

# RISK FACTORS FOR BRUCELLOSIS IN RURAL AREAS—ALMATY REGION, KAZAKHSTAN, SEPTEMBER 2010 – JULY 2012

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**Keywords:** Almaty, rural, brucellosis, matched, case-control, dairy, parturition

**Background:** During 2007-2010, an almost two-fold increase in the number of reported brucellosis was observed in Almaty Region (316 to 515). The reported incidence in the region in 2010 (30/100,000) was more than twice that in the whole country (13.3/100,000). Brucellosis is a disease that can have serious chronic sequelae in humans. We conducted a matched, hospital-based, case-control study in three Almaty rural districts (Enbekshikazak, Aksu, Kerbulak) with the highest number of reported cases in 2010 (182 cases). The objectives were to identify risk factors and describe the disease epidemiology.

**Methods:** A case-patient was a district resident, acutely ill during Sep 2010-July 2012 with positive Wright and Huddleson tests. Case-patients (n=105) were identified from hospital records and were matched by age, sex, and date of admission to 105 residents admitted to hospital for unrelated conditions. Through interviews, we collected information on history of exposure to animals and animal products within a month of case diagnosis and control selection. We used conditional logistic regression to study disease-exposure associations.

**Results:** The Brucellosis incidence peaked during spring and summer months. 86% (88) of the case-patients had farm animals in the household, 97% (98) had home-made dairy products, and 38% (39) assisted animals in parturition. In multivariate analysis, risk factors for brucellosis were having home-made dairy products (OR=28.9, 95% CI 2.3-365.7) and assisting animals during parturition (OR=8.6, 95% CI 1.0-79.0).

**Conclusions:** The study results indicate that dairy products are insufficiently pasteurised and that brucellosis is affecting farm animals in the area. In order to reduce the incidence of Brucellosis in the area, we recommended providing health education on proper preparation of home-made dairy products and improving veterinary service.

## DEFINING PREDICTORS OF HIV AMONG INJECTING DRUG USERS IN KAZAKHSTAN

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In Kazakhstan, the HIV epidemic is on the concentrated stage. The most significant in terms of the epidemiology of HIV infection is a group of injecting drug users (IDUs).

Prediction of the epidemiological process of HIV infection in this group is one of the most important tasks of AIDS services. Producing forecast data will make better decisions on funding prevention programs in this group, more accurately allocate limited health care resources are directed to the prevention, and the clinical examination and further treatment of HIV-infected IDUs.

Mathematical modeling of HIV infection among injecting drug users (using the mathematical tools of Markov chains), depending on the prevalence of HIV-risk sexual behavior, have preventive interventions in this group was undertaken in previous studies.

For the solving of this problem we used data of sentinel surveillance (SS) for 2005 - 2011 years. The sample size was 33,640 IDUs. Have selected the method of binary logistic regression to determine the explanatory variables (i.e., predictors) affecting HIV - injecting drug users (IDUs) as one of the most sensitive methods of statistical analysis and forecasting.

The results of binary logistic regression were following. From a sample of 33,640 IDUs over the years 2005-2011 26,542 IDUs were included in the regression. The rest of 7,098 IDUs were not included because they had no answers to one or more questions. Statistically significant variables in the regression equation were divided into the following groups according to the statistical significance and impact on the variable HIV status: 1) Group A - in the highest degree a highly statistically significant predictors, 2) Group B - highly statistically significant predictors, and 3) a group B - statistically significant predictors, and 4) the group F - variables whose relevance is questionable, and 5) group D - variables that are not predictors, but the "correlated" with other variables - predictors.

The use of binary logistic regression of the many possible variables of IDUs HIV risk in Kazakhstan to allocate variables - predictors.

1. Group A - highly statistically significant predictors included the following variables: region, the presence of viral hepatitis C, the use of heroin in the last year, the presence of antibodies to syphilis, the answer to the question "Is it possible to protect themselves from contracting HIV / AIDS through intravenous drug use, if use someone else's, but boiled for 15 minutes, the syringe and the needle."

2. In group B - highly statistically significant predictors included the following variables: education, marital status, the most frequent use of other drugs (except hunks, heroin) for the last month, getting disposable syringe exchange points in the last 6 months.

3. Group B - statistically significant predictors included the following variables: nationality, length of injection drug use, the most frequent use of heroin compared to other drugs in the last month, the use of drugs in a syringe filled by someone else.

## ANALYSIS OF THE EFFECTIVENESS OF VERTICAL TRANSMISSION PREVENTION FROM MOTHER TO CHILD AMONG HIV-INFECTED PREGNANT WOMEN IN KOSTANAI REGION

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Prevention of perinatal transmission of HIV from mother to child is a priority of the state policy in the field of combating the spread of HIV infection in the Republic of Kazakhstan. The prevention strategy based on recommendations of WHO, those included in the program for the prevention of HIV infection.

In recent years there has been a steady increase in the proportion of women among people living with HIV (PLHIV). The vast majority of HIV-positive women are of child-bearing age.

From 1993 to 01.12.2012, in Kostanai region registered 1,231 HIV-infected patients, including women - 406 (33%). At the moment of diagnosis of HIV infection 385 (94, 9%) were in the reproductive age (15-49 years). By modes of transmission of HIV-infected women on the results of the epidemiological investigation: in 35.3% of the cases was the parenteral route of transmission, 59.9% of the cases - sexual, in 4.8% of cases - unspecified. Cumulatively on 01.12.2012 from HIV-infected mothers born 112 children, 85 pregnancies resulted in abortion. During the 12 months of 2011 there were identified 24 pregnancies in HIV-infected women, including newly diagnosed HIV infection - 17 pregnant females. Pregnancy outcomes: birth - 20, abortion - 4. ARV - prevention was conducted in 20 HIV - infected pregnant women (including two women, who at the time of pregnancy were receiving ART) and 20 babies. All the women on time, 24-28 weeks of pregnancy, according to the then current MoH order № 699 from 29.12.2012 "Prevention of HIV transmission from mother to child in the Republic of Kazakhstan" started ARV prophylaxis. In 10 cases (50%), birth ended cesarean section, of which 3 cases (33.3%) on the recommendation of infectious disease AIDS center, to reduce the risk of vertical transmission of HIV in the presence of a pregnant woman at the end of pregnancy high levels of viral load. In 4 cases (20%) pregnancies ended in preterm delivery. All of the children were alive, however, the follow-up to 20 born babies in 2011 revealed 1 child with diagnosis of HIV infection.

In our opinion, without diminishing the rights of HIV-positive women in child bearing, it is necessary to legislate and the rights of the child "to be born healthy." To this end, in formulating HIV-infected woman to register the pregnancy is necessary to:

- In each case, to determine the risk of infection of the child and based on this, give women advice on child bearing;

- Legislate their responsibility for "risky behavior" during pregnancy (prostitution, vagrancy, drug use, alcohol, refusal of treatment, etc.), as well as the recommendations of a physician regarding the health of the newborn (artificial feeding, regular medical supervision, drug therapy).

## HEALTH CARE MANAGEMENT AND EXPERIENCE OF GOVERNANCE AT THE MEDICAL ORGANIZATIONS IN TURKEY

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One step towards the introduction of the institution of professional management, was the opening of the Kazakhstan School of Public Health, Ministry of Health of the Republic of Kazakhstan (KSPH), under the state order, Master of Business Administration in Health Care (MBA).

In accordance with the training program in MBA KSPH organized and conducted a study tour from 26.11.2012 to 30.11.2012 for 15 MBA students on "Health

Management" based on FLORENCE NIGHTINGALE HOSPITALS GROUP (group of hospitals "Florence Nightingale"), Istanbul (Turkey).

The purpose of the tour was learning by MBA students of management training and exchange of experience in the management of health care organizations in Turkey. At the workplace to the students of study tour were demonstrated: the structure of clinics, the procedure for seeking medical care, patient care (including nursing care and specialized services of patient care), logistics services, business planning, strategic management in healthcare organizations visited, risk management in the modern hospital system, medical clinic activities and its role in the management of the clinic, providing services in emergency situations, the management of infection control, the mechanism for establishing the price for the services of health care in hospitals, the study of the medical services (competition analysis), market research, financial management, financial analysis, data specific to the health sector, financial management, accounting, cost accounting, human resource management, maintenance and development of professional staff.

As a result of visiting of the clinics in Istanbul, the study tour participants received information about the organization of inpatient and outpatient care to the population, and tertiary care. They analyzed the characteristics of payment for medical services, and the cost and terms of financing health care. Study tour participants were acquainted with the work of the structure of insurance, automated patient registration database. Of special interest among the audience raised questions of quality control of medical services provided to patients, internal and external audits in health care, the organization of interdisciplinary communication.

## MODERN TECHNOLOGY OF TOP HEALTH CARE MANAGERS TRAINING IN KAZAKHSTAN

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In international practice, the most important component of strengthening and improving health system are human resource strategies. The effectiveness of health systems and the quality of care depends on the performance of employees who are defined by their knowledge, skills and motivation. International experience, particularly the experience of the World Health Organization indicates that among the organizational changes related to improving the performance of health systems, the greatest success achieved actions taken in the field of personnel management.

Big companies, those have headquarters in the United States and affiliates around the world, served as an impetus for the development of distance education back in the seventies. Along with the rapid development of technology acquired knowledge became quickly outdated. Companies began to invest in the development of online courses the best universities of the world, because it is, in the end, save much training time and did not take her from working professionals. Modern distance education is based on the following key elements: the medium of communication (e-mail, television, radio,

information communication networks) and methods that are dependent on the technical environment of information exchange.

Distance learning is designed for top health care manager, unwilling to stay in the career, looking to upgrade professional knowledge and skills, but who cannot regularly attend full-time classes. Distance learning has a positive impact on the student, increasing its creative and intellectual potential by increasing self-organization, the pursuit of knowledge, the ability to interact with computers and make their own responsible decisions.

Kazakhstan School of Public Health developed and offers a program of postgraduate training of health care managers with a component of distance learning using the latest interactive technologies and methods of presenting information, to develop skills of self-education.

Advantages of cycle training for top managers on "Management of Health" with a component of distance learning:

- Leaving of workplace for the entire period of study - 1 week to 3 months.
- All materials are available in electronic version.
- Constant communication with KSPH for each module assigned tutor from a profile of the department.
- Interactive communication, the discussion in the chat.
- Save time, financial, human resources for the organization of health care.
- Skills development and revitalization of self-education.
- As a consequence - continuing professional education.

Education of top managers intended to enhance health care quality and efficiency of health care organizations, pay enough attention to these aspects of the work and can significantly increase the investment attractiveness, which is particularly significant in terms of limited resources and increasing competition in the health care system of Kazakhstan.

Thus, any additions to the current regulations, which clearly would have been prescribed qualification requirements for managers of health care, for example, mandatory retraining in "Health Management" or master's degree or PhD will motivate top managers on a regular basis to learn and cultivation, thus strengthening the competitive potential of health care in particular, and the health care system of the Republic of Kazakhstan as a whole.

## SELECTED QUESTIONS OF HEALTH MANAGEMENT IN THE REPUBLIC OF KAZAKHSTAN

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In modern conditions, to manage medical organization or its subdivisions is impossible without a deep understanding of the nature and content of the management and operations manager in the health sector.

Status and prospects of Health in the Republic of Kazakhstan with the early twenty-first century is largely determined by the level of public health and socio-economic changes taking place in society. This was manifested in processes such as de-

monopolization of the health system, decentralization of management of the sector, the emergence of new economic relations and the development of modern forms of health care delivery and management methods in medical organizations.

In a short period of time in the Republic of Kazakhstan have been major changes in the regulatory framework of health; identify new principles and priorities in public health protection.

Management in the medical organization should be joint action adherents - clinical and occupational health managers. Clinicians should reconsider its opposition to the participation of professional managers in the medical organizations, and actively improve their knowledge in the field of clinical processes.

Success of Health Management can determine the level of training leaders at all levels of governance in health care organizations on the general topics of management, careful application of professional experience in the process of treatment and diagnostic process in medical institutions and scientific evidence and methodological approaches to the solution of the major problems in medical institutions.

Manager in health care - it is the manager or the manager, who is a permanent position with the authority having responsibility for decision-making on specific activities of the medical organization, operating under market conditions.

The main task of management is to create the conditions for group and / or team activities, so that each employee has contributed to the achievement of group goals at minimum cost money, time, effort, and with minimal disruption.

Improvement of the management system in health care will be manifested in economic impact for health care organizations: reducing internal costs, reduction of wasteful of time, ensuring a high level of prevention, an increase in the number of treated patients (patients), the growth of the services provided, by studying the needs of patients (patients); enhancing the image and competitiveness of the institutions in the market for medical services; social effect, which is directly linked to the quality of medical care and the needs of the population of medical services: improving the quality of service and service culture, ensuring a high professional level, increase patient satisfaction, quality of medical services rendered , ensuring a high level of disease prevention and treatment in accordance with international requirements, achieving coherence among the departments of medical institutions, the emergence of transparency of each department, the orientation of medical staff in the vision of their profession, personal growth, continuous updating of knowledge and the development of communication skills, involvement of medical personnel in decision-making.

Thus, the increasing interest in the issues of Health Management became increasingly active in the last decade, due to the new orientation of the economy on the development of market relations.

## ON THE AUTOMATION OF MAJOR MEDICAL PROCESSES IN HOSPITAL

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Keywords: hospital, automation, medical, process, information system effectiveness.

The study presents the results of the automation of major medical and technological processes in the hospital through the implementation of information systems (IS), allowing optimize the performance of the hospital staff. It is shown that the use of process "units medical card patients" and "medical history", for the maintenance of medical records in electronic form, containing information about the patient and his health allows the doctor to get the necessary information for a few seconds, instead of having to wait a minute or hours required for the search and delivery of paper medical records.

Moreover, it was shown that IS ensure the provision of more discerning and better organized reports by automatically running tests; dialogue systems can prompt the user for additional information - property, which is unable to ensure no paper form of statistics. Medical records stored in the computer's memory, may be made available in various forms of information, ranging from screen video terminals to the paper. Automation of documentation in the patient has reduced paperwork offices and hospital clinics, the overhead time medical staff and improve the diagnostic and treatment process, and developed a statistical model of registration and allowed a comprehensive analysis and evaluation of quantitative and qualitative indicators of the use of hospital beds and medical hospital diagnostic work.

Thus, the automation of documentation on the patient made it possible to reduce amount of paper work offices and hospital clinics, the overhead time medical staff and improve the diagnostic and treatment process, and developed a statistical model of registration and allowed a comprehensive analysis and evaluation of quantitative and qualitative indicators of the use of hospital beds and medical-hospital diagnostic work.

## PLANNING AND IMPLEMENTATION OF THE CURRENT ACTIVITIES AT THE CLINICAL HOSPITAL

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Keywords: hospital, planning, performance -targeted, modernization, retrofitting

The paper presents data on the use of performance-based method in long-term planning of the hospital in accordance with the state of the health care in the Republic of Kazakhstan in 2011 - 2015 years "Salamatty Kazakhstan." The author shows the stages of solving the problems through the implementation of priority target programs: increasing comprehensiveness attached troops and government employees comprehensive medical check-ups, the timeliness and quality of follow-up for dispensary treatment groups and increased recovery of persons at high risk for major social diseases, and also the comprehensive strengthening and modernization of material and technical base of medical and technological re-equipment of health centers and hospitals.

Improving the competitiveness of hospital on medical services market provides a constant modernization of the system providing free medical care to the population, the implementation of the state order of the Ministry of Health of the Republic of Kazakhstan, the efficiency and quality of marketing activities to identify new needs.

Thus, the use of performance-oriented method in long-term planning ensures stability, targeted, systematic and predictable expectations and equips hospitals effective tool management major and minor processes.

It is shown that the use and implementation of performance-based method of long-term planning of the hospital was to ensure stability, focus, steady, predictable, expected results and impact of the current activities of the hospital.

## ANALYSIS OF WORK AT THE RSCE "REPUBLICAN CENTER OF ALLERGOLOGY"

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In the State Program of Health of the Republic of Kazakhstan "Salamatty Kazakhstan" for 2011-2015 that was approved by Presidential Decree of 29.11.2010 № 1113 one of the areas is improving the organization of management and financing of health care into the national health system.

As part of this direction the following problems should be solved: improving the performance of organizations providing consultative and diagnostic, including tertiary care, improving governance and management in health care, improvement and expansion of the hospital replacement of diagnostic and therapeutic technologies, ensuring the high quality and affordability of care.

The main activities of State Enterprise "Republican Centre of Allergology" is aimed at the provision of specialized and highly consultative and diagnostic allergy care and related areas of evidence-based care, providing preventative and introduction of new methods of diagnosis and reasonable treatment.

The center has three branches: allergy, counseling and clinical diagnosis.

There is an increase of attendance of patients with allergy 14,866 in 2010 to 16,303 in 2011, i.e. 1437 visits to more (9%) . Analysis of the funding of the company under the state order program 036 "Provision of guaranteed free medical care except for areas funded at the local level," says the annual increase in the cost of GVFMA.

Analysis of the security center of the major means for 2010-2011 showed that in 2011 was allocated to transfers for the purchase of fixed assets from the state budget in the amount of 1585.2 thousand tenge. Were purchased biochemical analyzer, binocular microscope, electrocardiograph, sterilizer steam, computers, laboratory centrifuge. In 2010, nothing had been purchased from the assets.

Thus, our analysis has shown that in the framework of the State Program of Development of Health of Kazakhstan "Salamatty Kazakhstan" for 2011-2012 to improve the equipment of the Centre of Medical Devices.

## THE QUESTION ABOUT EMERGENCY MEDICAL SERVICE STAFFING

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In the State Reform and Development Program of Health of the Republic of Kazakhstan for 2005-2010, approved by the President of Kazakhstan, it were determined the main directions of development of emergency medical service.

For many years, in the Emergency Care Station (ECS) in Shymkent, Southern-Kazakhstan Region (SKR) of RK it has being carried out the work focusing on recruiting for all substations qualified medical staff and ongoing training of health professionals.

Research shows that staffing levels in ECS of Shymkent by medical personnel in 2008 was 88.0%, and in 2009 increased by 3.2%, the coefficient of combining among doctors was respectively 1.13 and 1.09.

In modern conditions, high requirements for the implementation of quality of emergent medical care calls for change in personnel services. Study of the distribution of employees by length of service in the emergency medical system and emergency care found that the largest share in the total number of physicians in 2008 and 2009 were doctors with experience of 11 to 20 years (42.8% and 40.5 %). In the second rank place in 2008 were doctors with experience of 5 years (20.4%) and in 2009 (22.4%), followed by, respectively, from 21 to 30 years (18.4%) and from 6 years to 10 years (13.7%). The percentage of doctors with the most experience in 2008-2009, has not changed and remains the smallest, accounting for 5.1% of the total number of physicians.

Thus, in recent years in FAS of Shymkent it was managed to create a stable, efficient, professionally trained staff, able to provide a solution to problems of improving the quality of emergency medical care to the population of Shymkent.

The State Program of development of Health of the Republic of Kazakhstan "Salamatty Kazakhstan" for 2011 - 2015 years provides further improving emergency care in resupply of emergency medical service by trained medical personnel, including paramedics, as well as to strengthen the material and technical base of the ambulance.

## REGISTRATION OF TB CASES AMONG STUDENTS OF ALMATY CITY

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Tuberculosis is still very important issue of public health worldwide. Until now, the TB incidence remains high in the world. Tuberculosis is a leader among infectious diseases causing death in young people and adults.

In Almaty, the TB incidence rate was 46.0 per 100 thousand of total population, which does not exceed the average Republican rate, but is regarded as a high incidence in the epidemiological context. The incidence of tuberculosis in 21.2% of cases caused by the newly arrived population. In the total structure of TB patients – 46% are unemployed people, and 13% - students form other regions. We studied age structure, clinical forms and methods of detection, the importance of social factors in the prevalence of TB infection in secondary and higher educational institutions Almaty city during 8 months of 2011.

### Conclusions:

1. High level of TB incidence exceeding average in the city was noted among students who study in the universities, institutes, academies, and colleges. The majority of cases was registered among students of governmental institutions. The percent of infected students who came from other regions is 71,2%, and half of them live in the student dormitories.

2. In the clinical structure of TB the most frequent form is infiltrative TB of lungs (90.8%), and TB of other systems – 6.9%.

3. Mainly TB cases are registered among students of the first year of study (31.0%). The majority of cases were registered among students aged 21-25 years old (39.0%).

4. Possible reasons of high TB incidence among newly arrived students are: poor housing, active socializing, overcrowded dormitories and auditoriums, stress situations and weakening of immune system.

5. Preventive measures, improving of housing conditions of students are directed to stabilization of epidemiological situation on TB among students.

## MEDICAL AND SOCIAL ASPECTS OF HEALTHY LIFE OF KAZNMU'S STUDENTS

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Training of high qualified professionals in higher education is one of the most important preconditions for successful meeting with challenges of economic, cultural and social development of society. The successful solution of the problem depends on the health and performance of students.

In 2012, the Department of Public Health conducted a study of medical and social aspects of health dental students.

The purpose was studying of health and social aspects of a healthy lifestyle among students-dentists.

To achieve the goal there were following objectives:

1. To give socio-demographic characteristics of students of dental faculty.

2. To rate lifestyle dental students and characterize disease according to self-esteem.

Research methods: sociological (questionnaires, interviews, research budget time), statistical, analytical.

1. It was established a clear trend of health deterioration according to student self-assessment with the growth of the period of study, which was confirmed by the state of health, "excellent and good" with 85.7% in the first year to 78.4% in the fifth year, and rated their health as satisfactory and poor in 13.3% of first-year students and 21.6% of the fifth year of dental faculty. This demonstrates the adverse effects of a combination of factors training at high school (adaptation, fatigue, traveling) and unsustainable lifestyles. Senior students were significantly more evade uptake in health care facilities (33.9% and 37.9% respectively).

2. Analysis of the prevalence of bad habits revealed a higher proportion of male smokers (44.6%) than women (6.73%) of them are constantly smoking (20.3% of men

and 0.76% for women). Quit smoking was observed in 14.9% of males and in 5.97% of females.

3. Medical and sociological study found that among university students formed the motivation to sport: 31.3% said they do sports at sports clubs or rooms, 23.6% regularly engage in health-enhancing physical activity, 10.9% do exercise just for physical education in the classroom, 10.9% would like to play sports, 20.6% had previously been involved in sports, but abandoned due to lack of free time and money, 2.8% do not want to do sports or cannot because of poor health.

## PERSPECTIVES OF SEXUAL EDUCATION AT THE SCHOOLS AND COLLEGES OF AKTOBE OBLAST

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The article discusses the importance and possibility of introducing sexual education as a compulsory part of the school curriculum and college programs. The idea is justified by low literacy and awareness of schoolchildren and students in matters of sexual relations and behavior, which is confirmed by research data in the Aktobe region. Work in this area of sexual education is actively pursued by the Department of Obstetrics and Gynecology, Western Kazakhstan State Medical University after Marat Ospanov, and is already considering by the activation and expansion of employment and training in sexual education.

Issues of moral education have always been and remain relevant. Particularly they confront us in today, when society eroded moral values, and young people do not clearly defined rules for the future. One of the major components of moral education is sexual education, that so far, despite on numerous suggestions and ideas from the state are underserved. In this regard, the question on research in the field of moral education, and the further development of programs. First of all, it is – crucial topic and a field for obstetricians and gynecologists, who year after year are faced with increased rate of abortion and disease among adolescents, young people from the failure of parental duty, orphanhood.

Assistants and associate professors of the Department of obstetrics and gynecology of the WKSMU after Marat Ospanov (Aktobe) annually include education about sex education into the plan at the secondary schools and colleges of the city. In 2012 were conducted studies on contraception, free advice for 5 schools and 5 colleges. Classes and trainings were conducted separately for boys and girls separately. During classes they explain in detail and demonstrate the rules on models of condom use, the anatomy of the body of men and women, the process of conception and human reproduction. Explains details of other contraceptive methods, their advantages and disadvantages. During consulting physicians take great care to inculcate the right moral and sexual behavior among adolescents, carrying on a conversation, prevention of undesirable consequences of early sexual activity.

Unfortunately, the dynamics of awareness growth on sexual education among young people, despite such efforts, is insignificant. Perhaps the efforts of only medical volunteer is very small contribution, and it is necessary to include to school curriculum

subject on sex education with the assistance of physicians. Currently, obstetricians develop new methods of comprehensive presentation on sexual education in classrooms, so the expansion of the potential of the material and content of the subject.

## SOCIAL HEALTH ASSESSMENT FOR PATIENTS WITH CORONARY ARTERY DISEASE AFTER MYOCARDIAL REVASCULARIZATION SYSTEM REHABILITATION

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In studying the attitude of the patients with coronary artery disease after myocardial revascularization, that have passed the second phase of rehabilitation (Department of heart rehabilitation of Clinical Hospital № 1) to existing system of rehabilitation was found that expected effect of surgical treatment of coronary artery disease, just over half of the respondents interpret the disappearance of pain during physical load (53.6%), one quarter - as a full recovery from coronary heart disease (24.7%), one-tenth - as the opportunity not to take medicines (10.3%) or diet (8.2%).

Source of information for patients about the possibility of passing rehabilitation after heart surgery were employees of cardiac surgery departments (42.3%), immediately consult a doctor (34%), friends or relatives (17.5). It should be noted low information content of the mass media, which, according to a survey of patients was only 6.2%. Draws attention to the fact that half of the surveyed patients (49.5%) had not received any information about the nature of the treatment in the department.

In general, the ratio of patients with coronary artery disease after myocardial revascularization, who passed the second stage of rehabilitation to rehabilitation system, is satisfactory. Thus, when opinion poll found that one-third of surveyed patients (29.9%) after surgery, nothing has changed in behavior and lifestyle. The risk groups include 20.6% of patients with coronary artery disease after myocardial revascularization, , not on a diet, do not take prescription drugs (17.5%), do not exercise (50.5%) unable to control their blood pressure (41, 2%), cholesterol (34%) and glucose (37.1%) in the blood, smokers (53.6%) who regularly consume alcoholic beverages (13.4%).

It should be noted that 95.9% of respondents did not participate in educational programs (cardio-school), including: one-third (35.1%) due to the lack of it at the clinic, and more than half (59.8%) have no desire to participate in educational programs of the "school of the heart." Attention is drawn to the fact that the majority of respondents (71.1%) did not know what it takes to continue to pursue recovery actions. Only a quarter of the respondent patients (22.7%) know that rehabilitation after a hospital must continue. Half of all respondents (49.5%) are ready to continue rehabilitation.

## NECESSITY OF ECONOMIC EVALUATION OF SCREENING PROGRAMS FOR EARLY DETECTION OF CVD IN KAZAKHSTAN

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Keywords: economic evaluation, arterial hypertension, screening, economic efficiency.

Abstract: Article discusses the importance of economic evaluation of screening programs for the detection of cardiovascular diseases (CVD). In structure of the diseases of cardiovascular system arterial hypertension (AH) is a leader in the prevalence in Kazakhstan and in recent years one of the major public health problems due to the increasing burden of disease. According to the Agency for Statistics of Kazakhstan, in 2011 there were the first ever detected 1,035.0 cases per 100,000 of population, in 2010, 913.8 cases of arterial hypertension. It is known that high blood pressure leads to the development of myocardial infarction, stroke, and other diseases [2,3,4,9]. Accordingly, in addition to the cost of treatment of one disease government has additional expenses for treatment of complications. Unfortunately, there is no enough data and evaluations of burden arterial hypertension and it's complications. In response to this public health challenge, in the Republic of Kazakhstan in a framework of the State program of health system development "Salamatty Kazakhstan" for the years 2011 - 2015 years it was decided to conduct screening programs aimed at early detection of diseases and risk factors for their development. Additionally from budget for carrying out screening of high blood pressure (arterial hypertension), coronary heart disease (CHD) and diabetes allocated 1,327,100,000 tenge, in 2011 – 432,3 mln. tenge, in 2012 – 432,2 mln. tenge, in 2013 – 462,3 tenge. Despite progress in recent decades in the prevention, treatment and diagnosis, arterial hypertension (AH) is a major cause of long-term disability, disability and mortality [1,3]. The growing interest in the economic evaluation of screening programs of various diseases due to the increased cost of medical services, the emergence of costly alternative methods of treatment, expensive equipment and new technology, and, of course, the effective use of state budget funds allocated for prevention programs. In economic evaluation is important to assess the situation from the micro-and macroeconomic point of view, if the microeconomic level, include the cost of a single family, the organization and the health care system due to "ill health", at the macroeconomic level is estimated cumulative impact of the disease on the overall performance of morbidity and competitiveness of country in general.

## ANALYSIS OF SATISFACTION WITH THE SANITARY CONDITION AT RAILWAY PASSENGER TRANSPORT

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Railway transport in Kazakhstan is one of the industries at the forefront of the state's economy, the most alternative means to provide passenger transportation.

The main component of the efficiency of the transportation process is the safety and the quality of traffic - creating safe transport of passengers, in compliance with the route of sanitary-epidemiological treatment and prevention of environmental pollution.

The aim of the research was to study and evaluate the state of passenger railway transport (RT).

To study the health conditions in RT surveyed population on a specially designed questionnaire. We carried out a survey of people using services of passenger railway transport (157).

According to the data, about half (48%) of railway passengers - young working people between the ages of 20 and 39, next group of persons is represented by people aged 40-59 years (31%). Almost every seven consumer of passenger railway services were young people under 20 (14%). People of older age group accounted for 7%.

Most respondents rated the appearance of a passenger train as "satisfactory" (46.5%) and "good" (31.9%), 12.1% gave a "poor" mark. Purity level of lavatories at coaches as "satisfactory" was estimated by 34.4% of passengers, 22.3% of respondents gave a rating of "good" and 10% of the passengers assessed the hygiene of the toilets as the "excellent". However, every third passenger was unhappy with the proposed sanitation of toilets at passenger railway.

According to the survey the majority of respondents (57%) gave a satisfactory estimate of the sanitary state of passenger transport. One in five respondents (19%) gave a rating of "good", one in seven (14%) rated as "unsatisfactory". Only 29% of respondents have rated health status higher than average, which is an indicator of the presence of certain factors, that could affect the health of railways.

Thus, from 12% to 40% of the passengers were not satisfied with the various health conditions of passenger railway transport, which requires greater control over the sanitary condition of passenger trains and improve the passengers stay in them.

## CHARACTERISTICS OF HEAVY INJURIES AMONG VICTIMS OF ROAD TRAFFIC ACCIDENTS

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The social significance of road traffic injuries is defined by its strong influence on incidence population, incapacity, disability and premature death.

Car accidents and assaults transport pedestrians are the most common causes of multiple and combined injuries. Mortality in multiple trauma according to different authors, from 15 to 35%, while for isolated fractures of it is varied in the range of 2-3%, and the combined injuries of the abdomen is 80%. While the share of combined injuries in a traffic accident (RTA) is 35,5-70% and above.

The paper presents an analysis of damage in victims of road traffic accidents (RTA) at Semey region during 2006-2010. Study design - cross-sectional study. Materials: Database - the history of 3 hospitals that provide inpatient care to victims in the accident, namely: casualty department Emergency Hospital (Emergency Hospital), neurosurgical and pediatric surgical department of the Medical Center (MC) Semey State Medical University. Location. Semey city and Semey region. Statistical analysis was carried out in the program SPSS 20.0. Results. Total for 2006-2010. Semey hospital were treated in 1689 in a road accident victims, including 709 in emergency hospital trauma unit, 278 and 702 - in the children's surgical and adult neurosurgery unit MC Semey State Medical

University, respectively. Multiple injuries occurred in 42.8% of cases. Head injury was diagnosed in 79.7% of patients with upper limb - 20.8%, trunk - 37.9%, lower limb - 40.5%, Neck - 4.6%, bruises - 23.7%, breaks internal organs - 4.6%, soft tissue wounds - 32.3%, scrapes and bruises - 40.6%. In general, fractures occurred at various sites in 94.1% of cases.

Conclusions: the results of this research will help in the planning of hospital activities that provide specialized careo victims of road accidents. Also, these data can be used to adjust the program of medical unit at driver training and driver education of car kits for the adaptation of the program and first aid kits to the most frequent injuries in road accidents.

## USE OF RHEOENCEPHALOGRAPHY DURING MEDICAL EXAMINATION IN CIVIL AVIATION

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As known medical examination in civil aviation is a system of measures to protect health, increase efficiency of aviation personnel, a complex of medical examinations of healthy individuals in order to identify primary and latent occurring disease, certain functional full body organs and systems in the presence of lesions and an expertise on the adequacy of the requirements of professional functions. ME includes an annual medical examination at the medical-flight expert committee, dynamic medical supervision for aviation personnel in inter-commission period, preflight (pre-shift) medical examination.

Rheoencephalography is a non-invasive method for studying vascular system of brain, based on the changing value of electrical resistance of tissues by passing them through a weak electric current of high frequency. Rheoencephalography (REG) allows to obtain objective information about the tone, elasticity of the wall and the reactivity of the brain, peripheral vascular resistance, pulse volume size. Advantages of the method is in its relative simplicity, ability to conduct research in almost any conditions and for a long time to obtain separate information on the state of arterial and venous systems of brain and intracranial vessels of various diameters. During the reporting period, 1,925 persons were examined using the technique of REG, including 1,897 pilots. They conducted more than 2000 tests. In each case also conducted functional tests (hyperventilation, test with nitroglycerin, turning their heads to the side), which were chosen to differentiate with respect to age, clinical and laboratory data. We identified 59 people with vascular disease in early stages of changes.

Very informative pharmacological stress tests (e.g., nitroglycerin), when taken into account the timing and severity of the reaction, and the degree of normalization after the REG test. Due to the widespread use of functional tests (hyperventilation, head turning, pharmacological) we can observe improved accuracy of the diagnosis of vertebrobasilar insufficiency in osteochondrosis of the cervical spine (OCS). This method compares favorably with other methods of studying the brain hemodynamics relative simplicity, the absence of contraindications to the use of sufficient reliability and objectivity of the results.