to the human resources list authorized by local (oblast) organs of power (table 3). During 2002, 1602 sea ships were examined out of which 262 were private. These resulted examination and interviewing of 7743 passengers and 42370 crew members. The Actau sea port volume of examination/interviews consisted of 1551 sea ships with 7740 passengers and 41819 crew members. Working obligation per one team in Aktau SCU was 518 ships and 16520 passenger and crew members per shift in one year (1,4 ships and 45 people per day). In Bautino working load were 17 ships and 553 passengers and crew members per shift per year.

Table 2

Medical personnel supply at SCU airports

SCU airports	Number of shifts, working regime	Number of SCUs	Recommended number of total employees	Number of employees confirmed by local	Actual number of working people	% of availability of recommended personnel MH RK	% of availability of employees confirmed by local organs of power
Doctors	1	4	4	4	3	75,0%	75,00%
	2	0	0	0	0	0	0,0%
	3	5	15	13,5	10,5	70,0%	77,78%
		2	2	2	2	100,0%	100,0%
Nursing staff	1	4	8	5	5	62,5%	100,0%
	2	0	0	0	0	0,0%	0,0%
	3	5	30	9	8	26,67%	88,89%

	Upon request from road blocks and customs control	2	4	2	2	50,0%	100,0%
Paramedical personnel	1	4	4	1	1	25,0%	100,0%
	2	0	0	0	0	0,0%	0,0%
	3	5	15	5	5	33,33%	100,0%
	Upon request from RB and CS	2	2	0	0	0,0%	0,0%
Total:	1	4	16	10	9	56,3	90,0
	2	0	0	0	0	0,0	0,0
	3	5	60	27,5	23,5	39,2	85,5
	Upon request from RB and CS	2	76	37,5	32,5	42,8	86,7
TOTAL:	-	11	16	10	9	56,3	90,0

Table 3

Medical personnel provision at sea ports SCU

Sea ports SCU	Number of shifts, working regime	Number of SCUs	Recommended number of total employees	Number of employees confirmed by local	Actual number of working people	% of availability of recommended personnel MH RK	% of availability of employees confirmed by local
Doctors	3	2	6	2	2	33,33%	100,0%
Nursing staff	3	2	12	2	2	16,67%	100,0%
Paramedical personnel	3	2	9	2	2	22,22%	100,0%
Total	3	2	27	6	6	22,22	100,00

Recently new unknown diseases such as SARS and avian flu were registered among the population. With this concern a “Complex program on enhancement and fortification of the borders – countries – members of Eurasia economic

society" was developed. This program stipulates building of separate modules SCU within road blocks.

The results presented above leads to redefine primary goals of the sanitary border security system that have to be addressed by the territorial departments of the authorized organs:

- express laboratory-diagnostics of quarantine, zoonoze and newly evolved infections at the border;
- Examination and detection of transportation insects – transmitters of infectious diseases, parasites and dead rodents;
- Detection and exposure of containers with bio pathogens;
- Detection and exposure of dangerous rodents from 2nd to 9gh grade of risk;
- Detection and exposure of other potentially dangerous biological, chemical, radioactive substances which are not deemed as directly dangerous, but are hazardous to environment;
- Food products expertise.

These goals cannot be achieved without creation and development of enhanced bacterial and sanitary – epidemiological laboratories equipped with suitable equipment and staffed with professional personnel.

Main conclusions and recommendations:

1. SCUs, on the border, function as state control organization as well as sanitary epidemiological expertise. Employees (head of SCU, epidemiologist, sanitary doctor, and radiologist, assistant to epidemiologist) must be civil servants and be part of the structure and staff of the oblast departments of state sanitary epidemiological service. Laboratory group (doctor – laboratory technician, doctor – bacteriologist, disinfection specialist and hospital attendant) must be part of structure of the oblast center of sanitary – epidemiological expertise.
2. Typical list of SCU member's staff is defined by the composition of the personnel, which provides all control activities during the shift (table 4).

Table 4

Recommended list of members of typical SCU at the frontier block posts Of the Republic of Kazakhstan

№№	**Positions**	**Number of shifts**		
		1	**2**	**3**
1	Head of SCU (with higher sanitary – hygienic education)	1	1	1
2	Leading expert – epidemiologist	1	2	3
3	Leading specialist – sanitary doctor (general major);	1	2	3
4	Radiologist (dose amount specialist);	1	2	3
5	Doctor– chemist laboratory specialist	1	2	3

6	Doctor bacteriologist	1	2	3
7	Specialist – assistant to epidemiologist	1	2	3
8	Disinfection specialist	1	2	3
9	Hospital attendant	1	2	3
Total		9	17	25

3. While defining number of shifts necessary for proper functioning of SCU, one need to consider passing ability of the state border block post and recommended norms:

- For road- transport SCU - 10 thus and unit of transport per year per 1 team/per shift;
- For airport SCU– no less than 300 of air flights per year per 1 team/per shift;
- For sea (river) ports – 1 ship per day per 1 team/per shift.

4. In order to provide effective sanitary – hygienic control on the state border of the RK it is necessary to enhance the SCU system and establishment of typical SCUs in the RK (table 5,6) with suggested structure of list of members on exterior borders of countries – members of Eurasia economic society:

Table 5

SCU enhancement and establishment quantitative characteristics

№	**Post blocks**	**Number**	**Project suggestions on SCU**	
			Construction	**Reconstruction**
1	Sea	2	1	1
2	River	-	-	-
3	Air	12	-	12
4	Automobile	17	17	-
5	Railroad	1	1	-

Table 6

The RK SCU location on the exterior border with countries – members of the Eurasia economic society

№	Oblast of the RK	Name of SCU	Border EurAsES
1. sea SCU			
1	Mangistayskaiya	Bautino	Countries of the Caspian region
2	Mangistayskaiya	Aktau	
2. Automobile SCU			
1	Almatinskaya	Dostyk	China
2	Almatinskaya	Korgas	China
3	Almatinskaya	Kolzhat	China
4	Kyzylordinskayia	Myntai	Uzbekistan
5	Kyzylordinskayia	Nynsan	Uzbekistan

6	Kyzylordinskaya	Karibai	Uzbekistan
7	East Kazakhstan	Bahty	China
8	East Kazakhstan	Mai Kapshagai	China
9	Mangistayskaya	Temir Baba	Turkmenistan
10	South Kazakhstan	Kaplanbek	Uzbekistan
11	South Kazakhstan	Zhibek Zholy	Uzbekistan
12	South Kazakhstan	Darhan	Uzbekistan
13	South Kazakhstan	Yntymak	Uzbekistan
14	South Kazakhstan	G.Muratbaev	Uzbekistan
15	South Kazakhstan	Mahtaly	Uzbekistan
16	South Kazakhstan	Atakent	Uzbekistan
17	South Kazakhstan	Birlik	Uzbekistan
3. Railway SCU			
1	Almatinskaya	Dostyk	China
4. Air transport SCU			
12 SCU in international airports in cities: Astana, Almaty, Aktobe, Karaganda, Kostanai, Uralsk, Pavlodar, Petropavlosk, Shymkent, Ust Kamenogorsk, Semei, Taraz			

ON THE ISSUE OF SALARIES OF MEDICAL WORKERS IN REPUBLIC OF KAZAKHSTAN

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Introduction. The average monthly salary for doctors in Kazakhstan was KZT 17 801 ($137) in 2003. The nursing staff earned KZT 11 328 ($87), while the hospital attendants earned KZT 8 648 ($66,5), which actually leave medical workers below the level of poverty. This is due to a current system of payment for civil medical servants. These low payments are associated with budget deficit existing in this field where only 2,4% of GNP goes to health care), furthermore the share of salaries comprises 30% of the health care budget. The payments to healthcare workers are equal and do not take into consideration productivity or quality of their work, especially for doctors.

Aim. According to the State program on reforms and development of public health in RK for 2005–2010, suggests increase for healthcare workers starting in 2006. Here, we address the issues on development of new approaches towards enhancement of payment system.

In order to achieve this goal one need to resolve the following tasks:

1. Creating ways of differentiated labor payment by modifying the current system of payment.

2. Development of conceptually new model of differentiated labor payment .

3. Detection of approaches for assessment of amount and quality of medical assistance and distribution of means of encouragement.

Discussion. Elaboration of different ways and modifications convinced us that in order to observe remarkable results we need to develop a conceptually new model of labor payment, because the very idea of old scheme did not include a differentiated approach towards payment.

While elaborating a new model and making calculations we have aimed to reach the following parameters:

1. to approach world standards according to which share of salary comprises 40-57% of entire budget expenditures for public health;
2. to raise an average salary of medical workers to the level of salaries in other fields;
3. to enhance all elements of the new salary payment model with tools of incentives.

According to preliminary calculations, the share of salary in 2006 must reach to KZT 90 billion which comprises around 40% of the planned budget for public health (KZT 227 billion). .

As a first step, during 2006and 2007 direct increase of salary is expected. All elements of the new model will be involved such as additional payment for amount and quality of work. Additional payment is significantly increased for encouraging doctors to work in rural areas. Also amount of additional payment is increased for hazardous specialties, such as x-ray investigation.

As a second step, during 2008-2010 increase of salary should take place as a result of growing extra payments for amount and quality of work, because by this time the entire administration system will be improved as well as elaborated approaches towards differentiated payments.

Resume: investigators have analyzed the current situation on salary payment to medical workers and have elaborated different methods of modifying the present system. Authors suggested that the proposed model with improved system of medical care quality assessment should become a cornerstone for differentiated work payment.

ACCESSIBILITY OF HEALTH SERVICES AND LEVEL OF ADDITIONAL OUT-OF-POCKET PAYMENTS OF THE POPULATION IN ALMATY

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During transition period, a key problem of health care system of the Republic of Kazakhstan is a significant gap between guaranteed free of charge

health services package and its financial implications. Accessibility to health services for was number of people has been significantly deteriorated, because of the co-payment for health services has increased.. In addition, the informal payments has increased due to inability of the Government to provide free of charge health services to all. **(**1**).**

Goal of this research is: to study accessibility of health services and additional payments from population by analyzing questionnaires of the World Health Survey 2002 conducted by Kazakhstan School of Public Health as sanctioned by World Health Organization.

Materials and methods:

As subjects of the study we selected the population of Almaty. Sample size was 337 adults. Age of respondents varied from 19 to 81 years old, 61.7% were women, and 38.2% were men.

Results:

Health self-evaluation scale was used to assess ones' own health. The survey revealed that 45.1% of respondents assess their own health as "good", while 37.6% respondent indicated as, "satisfactory". Only 8% of the respondents assessed their own health as "very good". Similar percentage of people assessed their health as "bad".

In terms of gender distribution 3.5% of women, and 14.7% of men assessed their health as "very good"; 40% of women, and 51% of men assessed their health as "good"; and 44.7% of women and 26.3% of men assessed it as "satisfactory". "Bad" level of health was marked by 8.6% of women, and 6.9% of men.

Further analysis of these data shows that 2/3 of men evaluated their health as "very good" and "good" according self-evaluation scale, and only 43.5% of women consider their health as "very good" and "good".
Distribution of respondents by education demonstrated that approximately 40% of respondents with high school education and 49% of university education evaluated their health as "good". "Bad" health was reported by 9.4% of respondents with high school education and 7.7% with university level education.

Majority of respondents (73%) received health services in outpatient facilities, 17.7% - in inpatient ones, and 9%- at home. From the number of outpatient facilities where respondents received the health services during last 12 month, 84.6% were public health facility and only 14.7% were private. Almost half of respondents used public transportation to get to the health facilities, 17.5% used own transportation means, and 24.5% walked on foot.

From the number of respondents that had pharmaceutical prescribed 66.3% were able to purchase all pharmaceuticals, 20.6% - majority of prescribed drugs,

9.9% - only part of them, and 2.1% - only minor part. The main reason of non purchasing pharmaceuticals was lacking financial resources (45.4%), 27.2% of respondents were not sure that they really needed them, 14.2% already had it at home.

The Survey also revealed that outpatient services required additional costs for the majority of patients. Outpatient services were free of charge for 32% of respondents. Costs of outpatient services for the rest of respondents varied from KZT 137.00 to 15000.00. Pharmaceutical costs were from KZT 200.00 to 10 000.00. Lab services costs varied form KZT 150.00 to 14 000.00

Hospitalization also endangers financial well-being of the population. Approximately 38% of respondents paid for services of health providers, this amount varied from KZT 500.00 to 90 000.00. Amount of pharmaceuticals for those who had to purchase them varied from KZT 1000.00 to 80 000.00. Approximately 28% of respondents had to pay for laboratory services, and this costs varied from KZT 500.00 to 11 000.00.

Conclusion:

Analysis of data on payment amounts and types for health services demonstrated that there is a trend to pay for the services that are guaranteed to be free of charge by the legislation. Under conditions of insufficient state financing for the health sector, a burden of costs for health services has shifted to the patients. This fact becomes a barrier to accessibility to health services, and especially for socially vulnerable populations. Provision of accessibility to health services under conditions of scarce health resources requires application of different tools to solve a problem of lacking financial resources to secure state guarantees for health services.

IMPLEMENTATION OF ORGANIZATIONAL TECHNOLOGIES IN POPULATIONS' HEALTH MANAGEMENT IN BIOGEOCHEMICAL PROVINCES UNDER NEW SOCIAL-ECONOMIC CONDITIONS

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This article describes a research conducted in Zhambyl oblast which had as a main goal development and implementation of organizational technologies in populations' health management in biogeochemical province by studying mechanisms of its development on the basis of longitudinal analysis of sanitary and hygiene conditions, health indicators dynamics, and forecasting situation with

mathematical model under the conditions of rehabilitation of industrial capacity of the region.

The article is analyzing environmental and industrial pollution in Taraz from the moment of establishing first industrial enterprise on mineral fertilizer production until recent days. It describes the findings of the research related to the mechanisms of negative impact of industry on the environment as follows: 1. significant growth of mineral fertilizers production; 2.regress of disposal facilities comparing to production progress; 3. imperfect production equipment; 4. non-compliance with State Sanitary-Epidemiology service regulations.

Research also demonstrates link between industrial pollution and health of the population inhabiting the area. Morbidity of workers is higher than average background level by 14% - 24% and it includes diseases of nervous system, skin and subcutaneous, Uri genital and blood circulation systems.

All bio geo chemical zones have the highest rate of respiratory diseases from 10.8% in moderately dangerous zone up to 39.7% in extremely dangerous zone. Second rank belongs to psychiatric disorders which were from 9.5% in moderately dangerous zone up to37% in extremely dangerous zone.

Research has found out that Sanitary Epidemiology Service is kept out of regulation of the industrial process under current economic conditions when industrial enterprises no longer belong to the State. Researchers demonstrated how State Sanitary Epidemiology Service could be restructured in order to achieve the goals of National and regional Program “Health of the Nation” and involve chemical industry in the process of solving environmental problems of the region.

Conclusions: Dynamic observation of the environmental factors, quantitative and qualitative analysis of hygiene and socio-economical factors impact on health with forecasting mono- and polyfactor systems will allow State Sanitary Epidemiology Service to take timely measures to protect population from their negative impact. Optimizing activities presupposes changing methodology of planning activities. The most important is to provide priority of high quality sanitary surveillance over industrial objects representing potential danger for health of the population inhabiting the territory

Implementation of organizational technologies into activities of the state Sanitary Epidemiology Service will provide efficacy in performing its functions assuring sanitary epidemiological welfare of the population

CONCEPTUAL APPROACH TOWARDS DEVELOPING SERVICE OF MEDICAL CATASTROPHES IN THE REPUBLIC OF KAZAKHSTAN

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During the last decade, the world has faced a significant increase in number of catastrophes of natural and technological nature. The sad experiences with medical service organization in Armenia and Chernobyl have showed lack of training and professional skills of people in these extreme situations.

The aim of the study is to determine basic principles of organization of SMC and ways of enhancement.

Methods and materials of investigation.

The medical catastrophes are a high priority in the Republic of Kazakhstan.

Experience from leading countries in the world shows that the service must organized on the basis of territorial – industrial and regional basis, and applying this to our country must be presented on three levels: national, regional and territorial.

On all levels, means and resources must be founded on the forecasted general and medical situation with maximum involvement of medical facilities' infrastructure that is situated on the administrative territory. At the same time regional service of medical catastrophes must take a functional form within the state system on prevention and eradication of outcomes for extreme situations. [1].

In determining basic directions of development of service of medical catastrophes, an emphasis must be placed on finding solutions to the following problems:

- improvement of legislative basis and organizational regulation of service activities;
- First priority should be given to security and medical sanitary supply for the population in extreme situations;
- maintaining persistent readiness of organizations and divisions of the service to fulfill assigned tasks;
- improving system of medical education in terms of catastrophes, development and building up human resources potential of the service;
- strengthening the organization and enhancement of administration for the service;
- building infrastructure for the organizations and divisions of the service, and evolving them in compliance with risk of emergence of extreme situations based on principles of reasonable agreement;
- improving the medical statistics and information systems within the service;
- escalation of material technical logistical systems of organizations and divisions of the service, implementation of modern defense technologies, methods of

prevention, diagnostics and treatment when rendering medical assistance to casualties of catastrophes;
-fostering scientific approach in developing medical catastrophes;
- improving international relations and attraction of foreign investors into development of the service;
- strengthening of social security of the personnel with the service.

Implementation of these aforementioned tasks will permit to establish efficient service of medical catastrophes that is capable of solving the problems in rendering medical assistance to population in extreme situations.

Conclusions:

1. The abovementioned organization principles of medicine of catastrophes and methods of its enhancement must serve as a conceptual basis for development of the service in modern conditions of socio-economical status of the RK.
2. Currently the situation requires a state program on development of service of catastrophe medicine which will entail creation of adequate infrastructure and conditions for further enhancement of its activities.

VARIATION ON OUTCOMES FOR BREAST FEEDING CHILDREN BY MARITAL STATUS OF MOTHER

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Key words: breast feeding, single mother's children

Among many other factors breast feeding significantly effects the health of the children not only in the infant period, but also has an effect on their health in the future [1,2,3]. There is no question exist that the mother's milk is the optimal nutrition for a one year old child.

Objectives

To analyze dynamic comparative social-hygienic characteristics of breast feeding of one year old children born to single mothers from 1984 to 1999.

Material and methods

Subjects of the study – a cohort of children born from 1984 to 1999 to single mothers at first delivery consistently residing in Karagandy. Total of 300 families have participated in this study as experimental and control group. Data from health record of infants (form 112/ y) was used as well as family questionnaire data.

All children were distributed into three groups as follows: the first group – children aged 9-12 months with "good" quality of breast feeding; the second group – (satisfactory) was comprised of children who received mixed feeding (additional nutrients starting from before 4 months of age); the third group – (unsatisfactory) was comprised of children on artificial feeding who were withdrawn from breast feeding before the age of 6 months.

Dynamics of breast feeding in both groups are displayed on the 1st diagram. It was revealed that in the control group quality of breast feeding was much higher both in 1984 and in 1999 compared to quality of single mothers breast feeding.

Practically all infants are breast fed from the moment of delivery. According to the diagram breast feeding "curves" are going down strictly correlating with the mother's marital status. In the study groups by the 3d month 69,5-71,6% of mothers are breast feeding, where's in the control groups the number is much higher (83,1-84,3%, $p< 0,05$). By the age of 6 month one half of the (49,6-50,0%) single mothers switch their infants on alternative type of feeding, while in the control group 2/3 (64,9-66,5%, $P< 0,05$) of mothers kept their infants on breast feeding.

Upon achieving the age of 12 months among single mothers only 37,1-39,4% kept breast feeding, while only one half of the mothers in the control group do the same (52,3-59,6%, $p < 0,05$). Moreover, as it can be depicted from the diagram, the breast feeding "curves" of single mothers for the period of 1984-1999 are practically equal while artificial feeding "curves" in the control groups show a strong tendency towards decreasing of number of breast fed infants.

Main reasons for withdrawing breast feeding were listed as follows: hypo and agalactia, disease of mother; need to go back to work (school); due to mother's unwillingness; and diseases of the child.

Recently child's disease and mother's unwillingness to breast feed as a factors inducing cessation of breast feeding have both increased by 2-4 times in the study and control groups while the level of hypo and agalaktia has significantly reduced. The high level of single mother's unwillingness to breast feed signals their poor knowledge of advantages of natural feeding. Respiratory organs malfunction was the leading reason for withdrawing breast feeding.

Breast feeding quality assessment demonstrates that with married mothers group in 52,0- 58,5% had "good" quality of feeding. In single mothers group in more than half of cases (56,8- 57,6%) quality of breast feeding was assessed as "poor".

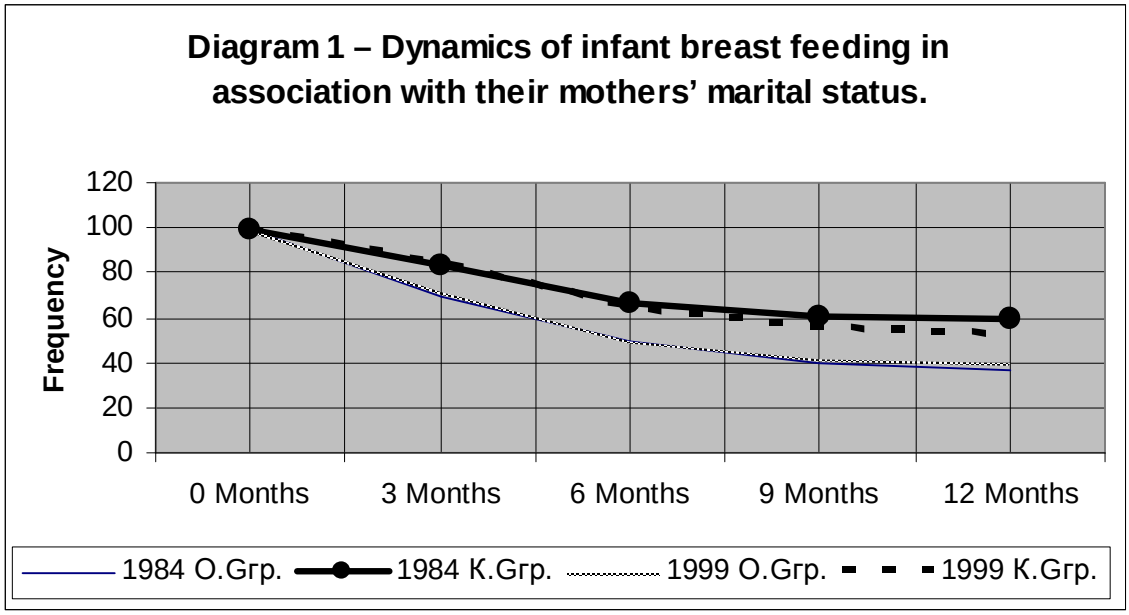
Thus, results of the study permit to draw certain conclusions:

1) Quality of breast feeding of single mothers remains unfavorable;

2) In dynamic observation (1984 and 1999) quality of breast feeding in married mothers became notably worse;

3) Among primary reasons for withdrawing breast feeding significantly increased share of children's disease and mother's unwillingness to breast feed.

All the above mentioned facts urge pediatricians to pay specific attention first of all to children being under investigation and second, specifically draw attention to enhancing level of sanitary culture addressing issues of breast feeding.



COMPARATIVE ANALYSIS OF FREQUENCY OF OSTEOPOROSIS FRACTURE AMONG THE RESIDENTS OF ALMATY

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Osteoporosis (OP) is an important condition because it often leads to high risk of fractures with minimal trauma. This disease endangers one half of women as well as one third of men 50 years and older /1/.

Aim of this study is to examine frequency of fractures due to OP among residents of Almaty depending on their age and gender.

Material and methods: 150000 of medical charts form city the hospitals #12, #7, and #4 were studied retrospectively. Frequency assessment of OP fractures (distal end of forearm, proximal end of the hip, proximal end of the arm and spinal column) were conducted from January the 1st 2001 to December 31st 2003 in patients older than 15 years. Fracture ratio was calculated per 100000 of corresponding population by year, age, and sex. Fracture ratio was assessed by primary morbidity rate. Only minor trauma fractures were included in the analysis.

Results and discussion: fracture of the distal forearm – one of the most frequent types of fractures among middle aged people which happen when a casualty falls on extended arm. Besides this type of fracture dramatically rises in women after menopause and reaches its highest level at the age of 60-70 years old. /3/. From

2001 to 2003 there 5433 cases of fractures of distal forearm registered in Almaty (1392 men and 4041 women), which constituted 609,0 per 100000 people accordingly. At the age of 15-19 years and 20-29 years this type of fracture statistically significant happened more often in males. The highest ratio of this type of fracture was observed in the age group of people above 70 years in both sexes. (Table 1).

Table 1. Ratio of distal forearm fractures (per 100 000 population) in Almaty from 2001 to 2003.

№	Age, years	Men	Women	Both sexes
1	15-19	351,1±18,7	166,2±13,88	258,2±16,05
2	20-29	227,4±15,06	161,8±12,71	192,2±13,85
3	20-39	281,5±16,75	344,1±18,52	315,4±17,73
4	40-49	408,9±20,18	654,1±25,5	546,3±23,31
5	50-59	497,9±22,26	1738,9±41,34	1213,4±34,62
6	60-69	406,4±20,12	1900,2±43,18	1308,4±35,93
7	<70	706,0±26,48	1938,5±43,60	1576,6±39,39
8	Average	355,8±18,83	806,6±28,29	609,0±24,6

Melton L.J. and co-authors have demonstrated /4/, that 90% of ***proximal femur fractures*** happens in older women and up to 80% of such fractures in men are associated with OP. Within the three year period there 1610 cases of hip fractures registered (467 men and 1143 women), which in average constituted 180,4 per 100 000 of population accordingly. Hip fractures were significantly higher in men in age groups 15-19 years, 20-29 years, 30-39 years, 40-49 years and 50-59 years, while in women this ratio was significantly higher in patients older than 70 years compared to men. Thus ratio of hip fracture is increasing with age on both gender groups. (Table 2).

Table 2. Ratio of hip fracture (per 100 000 population) Almaty from 2001 to 2003.

№	Age, years	Men	Women	Both sexes
1	15-19	7,8±2,79	-	3,89±1,97
2	20-29	10,8±3,29	0,9±0,95	5,52±2,35
3	20-39	20,6±4,54	5,1±2,26	12,24±3,5
4	40-49	71,1±8,43	21,9±4,68	43,5±6,59
5	50-59	151,3±12,29	84,2±9,17	112,6±10,61
6	60-69	325,1±18,0	318,0±17,8	320,8±17,88
7	<70	1092,1±32,87	1919,5±43,39	1676,5±40,6
8	Average	119,3±10,92	228,2±15,09	180,4±13,42

From 2001 to 2003 there were 1259 registered cases of **proximal arm fractures** (387 for men and 387 for women). Comparative analyses of the ratio have revealed that in the age group of 60 this type of fracture was significantly

higher in men. The ratio of this type of fracture significantly increases with age in both sexes (Table 3).

Table 3. Ratio of proximal arm fractures (per 100 000 population) Almaty from 2001 to 2003.

№	Age, years	Men	Women	Both sexes
1	15-19	19,6±4,43	21,2±4,60	20,46±4,52
2	20-29	25,9±5,09	24,3±4,93	25,09±5,01
3	20-39	33,9±5,82	31,8±5,64	32,8±5,73
4	40-49	83,7±9,14	84,3±9,18	84,1±9,17
5	50-59	214,8±14,64	233,0±15,25	225,3±15
6	60-69	264,9±16,25	404,9±20,08	349,4±18,66
7	<70	452,1±21,21	827,7±28,65	717,4±26,69
8	Average	98,9±9,94	174,1±13,18	141,1±11,87

Even though fractures of spinal column are quite frequent according to epidemiological studies, only 1/3 of them has clinical manifestation and requires X-ray examination for confirming diagnosis.
Until recently no universal criteria were elaborated for diagnosing fractures of vertebrae based on X-ray sings. In this regard there was a term introduced "vertebrae deformation", saving the term fracture for clinically evident cases /4/.

Frequency analysis of spinal fractures demonstrated presence of this condition in 333 people (157 men and 176 women). According to our data compared to other OP fractures, spinal column fractures were among the rare cases. The ratio of this condition was increasing to up to 50 years old and than reversed by the age of 60-69 years. Significant increase in number of fractures was noted at the age of 70 years old and above on both sexes (Table 4).

Table 4. Ratio of spinal column fractures (per 100 000 population) Almaty from 2001 to 2003.

№	Age, years	Men	Women	Both sexes
1	15-19	29,4±5,42	27,1±5,21	28,26±5,32
2	20-29	40,1±6,33	26,2±5,12	32,6±5,71
3	20-39	37,6±6,13	21,5±4,63	28,93±5,38
4	40-49	41,8±6,46	26,3±5,13	33,14±5,76
5	50-59	43,9±6,62	62,7±7,92	54,78±7,4
6	60-69	33,1±5,75	43,4±6,59	39,36±6,27
7	<70	76,1±8,72	67,5±8,21	70,1±8,37
8	Average	40,1±6,33	35,1±5,99	37,32±6,11

Conclusion. Thus results of the presented study have revealed that frequency of OP fractures is higher in women than in men: distal forearm fractures by 2,9 times, hip fractures by 2,5 times, proximal arm fractures by 2,2 times, spinal column fractures by 1,1 time. Number of distal forearm fractures was exceeding

the number of other OP fractures by 1,7 times. Analysis by age groups have demonstrated that frequency of OP fractures reaches its maximum by the age of 70 years old and above in women as well as in men.

TO THE ISSUE OF INCREASED MORBIDITY RATE OF WORKERS WITH HIGH EXPOSURE TO POLYMETALLIC DUST

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Morbidity among industrial workers is a topical issue currently.

Aim of the study: to present data on depleted morbidity of workers with high exposure to polymetallic dust.

Material and methods

The proposed method has some distinctive features: **increased** morbidity was studied for three years (2000-2002), that is special charts were filled out with annual data on morbidity upon visits to doctor's office for acute and chronic diseases. All data in the charts were augmented with additional information from annual medical check ups, which were conducted by professionally trained specialists (14 specialties). In total there were 150 industrial workers residents of village Zhairem.

Characteristics of the study group were as follows: men – 88,1%, women – 11,9%. Mean age of workers was 40,4 years old. Majority of workers were in the age group of 30-39 years (39,7%). The distribution of other age groups were as follows: age group of 40-40 years (30,9%), age groups 20-29 and 50-59 years (each 12,5%), above 60 years (3,6%), below 20 years (0,8%).

Workers of different professions were represented as follows: drivers of BELAZ truck (18,3%), miners (13,1%), breakers (10,4%), machinists, drillers**,** explosive blasters (each 8,7%), drift miners (7,8%), mechanics (6,1%), loaders (5,2%), electricians (2,6%), and others (10,4%).

With working experience of 10,9 years, the majority of employees had industrial working experience from 5 to 15 years (40.5%). Years of working experience distribution of the remaining categories were as follows: from 16 to 25 years (30.2%), fewer than 5 years (25.7%), above 25 years (3.6%).

Current analysis of increased morbidity have showed that morbidity level constituted 2766,6 per 1000 workers (see Table 1.).

Results of the study revealed that the leading place belongs to diseases of respiratory organs (33,4%). Among respiratory diseases the most frequent were upper respiratory tract infections (36,2%), chronic tonsillitis (33,6%), chronic

bronchitis (10,3%) and bronchial asthma (7,0%), which was due to significant air pollution.

The second place was assigned to diseases of circulation system (12,7%), which were represented by hypertonia and ischemic heart disease (42,7%).
Diseases of skin and cellular tissue were taking the third place in the structure of all diseases (10,3%). Allergic dermatitis – 30,5%, localized neurodermititis – 11.6%, streptodermia or chronic eczema – 8.6%.

The fourth place was occupied by diseases of digestive system (7,2%), represented by different forms of chronic gastritis (45,2%), chronic cholecystitis (25,8%), acute and chronic esophagitis (9,0%) and erosive bulbitis (8,4%).

Diseases of musculoskeletal system and connective tissues were in the fifth place (5,9%). Diffuse diseases of connective tissue (12.6%), rheumatoid arthritis (9.6%), other inflammatory arthritis (7.3%), and osteoarthroses (3.2%).

One of the leading pathologies of the eye was retinopathies (65,6%). Myopia and presbyopia accounted for 15,6 and 9,4% accordingly.

The seventh and eighth places were occupied by diseases of ear and mastoid (4,6%), endocrine system and metabolic diseases (4,2%).

It is important to notice the tendency of oncological diseases to grow. If in 2000 number of oncological cases was 2.8 per 1000 of workers, by the year of 2002 this number has reached 4.4 per 1000, increased by 1.6 times.

Table 1. Depleted morbidity rate of industrial workers in Zhairem village by class of diseases (per 1000 workers).

Class of disease	Depleted morbidity rate	
	Level of morbidity rate (per 1000 workers)	Morbidity rate structure (%)
Eye diseases	149,4	5,4
Diseases of ear and mastoid	127,2	4,6
Nervous system diseases	77,5	2,8
Circulation system diseases	351,3	12,7
Respiratory system diseases	924,0	33,4
Digestive system diseases	199,2	7,2
Diseases of musculoskeletal system	163,2	5,9
Diseases of urogenital system	85,7	3,1
Diseases of skin	284,9	10,3
Traumas and intoxication	58,2	2,1

ODOR OF SUBSTANCES EMITTED FROM THE TOBACCO FACTORY AS A HYGIENIC PROBLEM

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Tobacco cultivation is an important field of agricultural sector in Kazakhstan. In market economy, this sector provides stable and real income.

One of the first foreign investors in Kazakhstan was "Philippe Morris" company which 10 years ago entered to the market of the country. The company uses raw tobacco as raw material which complies with requirements on quality and also local raw tobacco from Talgar (1).

Sanitary defense zone in the size of 300 m is defined in accordance with sanitary norms on planning of industrial objects №1.01.001-94.

Despite all prevention activities inhabitants of "Utegen" village often complain of specific odor of different intensity, which can be smelt outside the organized sanitary defense zone and is related to byproducts emitted by the factory. At the same time calculated and actual concentrations of tobacco dust (nicotine content) do not exceed the estimated hygienic norm.

Abovementioned allows assuming that emitted byproducts have odorous substances which can significantly influence sanitary – hygienic situation. For example on different stage of production and processing up to 88 volatile organic substances can be spotted out.

Aim of the study is to evaluate intensity of the odor due to emitted byproducts by the tobacco factory in order to determine its influence on sanitary – hygienic conditions of life of people that live on adjacent territories.

Organoleptic method was employed in order to control pollution of the atmosphere.

Odometric evaluation of the odor was applied. According to the suggested criteria permitted total possibility of odor detection of 3 points should not exceed 1 * 10^{-3} (3). Intensity of the odor was evaluated by 6-point grading system. Herewith 3 points corresponds to the medium intense odor, 4- strong odor, 5 – very strong odor.

Results and discussion.

Investigated industrial complex is comprised of two big divisions.

The primary processing chamber room conducts cutting and enrichment of tobacco "Grinfield".

The secondary processing is done in cigarette chamber where cut tobacco in shaped in a form of rolled cigars with and without filter. Over 1500 people are working in these chambers. Odor with intensity of 3 points can be felt from 369 meters and 2 point odor can be felt from a distance of 460 meters.

Possibility of absolute absence of odor increases with growing distance from the source; however within the established sanitary zone no cases of odor absence were registered.

Table 1.

Possibility of detecting odors of different intensity (in points) depending on distance from the source of emitted byproducts, %%

Distance from tobacco factory, meters	**Odor intensity, points**						**Total**
	0 (no odor)	**1**	**2**	**3**	**4**	**5**	
0,5					17,0	83,0	100,0
1-2				38,5	58,0	3,5	100,0
20-39		19,0	40,1	37,0	3,9	-	100,0
40-50	4,4	42,4	36,6	16,6	-	-	100,0
51-70	41,0	32,2	24,6	2,2	-	-	100,0
71-99	36,1	43,4	9,9	10,6	-	-	100,0
100-169	30,1	38,9	23,0	7,0	-	-	100,0
170-270	36,0	41,0	19,0	4,0	-	-	100,0
271-369	66	17,9	10,8	5,3	-	-	100,0
370-460	82,9	13,2	3,9		-	-	100,0

In 2004 “Philippe Morris” will introduce into exploitation new large tobacco list processing chamber which can entail transition of the current situation.

Conclusion:

1. Volatile substances emitted through different stages of tobacco processing come as a serious hygienic problem.

2. Odor intensity due to release of volatile odorous substances while processing tobacco is deemed as risk factor which deteriorates sanitary life conditions of population inhabiting adjacent territories.

3. While reconstructing or expanding the factory it necessary to continue investigations and to detect alterations in place from sanitary-hygienic point of view.

ON ISSUE OF DIAGNOSING TUBERCULOSIS OF THE LUNGS IN GENERAL MEDICAL FACILITIES

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Within the last decade there was a significant increase in number of lung tuberculosis among patients who have been under observation. Half of these cases are diagnosed upon contacting medical facilities and one half of the patients contacted to tuberculosis facility on his/her own accord, meaning that remaining one half of the patients are diagnosed passively.

Aim of the study is to investigate reasons for late diagnostics of tuberculosis. There were 376 medical charts examined. The study included analysis of the diagnosis process from the first visit of patient to the moment of hospital admittance, matching of diagnosis before and after hospitalization, assessment of complex clinical-laboratory, X-ray, bacteriological, cytological and histological methods of examination in diagnostics and differential diagnosis of lung pathology.

Results of the retrospective study of medical charts reveal that the period of time from disease onset to the moment of setting the diagnosis varies from 1 week to 18 months. In average this period was 4 months for diagnosing lung tuberculosis. Average period of time from the first visit to doctor to setting the diagnosis is 2 months for lung tuberculosis and lung cancer. Analyses have revealed that method X-ray examination did not depend on roentgen manifestation of the disease. The scope of X-ray examination was very often limited to chest X-ray and phlurography. Computer tomography was conducted rarely and inadequately. Adequate X–ray examination was conducted only in 17% of cases. Depending on lung pathology syndrome this indicator fluctuated from 4 to 25%. Irrationally, rarely microscopic sputum examination for presence of mycobacteria (1%) and bronchoscopia (5%) were conducted.

Results of testing doctors' knowledge of technology of examination have demonstrated that 50% of doctors do not know essential symptoms of lung pathology and do not possess full diagnostic skills. Only 20% of doctors carry out analysis of misdiagnosis. Consequently it can be assumed that one of the reasons for inadequate patients' examination is insufficient professional knowledge on lung pathology.

Complex examination in the clinic allowed diagnosis of tuberculosis in 82%-100% of the cases. The most difficult to diagnose situations were encountered only in 8% of cases.

The major role in tuberculosis diagnosis is allocated to X-ray and sputum examination for presence of MBT. In the late stages of tuberculosis the diagnosis was confirmed by microbiological examination in 93% of cases.

It was confirmed that reason for absence of expressing bacteria was due to incorrect sputum collection and its handling.

Thus the adequate and timely diagnosis of tuberculosis on pre-hospital stage vastly depends on activities of two specialists: general practitioner and X-ray specialist. It is essential to assess the time of disease (more than 1 month) and to conduct adequate X-ray, tomography and bronchological examination as well as sputum investigation. As primary issue comes a question of professional training of x-ray specialists, internists and tuberculosis specialists.

SOCIODEMOGRAPHIC CHARACTERISTICS OF HIGH-RISK MENTAL HEALTH POPULATION

B.B. Jarbusynova

We have identified a group with high level of psychological health while conducting multilevel research that identified status of psychological health of the population of the Republic of Kazakhstan.

We have studied a group with high level of psychological health according to all studied parameters in order to identify socio-demographic and psychological differences, as well as to distinguish groups of high level of psychological health in studied gender, age, professional, ethnic, geographical, status (education, economical, marital) groups.

Table 1 includes socio-demographic an psychological features of the group with high level of psychological health according to the results of epidemiological research in 2001 (n=372)

Table 1. Sociodemographic characteristics of high-risk mental health population (n=372)

Gender features of the group with high level of psychological health (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Men	182	48.9%	+/-5.1%
Women	190	51.1%	+/-5.1%

Distribution of the group by age (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
12-16 years old	69	18.5%	+/-3.9%
17-21 years old	79	21.2%	+/-4.2%
22-26 years old	59	15.9%	+/-3.7%
27-35 years old	83	22.3%	+/-4.2%
36-47 years old	61	16.4%	+/-3.8%
48-55 years old	21	5.6%	+/-2.3%

Distribution of the group by education (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
No education	0	0%	0<>1.7%
Primary	67	18%	+/-3.9%
High school	149	40.1%	+/-5%
University	156	41.9%	+/-5%

Distribution of the group by income (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Low income	53	14.2%	+/-3.6%
Average income	221	59.4%	+/-5%
High income	80	21.5%	+/-4.2%

Distribution of the group by family status (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Living with first family	179	48.1%	+/-5.1%
Living with second family	132	35.5%	+/-4.9%
No relatives	10	2.7%	+/-1.6%

Distribution of the group by profession (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Business, finances	72	19.4%	+/-4%
Education	28	7.5%	+/-2.7%
Health	10	2.7%	+/-1.6%

Unemployed	0	0%	0<>1.7%
Mass-media	3	0.8%	0.5<>2.6%
Military, legal professions	8	2.2%	+/-1.5%
Students	108	33.4%	+/-5.1%
Civil servants	22	5.9%	+/-2.4%
Others	40	10.8%	+/-3.1%
Distribution of the group by ethnicity (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Kazakh	140	37.6%	+/-4.9%
Ukrainian	9	2.4%	+/-1.6%
Russian	167	44.9%	+/-5.1%
Korean	15	4%	+/-2%
Tatar	12	3.2%	+/-1.8%
German	10	2.7%	+/-1.6%
Uzbek	7	1.9%	+/-1.4%
Other	3	0.8%	0.5<>2.6%
Geographical distribution of the group (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Almaty	77	20.7%	+/-4.1%
Astana	21	5.6%	+/-2.3%
East Kazakhstan	39	10.5%	+/-3.1%
West Kazakhstan	56	15.1%	+/-3.6%
North Kazakhstan	66	17.7%	+/-3.9%
Central Kazakhstan	32	8.6%	+/-2.8%
South Kazakhstan	81	21.8%	+/-4.2%
Distribution of the group by somatic health status (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Low	0	0%	0<>1.7%
Average	214	57.5%	+/-5%
High	154	41.4%	+/-5%
Distribution of the group by a level of concern with own health (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Low	0	0%	0<>1.7%
Average	316	88.3%	+/-3.3%
High	42	11.3%	+/-3.2%
Distribution of the group by expressed positive goals and aims (n=372)			
Item	**Number**	**Percentage**	**Confidence**

	of People		interval
Not expressed	0	0%	0<>1.7%
Moderately expressed	3	0.8%	0.5<>2.6%
Significantly expressed	369	99.2%	95.5<>99.4%
Distribution of the group by social dynamics (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Ascending	58	15.6%	+/-3.7%
Neutral	313	84.1%	+/-3.7%
Descending	1	0.3%	0.2<>2%
Distribution of the group by the speed of adaptation (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
High	76	20.4%	+/-4.1%
Low	0	0%	0<>1.7%
Medium	296	79.6%	+/-4.1%
Distribution of the group by religion involvement (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
High	21	5.6%	+/-2.3%
Low	86	23.1%	+/-4.3%
Medium	236	63.4%	+/-4.9%
Distribution of the group by tobacco addiction(n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Not addicted	270	72.6%	+/-4.5%
Addicted	102	27.4%	+/-4.5%
Distribution of the group by alcohol addiction(n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Alcohol addicted	1	0.3%	0.2<>2%
Not addicted	371	99.7%	96.2<>99.8%
Distribution of the group by drug addiction (n=372)			
Item	**Number of People**	**Percentage**	**Confidence interval**
Risk groups	298	81.4%	+/-4%
Actively resistant	7	1.9%	+/-1.4%

Data from the Table 1 testifies that high level of psychological health was relatively more intensive in the group of female population of the Republic of Kazakhstan – 56%. The same was noted in following age groups: 12 - 16; 17 - 21; and 22 - 26. Interpretation of the results allows us to conclude that ascending

generation demonstrates higher levels of psychological comfort due to effective adaptation to the conditions of modern life.

High level of psychological health has been represented more intensively in the group of primary and university education. Interpretation of the results considers age requirement of the individuals with primary education. This fact explains more intensive distribution of high psychological health in this group of respondents. However, the results on university education group seem to be more significant. They unambiguously testify a positive inter influence of high level of psychological health and full educational status.

High level of psychological health has been represented relatively more intensive in the group of high income population. Results of this fragment are interpreted as a positive influence of high level of psychological health on the level of income

Data from Table 1 demonstrates that high level of psychological health has been represented more intensively in the group of respondents living with first (parent) family. Interpretation of the results considers young age and consequently higher level of psychological health of individuals living with first parent family. Result of the last position of the table give a basis to recognize mutual dependence of high level psychological health and family relations.

Data from the Table 1 demonstrates that high level of psychological health is intensively represented in respondents employed in business and finance, education, and students. This is due to ascending generation (students) and the fact that business and finance area is selected by individuals that are more mobile and psychologically confident. Outcomes related to individuals employed in education are related to the fact that professional choice presupposes personality with high level of psychological health.

Next conclusion is that high level of psychological health is intensively represented in respondents of Kazakh and Korean ethnicity. Interpretation of the result considers complicated combination of social, psychological, ethnic factors that lead to higher level of psychological health.

Data demonstrates that high level of psychological health is intensively represented in West and South Kazakhstan regions. There was no significant difference in distribution of other regions. This fact can be explained by age-gender and ethnic composition of the population inhabiting those regions.

High level of psychological health is intensively represented in respondents with high level of somatic health. It demonstrates mutual dependence of psychological and somatic health. High level of psychological health is intensively represented in respondents with high level of concern with own health. These data testifies that individuals with higher level of psychological health possess higher forms of self organizing activities in relation to own health. Consequently all long term preventive and health promotion campaigns should envisage fortified development of higher levels of psychological health.

It is necessary to note that high level of psychological health is intensively represented in respondents with expressed positive goals and aims. These data persuasively demonstrate relation between high level of psychological health and

existing positive goals and aims. Consequently development of effective health promotion campaigns should envisage opportunities for fortified development of high level of psychological health of the population.

High level of psychological health is intensively represented in respondents of the group with ascending social dynamics. Thus it confirms an argument that there is greater social dependence of psychological health on positive mutual influence of ascending social dynamics. High level of psychological health is intensively represented in respondents with higher speed of adaptation disclosing significantly closer link between extent and speed of adaptation and level of psychological health of an individual.

Data of the Table 1 also means that high level of psychological health is intensively represented in respondents with moderate religious involvement. Consequently there is a conclusion that individual self sufficiency with high level of psychological health play preventive role in involvement of the population into religious extremisms.

Data from the Table 1 also demonstrates that High level of psychological health is intensively represented in respondents without tobacco and alcohol addiction. This group of respondents has more positive and sensible attitude to resources of own health and need less psychoactive adaptogenes.

Thus socio demographic and psychological features of the group with high level of psychological health according to the results of epidemiological research demonstrates that only development of new psychological characteristics let individual be socially competent and self sufficient.

JUSTIFICATION AND DEVELOPMENT OF CONCEPTUAL FRAMEWORK FOR BASICS OF STI STRATEGIC PLANNING IN ASTANA

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Maintain and improving health of the Nation is an important issue of health and economic reforms of the country. Transition to market relations is accompanied by strengthening negative trends of the reproduction and health of the population (Yu. P. Lisitsyn, N.V. Polunina, 2002). During last period of building open democratic society with market economics new economic relations and social transformations have happened in Kazakhstan (K. Tokaev, 2000). Unemployment, poverty, and deteriorated health of a significant part of the population witness importance of social problems.

Implementation of health system reform started in Kazakhstan requires establishing highly technological healthcare system that provides universal accessibility to high quality and effective health services to the population at the

same time expanding opportunities to receive new additional types of health services (M.K. Kulzhanov, 2001).

In 2002 number of new disease cases registered in the country increased by 10.5%, there is still a trend of TB morbidity and mortality growth, STI epidemics is still going on.

STI epidemics was enabled by weakened ideological mechanisms of society regulation, collapse of previously existed ideals and moral principles, changing of sexual behavior norms, migration of population, and uncontrolled market of commercial sex.

Maximum STI increase was noted in 1007, when syphilis morbidity achieved 268.7 per 100 thousands population and was 200 times higher than same indicator of 1990. As a response to the situation Government of Kazakhstan adapted National program on prevention and control of sexually transmitted diseases in 1999 for the years of 1999-2000 and prolonged in 2001. Large-scale implementation of anti epidemic activities allowed decreasing syphilis (STI marker) morbidity down to 123.2 per 100 thousands population by 2002. However even this number testifies high intensity of epidemic process. This epidemic is characterized by high prevalence in big urban areas, especially capital cities. For example in 1996 the highest syphilis morbidity rates were registered in Almaty – 524.1 per 100 thousands (higher that national rate by 2.6 times), in Bishkek – 368.3 (higher than National rate by 2.4 times), in Dushanbe – 72.4 (higher than National rate by 3.8 times), in Ashgabat – 63 (higher than National rate by 1.7 times), in Tashkent – 132.3 (higher than National rate by 3.35 times).

In this list Astana takes special place. After the capital was transferred to this city it started to change dramatically. Population sharply increased due to Governmental staff, businesses, students moved from Almaty. Majority of this population doesn't have family or is away from it for a long time. Leisure and home life is not settled yet. There are many other additional factors that influence this process. STI morbidity in Astana reached 320 per 100 thousands population in 1999 (average national rate was 182.2). Municipal Program on prevention and control of STI adapted for 1999-2000 and extended until 2003 enable decrease of STI down to 154.3 in 2000, and 132.8 in 2002, while national rates were 141 and 123 per 100 thousands accordingly.

Main objective of this research was to study the reasons conditioning unfavorable STI epidemic situation in Astana, to develop and implement measures on comprehensive prevention and control of STI based on strategic planning concept and utilization of innovative managerial technologies and assessing efficacy of managerial decisions.

Achieving above objectives was done by following tasks: STI prevalence investigation within different populations of Astana from 1990 until recently; STI detection rate was analyzed; factors influencing STI epidemics growth were studied; population was surveyed on the issues of their social economic and demographic features, their knowledge on diseases and prevention, their attitudes to health, sexual life, alcohol and drugs, interest in getting information related to sex issues.

This study identified that STI epidemics in Astana in 90-s was characterized by high indicators the same as at the territory of all former Soviet Union countries, however the pick was registered in 1999. Within identified syphilis form most frequent are latent and inborn forms, and Chlamydia. This fact indicates intensity of epidemic process and possibility of new outbreaks.

Syphilis morbidity is most prevalent in risk groups: commercial sex workers, adolescents, truck drivers, tourists, etc (Yu. Skripkin, 1999, Z. Kesheleva, 1998, N.E.Luganskiy,1991, V.V. Chebotarev, 1999). Experience of many countries demonstrates that activities within commercial sex workers and men having sex with men should be conducted constantly despite decisions of state bodies on their legalization or prohibition (V.I. Prokhorenkov, 1998, A.A. Kubanova et al. 2000, A. Shakarashvily, 2000).

Alcohol and drug abuse also enable growth of STI. According to official data drug abuse prevalence in Kazakhstan was 57.6 per 100 000 population in 1997, that is 18.5 times higher than in 1991 (E.R. Araviyskaya, 2001).

Migration of the population also influences STI growth. Tourists, shop tourists usually are young people that demonstrate risky sexual behavior. As a result 10% of them return home with STI. In the beginning of 90-s majority of population was illiterate in the issues of STI prevention, but now this gap on primary and secondary STI prevention was liquidated (E.R. Araviyskaya, 2001).

STI diagnostic in rural areas and even in some urban ones is not perfect at all. Insufficient financing, weal supply and procurement, inadequate ghealth reforms and difficult situation of health system in CIS countries are the deterrent factors for STI anti epidemic measures.

Thus our research identified main STI transmitting mechanisms, determined major risk factors, and identified a need in developing STI prevention quality management concept, i.e. implementation of strategic planning principles, based on implementation of innovative organizational and managerial technologies (R.C. Brunham et al., 1996, W.S. Levine, 1997, Z.D. Keshileva, 1998, O.P. Schepin et al., 1999, A.K. Baigenzhin et al., 2004).

ROLE OF SEXUALLY TRANSMITTED INFECTIONS IN DEVELOPMENT OF INFLAMMATORY DISEASES OF THE UROGENITAL TRACT

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The literature review gives the data of domestic and foreign authors witnessing the role of STI pathogens in the etiology of urogenital inflammatory diseases. The high percent of mixed infection, which changes the course of STI, is specified there. The role of the vaginal microbiocenosis in the STI pathogenesis is emphasized as well. These facts allow the author to come to the conclusion about

the necessity of infection screening among individuals with urogenital inflammatory diseases.

Infectious diseases of urogenital organs take one of the first places in the general structure of the human infectious pathology, yielding only to respiratory infections and tuberculosis, acute intestinal diseases, hepatitis [1,2].

Up to now, gonorrhea has occupied one of the leading places in the world among sexually transmitted diseases. The highest level of gonorrhoeae and syphilis is determined among women of the childbearing age [3]. However, epidemiological feature of STI now is dominating of so called "second generation" infections above classical venereal ones. Thus, according to WHO data urogenital clamydiosis is met 1.7 and 7.4 times as often as gonorrhoeae and syphilis correspondingly [4]. In the general structure of urogenital infections morbidity the share of this pathology, is 70% according to N.V.Belyayeva (1998), **[5]**.

C.trachomatis is the most frequent reason of non-gonococcal urethrites, which are often complicated with epididymites and prostatites in men at the age of 35 [6]. The comprehensive research of W. Weidner, H.G. Schiefer (1991), gave the possibility to diagnose Chlamydiosis in 51.6% of patients with non-gonococcal urogenital inflammatory diseases **[7]**. D.Coonrod, A.C. Collier, R. Ashley, T. Dereouen, L.Coreu (1998) discovered C.trachomatis in the cervical channel of 14% of women with cytomegalovirus infection, symptoms of small pelvis organs inflammatory diseases were diagnosed in 8% of them **[**8**]**.

M. Paukku with co-authors (1999) supposes a possible lien between the infection caused by Chlamydia trachomatis and plasma cell endometritis. In connection with it the authors recommend further investigations in case of the diagnosis of plasma cell endometritis to reveal accompanying urogenital infection with the use of the methods of PCR and immune histochemical analysis of endometrial tissue samples.

Reasoning from the commonly accepted opinion that Chlamydia possess affinity to cylinder epithelium, I.I.Ilyin, Y.N.Kovalyov, M.I.Gluzmin (1993) believe possible persistence of C.trachomatis to prostate which has small ducts covered with multi-layer cylinder, big ones – with transitional epithelium, and the end parts of lobules-acinuses – with one-layer cylinder epithelium.

According to G.R. Burstein, J.M. Zenilman (1999) almost every second patient (48,1%) among patients with STI has urogenital trichomoniasis, every second or third one (42,0%) – chlamidiosis, and every fifth one (22,0%) – the mixed Trichomonas-Chlamydial infection. At that, 38,6% of patients with mixed infections had torpid chronic course and resistance to the therapy. The last statement is confirmed also by M.M.Vassilyev (2000), A.M.Savicheva with co-authors (1999), who emphasize high frequency of sub acute and asymptomatic course of STI and associated with them complications.

Urogenital Trichomonas infection according to I.S.Anchupane (1992), is met in 10.5% of patents with urogenital inflammatory diseases, and in 89.5% of cases is associated with other pathogenic microorganisms.

In the studies by M.M. Abbas, F.S. Habib (1998), this pathogen was revealed in 28.8% of men with excreta from the urethra and in 8.2% of men with impotence and sterility.

According to S.L. Hillier (1992), vaginal infections occupy the first place in the structure of all infectious inflammation diseases of female genitalia. Bacterial vaginitis, candidosis, and trichomoniasis are met more often. Distribution of the above infections in the structure of STI morbidity is 19.4%; 17.3%; 25.8% correspondingly [16].

In connection with high frequency of mixed urogenital infections, an important role in the interaction parasite-host is played by the medium of an organism. Mixed infections developed in expressed misbalance of vaginal microcenosis occupy 25-30% in the structure of infection diseases of the lower part of genital tracts. In such cases, clinical manifestations of the disease are atypical and are defined by the character of interaction of different pathogens [17].

According to the modern concepts, bacterial vaginitis is infectious non-inflammatory syndrome of polymicrobial ethiology related to disbiosis of vaginal biotope [18].

P.Thorsen, I.P.Jensen, B.Jeune with co-authors (1998) demonstrated clear correlation between discovery of Gardnerella vaginalis, Mycoplasma hominis and anaerobes with the presence of clinical signs of bacterial vaginitis. Combination of G. vaginalis, anaerobes and/or M. hominis was revealed in 59.6% and 3.9% samples received from women with signs of bacterial vaginitis and without the signe, correspondingly. The relative risk of existence of association between bacterial vaginitis and the presence of G. vaginalis, M. hominis, anaerobes, as well as with the absence of Lactobacillus spp. was equal 74.8. So, there is a microbiological reason of development of bacterial vaginitis, which is, possibly, in appearance of microbial interactions. The key role in these events is played by G. vaginalis, anaerobes, and M. hominis, which, apparently, constitute the core of this state.

The spread of the bacterial vaginitis among pregnant women is 6.8%, the frequency of post-natal infection in women and newborn, as well as of the physiological jaundice was higher in women with bacterial vaginitis than in the ones without it: 14.3; 9.5; 23.8% against 2.2; 1.3; 5% [19].

Bacterial vaginitis is revealed in 35.8% cases among women who attend STI clinics more often in combination with gonorrhoeae, clamydiosis, trichomoniasis, and papilloma virus infection. Negative correlation between bacterial vaginitis and the presence of lacto bacteria was established [20].

One of the etiologic agents of inflammation diseases of the urogenital sphere is yeast-like fungi. For the last decade, the ratio of candidosis in the structure of urogenital pathology increased from 20-26% to 40-50% [22].

The literature discusses the etiologic role of urea plasmas in development of inflammation diseases of genitalia. The examination of infertile men and women shoed that pathogens of infectious inflammation processes in genitalia were in 38.0% cases Chlamydia, in 23.4% - mycoplasmas [23].

Mycoplasma and Ureaplasma were revealed in 18.2% of infertile women in the cervical duct and Duglas space [24, 25]. Ascending infection in women is revealed in the form endometritis, salpingitis, and adnexitis.

A.Koch, A.Bilina, L. Teodorowicz (1997) more often revealed M. hominis and U. urealyticum in vaginal excretions of women, and N. gonorrhoeae and C. trachomatis- in men. In case of trichomoniasis of both men and women, colonization of M. hominis increased, whereasin case of candidosis, mycoplasmas were revealed non so often. M. hominis were found much more often in women with bacterial vaginitis. In case of cervical duct infections caused by N. gonorrhoeae and Ch. trachomatis, the frequency of revealing M. hominis in vaginal discharge increased.

Mixed infection in most cases changes the clinical picture of gonorrhoeae, aggravates its course and worsens its prognosis. The frequency of Chlamydia in men with gonorrhoeae varies from 33,8% to 51,6% . Ureaplasma infection in case of gonorrhoeae of men is diagnosed in 26,4%, trichomonas – in 15,8%

According to N.Z.Yagovdik and N.D.Khilkevich (1992), gonorrhoeae as mono-infection was registered in 38.9% of patients, and in 61.1% it combined with ureaplasmosis and trichomoniasis. Chronic gonococcal-clamidiosis-ureaplasmosis urethritis was diagnosed in 30.5% of ill men.

The International Congress on sexually transmitted diseases in Seville paid special attention to the growth of mortality related to STI among young women. As reasons were indicated cervical cancer (57%), AIDS infection (29%), hepatites B and C (10,6%), and other STI (3,5%).

C.R. Cohen, R.C. Brunham (1999) believe that population interventions directed to identification and examination of women of the high risk group for cervical infection can effectively lower the risk of small pelvis organs inflammatory diseases and cervical cancer [26].

So, the analysis of literature data witnesses the ethiologic role of STI pathogens in development of urogenital inflammatory diseases of the tract. Chronic, asymptomatic course of STI dictates the necessity of infection screening among patients who attend venerologic, obstetric, gynecological and urological clinics.

METHOD OF EARLY DIAGNOSIS FOR VASCULAR COMPLICATIONS DUE TO GLUCOSE DIABETES

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Glucose diabetes now is a reality for a significant number of people in the entire world. According to WHO experts /1/, this is a widely known fact that number of patients with this disease in the world equals to approximately 175.4 million people. WHO experts also forecast that this number will grow up to 239.4 million people by 2010. These facts confirm opinion of experts that number of diabetes patients is doubled every 12-15 years, for example in 1994 number of diabetes patients were 110.4 million people./2/.

In the Republic of Kazakhstan 103207 patients with glucose diabetes were registered in 2001/3/, however, according to WHO real prevalence might be higher than official statistics by 2-2.5 times. Consequently the number of patients might reach 200000-250000. And this may not be the final number. Large number of people with disrupted tolerance to glucose doesn't even have any idea that they have a risk of developing glucose diabetes, and they do not visit physicians and consequently are not included into the official statistics. Thus, it is impossible to calculate accurate number of glucose diabetes patients in Kazakhstan.

Currently, researchers are making progress with the techniques in the genetic area, and they are developing methods with more emphasis on pathogenesis of different diseases including glucose diabetes. Suggested is a method of early diagnostic of vascular complications that are threat to lives of the patients. This method is described based on the example of diabetic nephropathy which is one of the most severe complications having complicated pathogenesis and leading to chronic kidney failure and death.

This research was conducted with consideration of global genetic population's studies. This approach is more accurate and realistic because known developmental factors allows addressing the search for genes for the coded factors.

In studying vasoactive factors as "mediators" of progressing diabetic nephropathy, one should distinguish the factors of constriction and dilation of kidney vessels.

Angiotenzin II was selected as constrictor as it is the strongest factor having haemodynamic and non haemodynamic influence on different kidney structures /4/

Endothelial dysfunction was studied sufficiently well for development and progressing of cardio-vascular diseases /5, 6/. One of the most important biochemical markers is NO deficiency. It decreases and consequently participates in development and progressing of AH, artherothrombosis./7/.

This study suggests method of studying NO cynthase activity identifying polymorphism of the gene that codes its activity.

Goal of this research is to study links of ACE and eNOS-3 genes' polymorphism and development of glucose diabetes and diabetic nephropathy.

Objectives:

1. To study distribution of genotypes and alleles of ACE and eNOS-3 genes of the patients with glucose diabetes Type-1 of Kazakh ethnicity
2. Identify a role of ACE and eNOS-3 genes polymorphism in development of glucose diabetes Type-1.

3. Identify link between genes' polymorphism and compensation degree of glucose diabetes Type-1 and kidneys functional indicators.
4. Identify diagnostic value of identification of ACE and eNOS-3 genes polymorphism in development of diabetic nephropathy of diabetes Type-1.

The study included 208 men and women of Kazakh ethnicity, with average age of 31±1,95 living in Almaty and Almaty region, not having family relations, and selected randomly.

1st group included 28 men and women with glucose diabetes Type-1, average age of 29.5±1.7 years old, average age of disease 6.6±0.6 years without clinical symptoms of diabetic nephropathy.

2nd group included 28 men and women with glucose diabetes Type-1, average age of 32.0±2.7 years old, average age of disease 12.1±1.7 years with clinical symptoms of diabetic nephropathy.

3rd group included 152 healthy individuals of Kazakh ethnicity (diabetes and arterial hypertension, and genetic predisposition to SD. This group was created for population control of distribution frequency of ACE and eNOS-3 genes polymorphism in Kazakh population.

Methods

- Clinical methods: survey including information about anamnesis, duration of disease, stages of compensation by time intervals.
- Patient examination – identification of decompensation clinical symptoms, signs of kidney поражения, other types of diabetic angiopathy.
- Physical examination of heart, lungs, abdomen cavity organs, nervous system.
- Clinical arterial blood pressure measuring.
- Laboratory tests: blood and urine tests, biochemical blood test, total cholesterol of serum, % of HвA1, urinary tests – Nechiporenko, Zimnitskiy, Reberg;
- ECG in 12 standard leads.
- Examination of eye grounds to identify retinopathy.
- Ultrasound diagnostic of extremities, a-ae dorsalis pedis et tibealis posterior.

In order to get real values the study followed urine collection methodology according to Bilous R.W., 1996. /8/. The study used test-stripes «Combur-test» (10 urine indicators) produced by «Boehringer Mannghaim» for visual method. In doubtful cases an "Urilux" apparatus with control at clinical lab of the Institute of Cardiology and Internal Diseases have been used.

Genetic Methods

Blood collection was conducted under sterile condition from peripheral blood at the amount of 10 ml to special containers with 5 ml EDTA solution. All

participating patients were informed and gave their voluntary consent for participation in population's research.

Each individual from patient population had genetic demographic questionnaire filled in. With the questionnaire, we collected data on: name, age, place of birth, ethnicity, etc. Information about ethnicity was confirmed also by genealogy analysis.

Identification of DNA from peripheral blood of the patient population was conducted by salt method with further chlorophorm-phenol clearing and testing at 3% agarose gel with different concentrations of λ phage.

Genotyping was done by method of DNA amplification in polymerase reaction (PCR) using specific olygo nucleotide primers.

Statistical analysis of the results

All data obtained for the study were analyzed and tested using Student t-test.

Validity of analysis was evaluated with criteria $\chi 2$.

Relation of arterial blood pressure, Reberg test and biochemical blood test with genotypes and alleles of APF and eNOS-3 genes was studied with method of correlation analysis.

Two factor log linear analysis was used to identify impact of these genes on glucose diabetes development and opportunity to forecast a disease using combination of risk factors.

Methods of multidimensional factor analysis were used to identify risk factors for development of diabetic nephropathy. Logarithmic linear models and logistic regression were used for building a model of risk factor identification. Criteria $\chi 2$ was used for evaluating significance of risk factors, Log linear model of multinomial distribution is as follows:

$F(p)=Xb+e$, where $F(\pi)$ – is vector function (connection function), X- plan matrix, β- parameters vector.

Logistic function is expressed as follows: $F(p)=ln(p/l-p)$.

All calculations were done using statistical software.

Results:

Multidimensional analysis was conducted for identification of an impact of ACE and eNOS-3 genes on diabetic nephropathy development and opportunity to forecast diseases with combination of risk factors with consideration of calculated valid differences in frequency distribution of genotypes and alleles of ACE and eNOS-3 genes (Table 1).

Table 1. Results of multidimensional analysis of an impact of ACE and eNOS-3 genes on diabetic nephropathy development in patients with glucose diabetes Type-1 for Kazakhs ethnicity.

Risk factors	t-value	Level of significance

ACE gene	0,97	0,9212
eNOS-3 gene	3,75	0,0629
creatinine	4,87	0,0566
CKF	2,52	0,0926

As we observe from Table 1, diabetic nephropathy development as risk factor has relation to creatinine level, CKF and genotypes of eNOS-3 gene. The other combination of risk factors are presented in Table 2.

Table 2. Probability of developing diabetic nephropathy (DN) depending on combination of risk factors

Combination of risk factors				Probability of DN development	Values		Error
Genotype ENOS-3	Genotype ACE	Creatinine	CKF		Observed	Forecasted	
AA	DD			50%	0,50±0,35	0,36±0,18	0,131
AA	DD	Yes		**85%**	0,86±0,18	0,79±0,15	**0,060**
AA	ID			80%	0,80±0,18	0,63±0,15	0,162
AA	ID		Yes	40%	0,40±0,21	0,49±0,17	0,091
AA	ID	Yes		67%	0,67±0,38	0,79±0,13	0,130
AA	II			**50%**	0,50±0,38	0,52±0,20	**0,021**
AA	II	Yes	Yes	**67%**	0,67±0,38	0,57±0,27	**0,093**
AB	DD			85%	0,86±0,18	0,49±0,18	0,365
AB	DD		Yes	20%	0,20±0,18	0,36±0,16	0,154
AB	ID			20%	0,20±0,17	0,49±0,16	0,292
AB	ID	Yes		**67%**	0,67±0,38	0,69±0,20	**0,021**
AB	ID		Yes	60%	0,60±0,21	0,35±0,14	0,243
AB	II			20%	0,20±0,25	0,37±0,20	0,175
AB	II		Yes	33%	0,33±0,38	0,25±0,16	0,081
BB	DD			66%	0,66±0,27	0,50±0,19	0,162
BB	DD		Yes	28%	0,28±0,12	0,36±0,14	0,070
BB	ID			**50%**	0,50±0,32	0,50±0,19	**0,001**
BB	ID	Yes		**33%**	0,33±0,36	0,36±0,16	**0,022**
BB	ID		Yes	**67%**	0,67±0,32	0,69±0,21	**0,034**
BB	II	Yes		33%	0,33±0,38	0,28±0,17	0,073

From the results of Table 2, we can conclude that eNOS-3 gene has certain impact on DN development, particularly AA genotype is “unfavorable”. Thus combination of this genotype with DD genotype or II of ACE gene gives probability of DN development equal to 50%. Adding other risk factor (increased creatinine) increases probability of DN up to 86% (with small error).

Heterozygosis of both genes in combination with increased creatinine forecasts probability of DN development in 67%, the same risk is in combination of eNOS-3 BB and ACE ID with increased creatinine.

Most expressed protective action is noticed at BB genotype of eNOS-3 gene (with combination of ID genotype of ACE, even high creatinine gives a risk of 33%) and II genotype of ACE (even in combination with unfavorable AA genotype of eNOS-3 gene and presence of additional risk factors gives a DN probability equal to 67 %.

Thus conducted multidimensional analysis of DN risk factors in patients with glucose diabetes Type-1 of Kazakh ethnicity identified "unfavorable" significance of AA genotype of eNOS-3 gene, and "protective" combination of BB of eNOS-3 and ID of ACE genes, and "protective" significance of II of ACE gene.

Practical recommendations

Patients with glucose diabetes Type-1 of Kazakh ethnicity are suggested to pass test on A/B polymorphism of eNOS-3 gene and I/D polymorphism of ACE gene when being registered with SD clinical diagnosis. If AA genotype of eNOS-3 gene is identified then there is a need in primary prevention of diabetic nephropathy development. This group of patients is at high risk of fast development and progressing of diabetic nephropathy.

EFFECTIVENESS OF CEPHALOSPORIN ANTIBIOTIC TREATMENT IN THE AMBULATORY PATIENTS WITH SEVERE AND MODERATELY SEVER INFECTIONS

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Specialists in the area of pharmacy-economics pay great attention to generics in order to reduced fast growing costs for health protection.

Growth of popularity of generics is clearly demonstrated all over the world including industrialized countries. Nowadays a share of high quality generics on pharmaceutical market of the USA and Canada is approximately 30%, and in the UK, Germany, Denmark and Netherlands reach 50%.

Wide utilization of generics is supported by WHO within a framework of the program "Essential drugs". WHO recommends purchasing for the state healthcare facilities, army, and health insurance funds high quality generics therapeutically equivalent to original drugs?

However despite growing role of generics, many local medical doctors and pharmacists have insufficient and sometimes equivocal perception that causes negative attitude to this group of drugs. A reason is that not all generics (especially cheap ones) are equal to original drugs according to substance content, bioequivalence, and safety that are directly related to low quality substances used by some pharmaceutical producers.

Recently conducted survey demonstrated that more than 80% practicing physicians do not always believe in effectiveness and safety of cheap cephalosporin generics of local and foreign production, and 12% never believe.

Initial effectiveness evaluation of antibacterial therapy should be conducted after 48-72 hours from treatment beginning period. A telephone contact with patient is worthwhile next day after beginning treatment. Main effectiveness criteria at this period are reduction of the body temperature and intoxication, reduction of breath shortness, cough in pneumonia. If the patient still has fever and intoxication, or symptoms are progressing then treatment should be recognized as ineffective and antibacterial drug should be replaced and hospitalization need should be reassessed.

Non hospital pneumonia (NP) is defined as infection of pulmonary parenchyma occurred in non hospitalized patients and accompanied by acute infiltration in lungs identified by X-ray diagnostic of thorax or auscultator investigation. The most frequent agent of non hospital pneumonia is pneumococcus – in 2/3 of all cases.

Beta lactam antibiotics are recommended for treatment of NP requiring hospitalization. Cephalosporin is related to the group of beta-lactam antibiotics that re used for pneumonia treatment. Cephalosporin of 3rd generation are the drugs of choice.

Most effective and logical would be parenetral utilization of antibiotics that have high bactericidal activity against wide spectrum of Gram positive and negative aerobes. Secondary resistance of microorganisms is developing slowly.

Modern essential antibiotics with wide spectrum of activity, high clinical effectiveness and optimal ratio of effectiveness, safety and quality are used in outpatient and inpatient practice. Leading specialists recommend them as basic drugs for treatment and prevention of infectious process of different localizations. Their quality is equal to original brands. They can be used for intramuscular and intravenous injection that stimulates more successful treatment of patients.