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**ANALYSIS OF RELATIONS BETWEEN THE CONDITIONS OF ACCOMMODATION  
AND THE STATUS OF HEALTH OF THE POPULATION OF THE  
WEST KAZAKHSTAN REGION OF THE REPUBLIC OF KAZAKHSTAN**

**Abstract:** The article considers the medical and geographical features of the diseases of the West Kazakhstan region of the Republic of Kazakhstan, as well as the patterns of geographical spread of human diseases and the factors that cause these diseases. The focus of any medical and geographic problem is always the environment-health relationship; therefore direct examination of the health of the population is associated with territorial differentiation. Therefore, the task of organizing and conducting a systematic medical and ecological health of the population and environmental factors (a complex of natural, technogenic and socio-economic factors), identifying areas with a strained ecological situation and risk groups among the population, that is, identifying cause-effect relationships between the state of health of the population and the impact of human environmental factors on the basis of a systematic analysis and assessment of the risk to public health. The main results of scientific research (scientific, practical): identified the main diseases in the West Kazakhstan region, characterized the factors that affect the incidence of this area. As a consideration of this problem, it is proposed to identify the main causes of diseases, as well as the factors that cause them, the essence of this problem is revealed.

**Keywords:** West Kazakhstan region of the Republic of Kazakhstan, factors, disease, health, population, territory, medical and geographic features, technogenic, socio-economic, cause-effect relations.

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**АНАЛИЗ СВЯЗЕЙ МЕЖДУ УСЛОВИЯМИ ПРОЖИВАНИЯ И СОСТОЯНИЕМ  
ЗДОРОВЬЯ НАСЕЛЕНИЯ ЗАПАДНО-КАЗАХСТАНСКОЙ ОБЛАСТИ  
РЕСПУБЛИКИ КАЗАХСТАН**

**Аннотация:** В статье рассматриваются медико – географические особенности заболеваний Западно–Казахстанской области Республики Казахстан, а также закономерности географического распространения болезней человека и факторы, эти болезни обуславливающие. В центре внимания любой медико - географической проблемы всегда лежит взаимоотношение среда – здоровье, поэтому непосредственное рассмотрение здоровья населения связано с территориальной дифференсацией. Отсюда чрезвычайно актуальной является задача организации и проведения систематического медико-экологического состояния здоровья населения и факторами окружающей среды (комплекса природных, техногенных и социально-экономических факторов), выделения районов с напряженной экологической ситуацией и групп риска среди населения, то есть выявление причинно-следственных связей между состоянием здоровья населения и воздействием факторов среды обитания человека на основе системного анализа и оценки

риска для здоровья населения. Основные результаты научного исследования (научные, практические): выявлены основные заболевания и болезни на территории Западно-Казахстанской области, охарактеризованы факторы, влияющие на заболеваемость данной области. В качестве рассмотрения данной проблемы предлагается выявить основные причины заболеваний, а также факторы, обуславливающих их, раскрывается суть данной проблемы.

**Ключевые слова:** Западно – Казахстанская область Республики Казахстан, факторы, болезнь, здоровье, население, территория, медико-географические особенности, техногенные, социально-экономические, причинно-следственные связи.

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## **ҚАЗАҚСТАН РЕСПУБЛИКАСЫ БАТЫС ҚАЗАҚСТАН ОБЛЫСЫ ТҰРҒЫНДАРЫНЫҢ ДЕНСАУЛЫҚ ЖАҒДАЙЛАРЫ МЕН ӨМІР СҰРУ ҮРДІСІ «ШАРТТАРЫ» АРАСЫНДАҒЫ БАЙЛАНЫСТЫ ТАЛДАУ**

Мақалада Қазақстан Республикасы Батыс- Қазақстан облысы бойынша «кеселдердің» аурулардың медициналық географиялық ерекшеліктері, сонымен қатар адамдардағы аурудың географиялық таралу заңдылықтары мен кеселді тудырушы факторлар қарастырылған. Медициналық-географиялық мәселелер қоршаған орта мен денсаулық арақатынасына негізделген, сондықтан тұрғындардың денсаулығын қарастыру территориялық дифференциациялаумен «саралаумен» тікелей байланысты. Осы орайда, тұрғындардың денсаулығына қоршаған орта факторларының (табиғи, техногенді, әлеуметтік-экономикалық факторлардың кешенді түрде) әсер етуі жағдайларын жүйелі түрде қарастыруды ұйымдастыру, сонымен қатар экологиялық ахуалы мүшкіл аудандарды және тұрғындар ішіндегі қауіпті топтарды анықтау, яғни тұрғылықты халық денсаулығы мен адамның өмір сүру ортасының оның денсаулығына тигізер қауіп себепін, әсер етуші факторларды жүйелі түрде сараптаулар жүргізу арқылы анықтау көкей кесті өзекті мәселе. Ғылыми зерттеудің негізгі нәтижелері: Батыс-Қазақстан облысы территориясындағы негізгі кеселдер мен ауру түрлері анықталды, осы өңірдегі ауырулардың болуына әсер етуші факторлар қарастырылды. Осы жағдайды зерделеу барысында, аурудың негізгі себеп-салдары арасындағы байланыс пен әсер етуші факторларды қарастыру арқылы мәселенің себептері мен мән- жайы анықталады.

**Түйін сөздер:** Батыс – Қазақстан облысы Қазақстан Республикасы, факторлар, ауру, кесел, денсаулық, тұрғындар, территория, медициналық-географиялық ерекшеліктер, техногенді, әлеуметтік-экономикалық, себеп-салдарлық байланыс.

### **Introduction**

The solution of the medical aspects of environmental protection, disease prevention and health promotion is one of the most pressing problems in the world.

This is defined by WHO's global strategy "Health for all", the European Charter on Environment and Health, which has identified the main goal of sustainable economic development of states as a desire to stop the decline in health through environmental degradation and to prevent negative effects on the environment and health in the future. This Charter and the program of action on environment and health protection were adopted by 29 European countries, the Commission of the European Community and 179 governmental and international organizations, it was fully supported by Kazakhstan, becoming one of the states that adopted the plan of action of the global strategy "Health for All" [1].

For the Republic of Kazakhstan is especially important the solution of the problems of ecological rehabilitation of the territories, primarily aimed at preserving the health of the population. This is due to the fact that a number of epicenters of medical and environmental disasters have been formed on the territory of the Republic, a significant number of cities and regions have been affected by industrial emissions.

State policy in the social sphere in recent years is characterized by the recognition of the need to strengthen the health of the population, as the main factor of economic growth and ensuring national security of the country. Factors determining health have a diverse, interdepartmental nature.

The health of the population, regardless of the social and political order of society, is, was and will remain one of the main indicators of social well-being, normal economic functioning of the society, favorable ecological and epidemiological situation of the state.

Since health indicators reflect the degree of social and economic comfort of a society and its well-being, health is considered as the leading system-forming factor of national security [1].

The current situation in the medical and geographic system is one of the most important characteristics of the development of society and the standard of living, which largely depends on socioeconomic conditions and environmental factors. At present, the influence of natural, anthropogenic, socio-economic and medical-sanitary factors on the formation of the medical-geographical situation in the West Kazakhstan region has not been sufficiently studied [2].

Recently, the incidence rate of the population of Western Kazakhstan (according to the official statistics of the Ministry of Health of the Republic of Kazakhstan) continues to be high in major groups of diseases. This is due to the impact of a number of factors, among which the important is the impact of natural, anthropogenic and socio-economic conditions unfavorable for the life and health of the population.

The structure of medical geography as a research area integrates the data of many sciences to solve the complex problem of anthropological and environmental assessment of environmental quality in connection with its impact on public health. Nosogeography (geography of diseases) studies the geographical distribution of individual diseases, medical landscape studies - the impact on human health of landscapes, as well as the environmental consequences of anthropogenic impacts on natural complexes. Medical geography studies the medical and geographical characteristics of the territories of individual states.

All sections of medical geography permeate the geographic approach, which makes it possible to consider the links in the environment-health system in a spatial aspect. In this case, the spatial aspect will be considered on the example of the West Kazakhstan region of the Republic of Kazakhstan.

**Object of study:** health of the population of the West Kazakhstan region.

**Subject of study** is the population of the West Kazakhstan region in the aspect of territorial differentiation of the relevant indicators in connection with the factors of the geographical environment.

**Study area.** The region borders with five regions of the Russian Federation : in the north with Orenburg, in the south-west with Astrakhan, in the west with the Volgograd and Saratov regions, and in the north-west with Samara. Thus, the length of the outer boundaries is 1,532 km. Within the country area adjacent to Aktobe and Atyrau regions. It is connected with them by railway lines, automobile, water and air transport [2].

The territory of the region is 151,3 thousand sq.km, which is 5,6% of the territory of the republic.

The permanent population of the region as of January 1, 2016 was 636,9 thousand people, of which 317,2 thousand people live in urban areas or 49,8% of the total population, in rural areas – 319,7 thousand people or 50, 2% [3].

The average population density in the region (per 1 sq. km of the territory) is 4,2 people. Administratively the region is divided into 12 rural areas and the city of Uralsk.

A significant part of the region is located between two rivers - the Volga and the Ural, along the Ural river it has access to the Caspian Sea, and from there along the Volga - to the Northern and Black seas. The region is located in the heart of the Eurasian continent. It is divided into two parts of the world (Europe and Asia) by the Ural river. The Ural have long been considered a transit route between Asia and Europe, it was here that one of the branches of the Great Silk Road passed.

The relief of the territory of the region provides, basically, a flat territory, which decreases from the northeast to the southwest, and is divided into five large geomorphological regions. According to the peculiarity of the relief in the territory of the region, the following areas are singled out: Obshchy Syrt, Emba and Pre-Ural Plateau, Caspian Lowland, etc. In the south, within the Caspian lowland, there are sand massifs of Narynkum: Kokuzenkum, Akkum, Karagandykum and others. The highest point of the region, Ichka mountain, its height at sea level is 259 m [4].

Many domestic authors note that the West Kazakhstan region is characterized by an unfavorable ecological situation, which is due to the location in this region of large oil and gas and industrial enterprises that significantly pollute the environment. Operation of this enterprise is associated with emissions of hydrogen sulfide, sulfur dioxide, nitrogen oxides into the environment. The population in areas with oil industry, becoming ill, acquires various chronic diseases, leading to further disability of the body. In analyzing the morbidity of workers and the population of nearby settlements, an increase in disability has been revealed in the recent period.

According to the results of the studies and medical examinations, respiratory, skin, subcutaneous, nervous system, anemia, cardiovascular disease, genitourinary system diseases are the most important in the structure of disability. The main cause of death was respiratory diseases. For example, the Karachaganak oil and gas condensate field, located in the West Kazakhstan region, releases into the atmosphere compounds containing lead, cadmium, zinc, iron, cobalt, vanadium, polluting soil, vegetation, agricultural products and water sources. In the settlements of the region over the last 10 years, the demographic indicators of population health have worsened, reflected in a decrease in the birth rate, in the growth of the overall mortality of the population, and in a sharp decline in reproduction. A particularly serious problem of ecological catastrophe is in the settlements of Berezovka and Tungush [5].

**Methods of research and data:** bibliographic, statistical, system, comparative, official materials of state statistics bodies: the Ministry of Health of the Republic of Kazakhstan, the Agency of Statistics of the Republic of Kazakhstan, the Statistics Department of the West Kazakhstan region. Literary sources on the theoretical and methodological problems of medical geography and demographic situation in the Republic of Kazakhstan. Thirdly, the materials of specialized scientific journals ("Izvestiya RAN", "Vestnik KazNU", "Vestnik KazNMU", etc.). Internet resources.

**Results and analysis:** The study must be said that the incidence of West Kazakhstan region remain high. The main diseases prevalent in the region are respiratory diseases, which is 16562,5 per 100,000 people for 2015. Diseases of the digestive and circulatory system are also distinguished, i.e. heart disease (Table 1) [3].

Table 1 - Diseases of the West Kazakhstan region for the period 2010-2015 [3].

Years	Population, thousand people	Diseases							
		Infectious diseases	Neoplasms	Diseases of the blood	Diseases of the endocrine system	Diseases of the nervous system	Diseases of the eye	Diseases of the respiratory system	Diseases of the digestive system
2010	608,3	2051,5	573,3	3230,9	719,8	1120,1	2242,4	18908,8	2640,8
2011	612,6	1798,5	465,1	2817,3	724,6	1064,7	2160,4	18655,0	2448,1
2012	617,7	1975,5	408,4	1543,2	710,5	1076,9	1992,2	17685,1	2439,3
2013	624,1	2012,1	371,7	1433,2	631,1	866,8	1716,2	17815,4	2518,5
2014	629,9	1816,2	414,6	1334,2	699,5	856,0	1600,6	17296,1	2711,4
2015	636,9	1712,0	493,3	1751,5	660,5	929,1	1837,2	16562,5	3047,1

The main factors that determine and influence health according to the World Health Organization are:

1. biological (heredity, type of higher nervous activity, constitution);
2. natural (climate, landscape, flora, fauna, etc.);
3. the state of the environment;
4. socio-economic;
5. level of development of health care.

Biological factors. Heredity and environment act as etiological factors and play a role in the pathogenesis of any human disease, but the share of their participation in each disease is different, and the more the share of one factor, the less the contribution of the other. The overwhelming number of common diseases, especially diseases of mature and advanced age. The main etiological factor is the adverse effect of the environment, but the realization of the effect of the factor depends on the individual genetic predisposition of the organism. Hereditary diseases caused by a pathological mutation, however, they require a specific environmental impact. Relatively few forms of pathology, in the emergence of which an exceptional role is played by the environmental factor. Genetic factors in this case affect its outcome [5].

Medical support. It is with this factor that most people associate their hopes for health, but the share of responsibility of this factor is unexpectedly low. Medicine is a system of scientific knowledge and practical activities aimed at strengthening, prolonging the life of people, preventing and treating human diseases.

In medical prophylaxis of morbidity, three levels are distinguished: first level prevention is targeted at the whole contingent of children and adults, its task is to improve the state of their health throughout the life cycle. Medical prevention of the second level is engaged in revealing the indicators of the constitutional predisposition of people and the risk factors of many diseases, predicting the risk of diseases by a combination of hereditary characteristics. That is, it is not focused on the treatment of specific diseases, but on their secondary prevention. Prevention of the third level, or prevention of diseases, sets as its main objective the prevention of recurrence of diseases in patients on a general population scale.

State of the environment. Human, as a living system, is an integral part of the biosphere. The human impact on the biosphere is associated not so much with its biological as with labor activity. It is known that technical systems have a chemical and physical effect on the biosphere through the following channels: through the atmosphere (use and isolation of various gases violates natural gas exchange) through the hydrosphere (pollution by chemicals and oil of rivers, seas and oceans) through the lithosphere (use of minerals, pollution soils with industrial wastes, etc.).

The human organism is in many respects connected with the other components of the biosphere - plants, insects, microorganisms, etc., that is, its complex organism enters the general cycle of substances and obeys its laws. Continuous inflow of atmospheric oxygen, drinking water, food is absolutely necessary for the existence and biological activity of human. The human organism is subject to daily and seasonal rhythms, responds to seasonal changes in the temperature of the environment, the intensity of solar radiation, etc. Thus, studies conducted in the United States have shown that more than half (51.2%) of human health depends on the image life. The second important factor is human genetic data, including heredity. From this factor, health depends on one fifth (20.4%). Almost the same weight (19.9%) on health affects the state of the environment. The development of health care has an impact on the health of the population, but its role is generally somewhat lower - only 8.5%. Therefore, the problem of lifestyle is key in studying the dynamics of public health [6].

**Conclusions.** In recent years, the level of the incidence of the population, associated with adverse environmental effects, is not decreasing. This is due to the fact that many negative factors continue to act.

As a result of the research, the main factors affecting the health of the population of the West Kazakhstan region are environmental factors. They can be divided into:

✓ Physical factors: solar radiation and other physical effects of cosmic origin, temperature, humidity, speed and air pressure, temperature of the enclosing surfaces (radiation temperature from building structures, soil, equipment, etc.), noise, vibration, ionizing radiation, illumination, electromagnetic waves and others.

✓ Chemical factors: natural and human-made chemical elements and compounds (contaminants) that form part of air, water, soil, food, building materials, clothing, footwear, various household and interior items, household electrical appliances, industrial equipment,

✓ Biological factors: harmless and harmful microorganisms, viruses, worms, fungi, various animals and plants and products of their vital activity [6].

Physical, chemical and to a certain extent, biological factors can be both natural and artificial (anthropogenically-technogenic) origin, more often there is an effect on the human body of these factors. First of all, this is an unsatisfactory natural water quality, mainly - their increased mineralization. Aridization of climate leads to an increase in respiratory and skin diseases. Situated on the border with Russia (Astrakhan region) and Kazakhstan (West Kazakhstan region) the Kapustin Yar missile military test site affects oncological diseases and neoplasms.

To neutralize the impact of unfavorable natural and anthropogenic conditions on the level of morbidity, health status of the population and improvement of the current situation, it is necessary to involve the social adaptation of the population, an important part of which is the system of organization of public health and social security, raising the standard of living of the inhabitants of the republic.

To eliminate these problems and optimize the ways to improve the health of the population, it is necessary to conduct a comprehensive study of the probabilities of occurrence and spread of diseases of the population, depending on the manifestation of various environmental factors.

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