

## ARTICLES

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**PREVENTIVE MEDICINE – FORMING  
THE HUMAN RESOURCES POTENTIAL  
OF THE HEALTH CARE SYSTEM OF THE KYRGYZ REPUBLIC**<sup>1,2</sup>Bapaliev G.O., <sup>1</sup>Turgumbaeva J.J., <sup>2</sup>Atambaeva R.M., <sup>3</sup>Kasymova R.O.<sup>1</sup>National Institute of Public Health of the Ministry of Health of the Kyrgyz Republic, Bishkek, e-mail: gulnabapaliev@yandex.ru, zturgumbaeva@list.ru;<sup>2</sup>I.K. Akhunbaev Kyrgyz State Medical Academy, Bishkek e-mail: r.atambaeva@gmail.com;<sup>3</sup>B.N. Yeltsin Kyrgyz-Russian Slavic University, Bishkek, e-mail: docha02@bk.ru

A historical analysis of the human resource potential formation in the field of preventive medicine for the health care system at various stages of the 20<sup>th</sup> and 21<sup>st</sup> century development of the Kyrgyz statehood was carried out. The purpose of the study was the examination of the formation of a cadre of healthcare system specialists in the field of preventive medicine in the recent history of the Kyrgyz state. A retrospective analysis of the resource potential of science and education in ensuring the sanitary and epidemiological well-being of the country was carried out on the basis of a historical-genetic, comparative and descriptive approach. Spatial realization of educational standards in the specialty “hygiene and sanitation” in the Soviet period 1959-1989 and in the sovereignization period 1990-2022 – preventive medicine specialty envisaged the continuity of the integrative educational process at under- and postgraduate stages. In modern conditions, the need for detailed analysis of educational programs to bring them up to the current new public health requirements declared by WHO has matured. Today, the material and technical basis of the departments of hygiene, epidemiology, microbiology and other specialized departments does not meet to any significant measure modern requirements for the conduct of the educational process. Thus, the fundamental modern tasks facing the healthcare system in the 21<sup>st</sup> century require serious attention of the State to the problems of preventive medicine specialists training to ensure the sanitary and epidemiological well-being of the country’s territories and maintaining the health of the population.

**Keywords:** history of science, sanitary-hygienic faculty, preventive medicine, cadre preparation, public health

A historical analysis was made of the formation of the human resource potential in the field of preventive medicine for the health care system at various stages of the Kyrgyz statehood of the 20<sup>th</sup> and 21<sup>st</sup> centuries. During the Soviet period, the first scientific medical institution – the Institute of Microbiology and Epidemiology (1938), and then the Medical Institute (1939) were established to strengthen and develop the network of medical and sanitary institutions, and improve preventive work among the population as well as to ensure the human resource potential. However, subsequently, the need to improve the prevention of epidemic outbreaks and occupational diseases, taking into account the reorganization of the existing sanitary-epidemiological service in the system of higher medical education of the country, the sanitary-hygienic faculty was opened (1953) to provide relevant specialists for the country’s health system. Furthermore, special attention in the article is focused on the historical aspects of the formation and development of the Sanitary-Hygienic Faculty by the current periods and in the conditions of the educational programmes being realized for the training of specialists such as: “hygiene and sanitation”, “preventive medicine”, “public health”. Today, in the 21<sup>st</sup> century, modern approaches have been proposed to increase the prestige of the specialty “preventive medicine” and to harmonize the content of educational programs in accordance with the world’s prac-

tice of public health development, based on ten principles for the achievement of preventive medicine objectives.

An important role in the development of medical science and education for the Kyrgyz state was played by the decision of the IV All-Kyrgyz Congress of Soviets (1935) on the need to create a scientific institute of preventive direction and a higher educational medical institution [1]. It was realized in practice with the adoption on June 23, 1936 of the Resolution of the Central Committee of the All-Union Communist Party of the Bolsheviks and the Council of People’s Commissars of the USSR “On the work of higher educational institutions and on the management of higher education” and the establishment of a network of sanitary and bacteriological institutes in national republics. The leadership of the newly formed in 1936 Kyrgyz Soviet Socialist Republics [2]. These decisions were realized by the leadership of the newly created (1936) Kyrgyz Soviet Socialist Republic, an equal subject of the USSR. A historic joint Resolution of the Central Committee of the All-Union Communist Party of the Bolsheviks and the Council of People’s Commissars (F316, op 12.5, 1.62-63) was adopted, on the basis of which the Order of the People’s Commissariat of Health of the Kyrgyz SSR No. 761 of December 9, 1937 was issued on the establishment of the Kyrgyz Scientific Institute of Epidemiology and Microbiology on January 1, 1938 – the first scientific institution in medi-

cine in the country, the legal successor of which is now the National Institute of Public Health of the Ministry of Health of the Kyrgyz Republic [3, 4]. Definitely a landmark event was the adoption of Resolution No. 517 of the Council of People's Commissars of the Kyrgyz SSR of April 16, 1939 on the opening of the Kyrgyz Medical Institute in Frunze from September 01, 1939 with the recruitment of 200 students for the first year (general medicine) [4-6].

The first director, a prominent Soviet-Belarusian scientist, doctor of medical sciences, professor Boris Yakovlevich Elbert (1937-1945), played a special role in the organization of preparatory work for the creation and development of a medical research institute and a medical educational institution. The adoption of such strategic decisions was related to the serious demands coming from the Union- and republics-level party and state bodies for the formation of a new Soviet health system aimed to improve the sanitary and epidemiological situation of the territories and to provide affordable medical and preventive care to the population.

**The purpose of this study** was to examine the human resource potential in preventive medicine for the healthcare system in the recent history of the Kyrgyz state.

#### **Materials and methods of research**

A retrospective analysis of the scientific-research and educational resource potential in ensuring the sanitary and epidemiological well-being of the country is carried out on the basis of historical-genetic, comparative and descriptive approaches.

#### **Results of the research and discussions**

It is known that the development strategy of the Kyrgyz state of the Soviet period was determined by the political attitudes of the ruling Communist Party in the legal regulation of public health and the development of the USSR health system.

The Soviet government set serious tasks for the health authorities to organize sanitary and epidemiological services and train sanitary doctors already in the pre-war 30-40s, both at the union level and in national republics. Sanitary and epidemiological departments were created in the People's Commissariats of the Union Republics to organize a specialized service in the form of sanitary and epidemiological stations. The fundamental document for the training of workforce was the Resolution of the Central Executive Committee and the Council of People's Commissars of the USSR dated June 23, 1930 "On the reorganization of higher

educational institutions, technical schools and workers' faculties". On the basis of which, for the first time in the history of the world medical education, the Sanitary-Hygienic Faculty was organized for the training of hygienists and epidemiologists, subsequently renamed Preventive Medicine [7].

However, despite the directive state resolutions and their systematic implementation, the situation in the medical and social sphere, especially in the post-war years, was characterized by high mortality, low life expectancy and other unfavorable demographic, medical and statistical indicators against the background of a shortage of medical personnel and insufficient social and hygienic provision of living conditions for the population of the republic [8]. Under these conditions (1952), it is planned to organize 77 sanitary-epidemiological stations in the regions and cities of the republic to meet the needs of the healthcare system in ensuring the sanitary and epidemiological well-being of territories and preventive activities among the population of the Kyrgyz SSR [9]. In fact, for this period, 1,731 doctors worked in the healthcare system (524 vacancies), of which 75 were in the sanitary service with the ability to provide 136 if required. A number of district sanitary-epidemiologic stations in southern regions (Kurshab, Osh, Soviet, Uzgen, Chon-Alai, Naukat, etc.) employed paramedics [10-12]. During these years, by the decision of the Ministry of Health of the USSR, Order No. 357, item 5 of April 21, 1951 was issued to improve the quality of sanitary and hygienic work. On the basis of which the Ministry of Health of the Kyrgyz SSR issues Order No. 96 of May 10, 1952: "On the training (retraining) of doctors for sanitary and epidemiological stations on the basis of the Kyrgyz State Medical Institute" to be provided from among the graduates of the Medical Faculty [9, 11]. Additionally, biologists, chemists, microbiologists with university education were provided with training study in learning methods for use in sanitary and hygienic and microbiological laboratories. Along with this, graduates of sanitary and hygienic faculties of universities in Moscow, Tbilisi, Tomsk, etc. were sent to work in the republic according to the targeted job placements. Accordingly, by the end of the 60s, more than 50 certified specialists worked in the health care system of the Kyrgyz SSR. Understanding the high importance of preventive medicine in maintaining public health and serious shortcomings in the sanitary-epidemiological surveillance of industrial enterprises, agricultural facilities, trade, children's and school entities

against the background of high population exposure to infectious agents as well as the lack of sanitary-epidemiologic workforce in the health system required certain decisions. An important event was the renaming in 1952 of the Kyrgyz Research Institute of Epidemiology and Microbiology into the Kyrgyz Research Institute of Epidemiology, Microbiology and Hygiene. As part of the implementation of the Order of the Ministry of Health of the USSR No. 928 of October 17, 1952 "On measures to improve the training, specialization and further qualification of hygienists, epidemiologists and microbiologists on sites", the Sanitary-Hygienic Faculty was organized at the Kyrgyz State Medical Institute in 1953 [11]. The admission of 100 students for the first year with a period of study of 6 years was carried out by the published announcement in the newspaper "Soviet Kyrgyzstan" (No. 151, August 2, 1953). In fact, 102 people were enrolled by the admission committee of the Kyrgyz State Medical Institute, Protocol No. 2 of August 22, 1953. The first dean of the new Sanitary-Hygienic Faculty was appointed candidate of medical sciences, associate professor S.B. Daniyarov [1, 5, 11, 13, 14]. The training program for students in this area was practically no different from the medical faculty. And only in the 4th year specialized hygiene subjects were introduced: communal hygiene, occupational hygiene, children and adolescents, military and radiation, as well as epidemiology and occupational diseases with a large volume of hours. The primary basis for the formation of hygienic disciplines teaching was the Department of General Hygiene, organized in 1941, in whose formation Malyshev V.P. (1941-1942), Berestchko L.E. (1942-1945), Okolov F.S. (1945) played a major role. In the post-war period from 1946, the department was headed by F.S. Okolov, which significantly intensified the improvement of educational programs on hygiene areas based on the methodology of central universities – Moscow, Leningrad, as well as research work in various environment and nutrition issues. The productivity of the scientific and educational work of Professor Okolov F.S. in the period 1946-1956 determines significant achievements – the organization of internships of his hygiene students (Gudzovsky G.A., Ryspaev S.R., Mamytov B.M., Pukhov B.I., etc.) in the leading medical universities of the Soviet Union and preparation of highly qualified scientific cadres – 7 candidate's and 1 doctoral dissertations. After his departure to Krasnodar, the Department of General Hygiene from 1956 was headed by his student, candidate of

medical sciences, associate professor G.A. Gudzovsky [1].

Naturally, the formation of the Sanitary-Hygienic Faculty (1953) required the creation in 1958 of new hygiene- specialized departments: of Hygienic Disciplines – headed by candidate of medical sciences, associate professor Gudzovsky G.A., of General Hygiene with a course of military and radiation hygiene – candidate of medical sciences Boyko A.A., of Epidemiology – candidate of medical sciences T.L. Proreshnaya, of microbiology – doctor of medical sciences, professor S.I. Gelberg, of Infectious Diseases – doctor of medical sciences A.M. Gubinsky. It is known that the organization of higher medical sanitary-hygienic education was regulated by normative and instructional documents of the authorized bodies of the USSR and the Kyrgyz SSR. The main educational and practical bases were republican, city, regional, district sanitary-epidemiological stations and clinical hospitals, because the training program practically was no different from that of the Medical Faculty in 1953-1960. For this period, the high importance of preventive medicine and the development of this field in the population health-related higher education that they had in the formation of the domestic healthcare is beyond doubt. Especially as the characteristic trend at the time was high turnover of qualified medical personnel in remote mountain regions: 32 doctors were sent to work and 30 dropped out, as well as high morbidity and an increase in mortality from 2.4% to 3.1% (an increase of 0.7%). In turn, this predetermined the organization of short-term training courses (1958-1959) on sanitation and hygiene with the graduation of sanitary doctors for the first time who were prepared at the Kyrgyz State Medical Institute [15].

The first planned graduation of the Sanitary-Hygienic Faculty had place on July 14, 1959 in the specialty "sanitation and hygiene" with the award of the qualification – sanitary doctor: 77 people, including 23 of native population. Moreover, two of the graduates were left at the Department of Hygiene Disciplines to perform research work (Doronbekov J.D., Abydkaimova P.), and two were sent to Moscow for residency and postgraduate studies [16, 17].

In the prevailing historical conditions of the Soviet period of 1960-1991, the faculty was set the fundamental tasks of training sanitary doctors (hygienists, epidemiologists) and developing preventive direction for the country's health care, taking into account new biomedical and natural science achievements.

Table 1

Educational programs for the training of doctors for sanitary-epidemiological services

	Periods	1959-1969 SH		1970-1979 SH		1980-1989 SH		1990-2005 PM		2005-2015 PH*		2016-2021 PM*		2022 г. PM	
		abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
I	Discipline blocs	556	9,1	763	11,7	738	10,0	937	12,1	1267	14,5	1186	11,9	1170	10,0
II	Humanitarian-social	580	9,5	582	8,9	686	9,3	635	8,2	773	8,8	690	6,9	870	7,4
III	Mathematical and natural sciences	1131	18,4	1004	15,3	1217	16,5	1172	15,2	950	10,9	773	7,7	1440	12,3
IV	Fundamental	1763	28,7	1613	24,6	1604	21,7	1474	19,1	1383	15,8	2276	22,9	2580	22,0
V	Clinical	1394	22,7	1452	22,2	1857	25,1	2254	29,2	2809	32,1	2919	29,4	3210	27,3
VI	Professional	303	4,9	651	9,9	728	9,9	663	8,6	716	8,2	1138	11,5	1010	8,6
VII	Additional (physical culture and military-medical training)									128	1,5				
VIII	Elective courses														
VIII	Total	5727	93,4	6065	92,6	6830	92,4	7135	92,5	8026	91,7	8982	90,3	10280	87,5
IX	Practice	287	4,7	364	5,6	410	5,5	428	5,5	576	6,6	810	8,1	1320	11,2
X	State examinations	120	2,0	120	1,8	150	2,0	150	1,9	150	1,7	150	1,5	150	1,3
	TOTAL	6134	100	6549	100	7390	100	7713	100	8752	100	9942	100	11750	100

Note: SH – sanitary-hygienic, PM – preventive medicine, PH – public health.

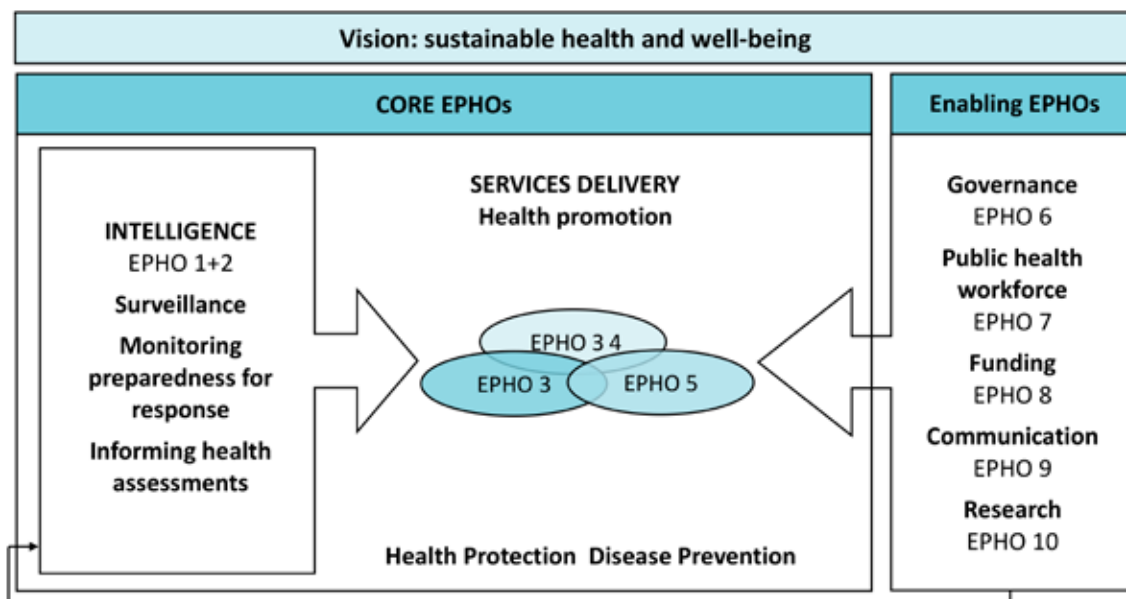


Fig. 1. Essential public health operations required for training programs in universities

At the same time, it was emphasized that students of the faculty should master medical thinking, methods of studying the environment and the occupational environment, understand the etiology and pathogenesis of diseases, the prevention and control measures that follow from this (table 1). Spatial realization of educational standards in the specialty “hygiene and sanitation” in the Soviet period 1959-1989 and the sovereignization period 1990-2022 – Preventive Medicine Faculty, envisaged continuity of the educational process integration at undergraduate and postgraduate stages. Accordingly, the qualification requirements for knowledge and skills, objectives and tasks, criteria and principles of certification were determined. Today, one-year postgraduate training at the basic level has been eliminated due to the transition to two-year training in the following areas: hygiene, epidemiology, microbiology, public health, etc.

In modern conditions, there is an urgent need to intensify the work of problem educational-methodical commissions on improvement of study programs and curricula regarding professional preventive medicine disciplines. Along with this, it is necessary to carry out a detailed analysis of the current State Educational Standard on meeting the new requirements of public health declared by WHO [18]. Moreover, the latest version of essential public health operations (EPHO) was adopted by WHO in 2012 in the form of an Annex to the European Action Plan for Strengthening

Public Health Capacity and Services, consisting of 10 points:

1. Epidemiological surveillance and assessment of population health and well-being.
2. Monitoring and response to health hazards and emergencies.
3. Health protection, including environmental, occupational, food safety, and others.
4. Health promotion, including action to address social determinants and health inequity.
5. Prevention of diseases, including early detection of health disorders.
6. Strategic management in the interests of health and well-being.
7. Ensuring a sufficient and competent public health workforce.
8. Ensuring sustainable organizational structures and financing
9. Advocacy, communication and social mobilization for health
10. Advancing public health research to inform policy and practice

EPHOs are divided into core and enabling operations (WHO 2003). EPHOs 1-5 represent the basic functions of public health, while EPHOs 6-10 are complex overarching functions that allow the implementation of public health measures (Fig. 1).

The innovative approach requires prioritizing sections (subjects) for classroom study, as well as increasing the amount of information on disciplines using opportunities of IT technologies in electives, optional courses, including independent work of students during



extracurricular time. It is definitely necessary to strengthen the knowledge of graduates of preventive medicine faculties about the legal and economic aspects of the activities of the State Sanitary-Epidemiologic Surveillance Service.

Naturally, all this requires modern logistics of the inter-relationship between the preventive medicine faculties of the country's universities and Centers for State Sanitary-Epidemiologic Surveillance concerning the joint training of specialists. It is known that successful solution of the task of realizing educational standards is largely determined by the state of the educational and methodological basis of the departments as well as the forms and depth of interaction of the departments of universities with the focal Centers for State Sanitary-Epidemiologic Surveillance both at under- and post-graduate training of specialists. Today, the material and technical basis of the departments of hygiene, epidemiology, microbiology and other specialized departments does not meet to any significant measure modern requirements for the conduct of the educational process. Accordingly, it is necessary to develop and approve a standard table of equipment provision for preventive medicine faculty departments and ensure its implementation. Otherwise, it creates to a certain degree the problems of training specialists for State Sanitary-Epidemiologic Surveillance services, including further certification and accreditation of faculties.

### Conclusion

The fundamental modern tasks facing the 21<sup>st</sup> century healthcare require serious attention of the State to the problems of preventive medicine cadre preparation to ensure the sanitary and epidemiological well-being of the country's territories and the maintaining of population health.

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