Primary health care as a key component of the Global Public Health architecture

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Abstract Modern challenges associated with a sharp increase in morbidity and mortality in the world (non-communicable diseases, COVID-19, etc.), predetermine the improvement of public health systems and the strengthening of international cooperation in the field of medicine. The purpose of the study was to study health indicators of the population and the potential of PHC in Bishkek. Studies have shown that the PHC reforms carried out in Bishkek have not achieved their goals and have led to a deterioration in the quality and accessibility of medical care. Based on the conclusions, it is recommended to conduct point-based comprehensive scientific research of primary health care in Bishkek with a strategic analysis of the results obtained for the development of programs to improve the quality and accessibility of medical services, taking into account benchmarking international experience in the development and implementation of effective models of primary health care.

Keywords: primary health care, public health, medical service, prevention, health promotion, COVID-19, non-communicable diseases.

Introduction
The protection of public health is one of the priorities for the socio-economic development of the state. Today, in the world, due to globalization, unprecedented attention is being paid to healthcare, interest in joint actions is growing, demand for comprehensive and complex medical care is increasing, and new international financing mechanisms based on global solidarity are multiplying. Modern challenges associated with the increase in morbidity and mortality in the world (non-communicable diseases, COVID-19, Ebola virus, etc.) predetermine the improvement of public health systems and the strengthening of international cooperation in the field of medicine [8].

In Resolution WHA69.1 of the World Health Assembly emphasizes: "the importance of public health functions as the most cost-effective, integrated and sustainable ways to promote public health and reduce the burden of disease in order to achieve the Sustainable Development Goals by 2030"[9].

At the Global Conference on Primary Health Care, the Heads of State and Government pledged to expand the capacity and infrastructure of primary health care (PHC), which is the

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point of first contact with health services, while giving priority to the most important functions in the field of public health, through the organization of comprehensive provision of prevention services, strengthening health, treatment, rehabilitation and palliative care [2]. Programs aimed at addressing health priorities within the framework of PHC should be complemented by public health activities at the national or international level [6].

Considering the above, the study of the potential and infrastructure of PHC as a key component in the global architecture of public health is very relevant.

The purpose of the study was to study the health indicators of the population and the potential of primary health care (PHC) in the city Bishkek.

Research objectives:
- Study of the health indicators of the population of Bishkek.
- Study of the potential and infrastructure of primary health care in Bishkek.
- Identification of problem points in improving the quality of primary health care.
- Development of recommendations for improving the quality of primary health care in Bishkek.

**Methodology**

The methodology of this study consists in the study of statistical information (official reporting data, etc.), statistical analysis and content analysis of official data. The following methods were used: epidemiological research methods; statistical research methods.

**Results**

The analysis of demographic indicators of Bishkek has established that the permanent population as of January 1, 2022 was 1.1 million people. Life expectancy for men was 70.1 years, for women – 79.2 years.

In 2021, 26262 newborns, or 26.4 per 1000 population, 5516 deaths, or 5.6 per 1000 population, were recorded in the Registry Office. Thus, the natural population growth amounted to 20,746 people or 20.8 per 1000 population.

When analyzing the prevalence of diseases in the population of Bishkek, as seen in table 1, it was found that the overall prevalence of diseases over 5 years decreases in 2020, amounting to 62463.2 per 100,000 population, but in 2021 it tends to increase, amounting to 75909.4 per 100,000 population. For all classes of diseases, there is also a decrease in the indicator in 2020 and an increase in 2021. The probable reason for the decline in this indicator in 2020 is the crisis in the work of the healthcare system associated with the COVID-19 pandemic, which led to a disruption in the disease registration system and the provision of planned medical care to the population.

**Table 1 Prevalence of diseases by major classes in Bishkek: per 100,000 population, 2017-2021**

<table>
<thead>
<tr>
<th>Classes of diseases</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious and Parasitic Diseases</td>
<td>2087.5</td>
<td>1858.1</td>
<td>1945.5</td>
<td>1928.3</td>
<td>3886.2</td>
</tr>
<tr>
<td>Neoplasms</td>
<td>1279.4</td>
<td>1190.4</td>
<td>1209</td>
<td>851.3</td>
<td>907.2</td>
</tr>
<tr>
<td>Blood diseases</td>
<td>1384.5</td>
<td>1195.2</td>
<td>1149.9</td>
<td>636.3</td>
<td>731.1</td>
</tr>
<tr>
<td>Endocrine Diseases</td>
<td>5117.1</td>
<td>4737.8</td>
<td>4826.1</td>
<td>3898</td>
<td>4179.2</td>
</tr>
<tr>
<td>Mental disorders</td>
<td>1088.8</td>
<td>1203.5</td>
<td>1121.5</td>
<td>777.0</td>
<td>776.3</td>
</tr>
<tr>
<td>Nervous System Diseases</td>
<td>2844.7</td>
<td>2720.8</td>
<td>2651.8</td>
<td>1780.2</td>
<td>2223.6</td>
</tr>
<tr>
<td>Diseases of the eyes and their appendages</td>
<td>5999.2</td>
<td>5939.4</td>
<td>6212.2</td>
<td>3779.5</td>
<td>4604.9</td>
</tr>
<tr>
<td>Ear and mastoid diseases</td>
<td>2493.7</td>
<td>2334.1</td>
<td>2355</td>
<td>1588.5</td>
<td>1953.1</td>
</tr>
</tbody>
</table>
When assessing the prevalence of diseases, as seen in table 1, it was found that respiratory diseases occupy the first place (14078.7 per 100,000 population), the second place - digestive diseases (11151.9 per 100,000 population), the third place - cardiovascular diseases (10204.6 per 100,000 population), the fourth place – diseases of the urogenital system (7416.3 per 100,000 population), the fifth place – diseases during pregnancy, childbirth and the postpartum period (6781.4 per 100,000 population).

In the analysis of infectious disease morbidity, in 2021, compared with 2020, there was a decrease in the incidence of whooping cough (by 94.9%), viral hepatitis (by 68.1%), mumps (by 62.1%), syphilis (by 47.6%), gonorrhea (by 46.2%) and botulism (by 20.0%). At the same time, in 2021 there was an increase in the incidence of scabies (5.3 times), salmonellosis (4.0 times), acute intestinal infections (1.8 times), bacterial dysentery (1.8 times) and acute respiratory infections (1.6 times). In 2021 49,119 cases of laboratory-confirmed coronavirus infection (COVID-19) and 8,202 cases of clinically and epidemiologically confirmed coronavirus infection were registered.

When analyzing the causes of mortality in the population of Bishkek, as shown in figure 1, the first place is occupied by cardiovascular diseases, the proportion of which was 45%, the second place is COVID-19 (16.0%), the third place is neoplasms (10.8%), the fourth place is injuries and poisoning (6.8%), the fifth place is individual conditions arising in the perinatal period (5.3%). It should be noted that the same morbidity and mortality rates are observed in Kyrgyzstan as a whole [5].

**Figure 1** Ranking of causes of death in Bishkek: %, 2021
Table 2 Structure of primary health care organizations in Bishkek

<table>
<thead>
<tr>
<th>Name of United Family Medicine Centre (UFMC)</th>
<th>FMC</th>
<th>FMC branches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oktyabr District UFMC</td>
<td>FMC №6</td>
<td>FMC №18</td>
</tr>
<tr>
<td></td>
<td>FMC №8</td>
<td>FMC №19</td>
</tr>
<tr>
<td>Pervomaisky District UFMC</td>
<td>FMC №3</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>FMC №7</td>
<td>FMC №11</td>
</tr>
<tr>
<td></td>
<td>FMC №10</td>
<td>FMC №14</td>
</tr>
<tr>
<td></td>
<td>FMC №1</td>
<td>FMC №13</td>
</tr>
<tr>
<td></td>
<td>FMC №2</td>
<td>FMC №16/№17</td>
</tr>
<tr>
<td></td>
<td>FMC №9</td>
<td>FMC №12F</td>
</tr>
<tr>
<td>Sverdlovsky UFMC</td>
<td>FMC №4</td>
<td>FMC №8/№10</td>
</tr>
<tr>
<td></td>
<td>FMC №5</td>
<td>FMC №9</td>
</tr>
</tbody>
</table>

The optimization of PHC was supposed to bring tangible results both financially and in improving the quality and accessibility of medical services provided. The estimated amount of the liberated funds, according to preliminary estimates, was supposed to amount to 10.5 million
soms per year, which were planned to be spent on the purchase of modern medical equipment and improving the infrastructure of the FMCs. However, according to actual data, this amount was only 3.0 million soms.

With the reduction of individual staff units in the FMCs, new departments and new staff units of the administrative and managerial staff of the FMCs were created. The number of senior staff increased. At the same time, statistical and analytical data collection departments, as well as laboratory services, were not merged. There was no significant reduction in the financial departments.

When analyzing the provision of the FMCs and its branches with commodity and material values, it was found that the distribution of medicines and stationery to the FMC branches is carried out without taking into account the population served and without analyzing the needs of organizations. Due to the fact that the main responsibility for the activities of an organization is borne by the director of the FMCs, in the branches of the FMC, due to the lack of on-site operational decision of managers, there is a low efficiency of organizational work. If problems arise, the chief doctors of the FMC branches, instead of promptly solving the problem at their level, are forced to contact the director of the FMC, which in turn slows down the activities of the medical institution and negatively affects the efficiency of the FMC branches. At the same time, the lack of direct responsibility of the chief physicians of a FMC branch for financial activities creates the risk of incomplete receipt of funds from the provision of paid medical services.

The application of a uniform approach to payroll and a uniform policy in assessing the activities of FMCs employees led to the "equalization" of salaries of medical workers serving residential areas and central districts of the city. This led to an outflow of medical personnel from the FMC serving high-intensity sections of the city, which in turn led to an increase in queues at the UFMC, crowding of patients, an increased risk of spreading infections and a further decrease in the quality of medical services provided.

One of the main issues causing dissatisfaction among the medical workers of the FMC today was the lack of transparency in the calculation of an additional financial allowance (labor participation coefficient). Branches began to be financed and provided on a residual basis, without taking into account the contribution of earned funds and the wage savings fund of each individual FMC. Also, in the conditions of the coronavirus pandemic, the shortcomings of the centralization of the FMCs were revealed. The UFMC could not promptly respond to measures related to the introduction of quarantine measures and the provision of medical services in emergency situations, such as the emergency purchase of personal protective equipment and medical devices, etc.

As a result of the merger of the FMCs, there are also elements of a decrease in the quality of the provision of medical services in the branches of the FMC. That is, due to the fact that the heads of the FMC branches do not have levers of influence on employees, the work on compliance with ethics and deontology by medical workers, and, accordingly, the quality of medical services provided, has been reduced. The number of patient complaints has increased. There is a weak material and technical equipment, outdated infrastructure, limited availability of modern technologies, a shortage of qualified medical personnel [4].

At the same time, the above-mentioned problems of PHC in Kyrgyzstan are also confirmed by the studies of international WHO experts [1]:
- Lack of a person-centered approach in the process of providing services: low patient satisfaction; lack of involvement of patients in the decision-making process concerning their health.
- Lack of a clear model of primary health care. Neither the public nor medical professionals have a clear understanding of the role of PHC, and as a result, family doctors
unreasonably refer patients to narrow specialists, specialists, in turn, unreasonably hospitalize patients, and there is also no system for monitoring patients after discharge from the hospital.
- Lack of optimal organization of services that would ensure regular and timely access to health care: systems for pre-appointment of patients are not widespread; formation of long queues; lack of a policy and plan for emergency transportation of patients.
- Lack of authority and incentives for the management to improve the efficiency and quality of services: low level of autonomy in budget management at the FMC level; lack of transparency in recruitment processes; high staff turnover.
- Low motivation and prestige of family medicine cause poor quality of medical services and unwillingness to contact PHC services: shortage of family doctors; low qualification of medical personnel; lack of mechanisms to increase motivation for patient management and professional development; insufficient status of family nurses, etc.

Discussion
In order to fulfill the guaranteed obligations and eliminate the problems that have arisen, the Government of the Kyrgyz Republic approved the Program of the Government of the Kyrgyz Republic for the protection of public health and the development of the healthcare system for 2019-2030 "The healthy person – the prosperous country" by Resolution No. 600 of December 20, 2018, according to which the development of the healthcare system will be aimed at preventing diseases, improving health and prolonging life, through integrated actions of society and the state [7].

The key element of this Program is the development of a renewed high-quality PHC system. It is based on an integrated approach to meet the needs of the population and includes the following main tasks:
1. Creation of an effective PHC model, including prevention services, early detection of diseases and case management in accordance with quality standards and other obligations of the state in the field of the right to access health services.
2. Improving continuity and coordination between PHC and secondary and tertiary level organizations to ensure an integrated, complex and patient-oriented approach in the provision of services, taking into account the implementation of the master plan for the formation of a rational and effective network of healthcare organizations.
3. Improving the quality and coverage of PHC services with a focus on improving health indicators based on the principle of equity of access for the entire population.
4. Strengthening human resources to provide qualified PHC services.

Ambitious goals and objectives were set in this program, but unfortunately, due to inefficient organization and insufficient funding, most of the activities were not accomplished on time. A modern PHC system to improve efficiency, productivity and quality should use the latest information tools and functions presented by digital technologies (electronic recording, electronic monitoring, telemedicine, artificial intelligence, etc.) [3,10].

Conclusion
Thus, the conducted PHC reforms have not achieved their goals and have led to a deterioration in the quality and accessibility of medical care to the population of Bishkek.

At the same time, despite the positive dynamics of natural population growth and an increase in the life expectancy, there is a trend towards an increase in the non-communicable and communicable disease incidence in the population of Bishkek. The leading causes of death of the population were diseases of the circulatory system, neoplasms, injuries and poisoning, certain conditions that occur in the perinatal period, as well as coronavirus infection.

The planned activities in the Program of the Government of the Kyrgyz Republic for the protection of public health and the development of the healthcare system for 2019-2030 are not
carried out on time and an effective PHC model has not yet been created, respectively, services for prevention, early detection and management of cases of diseases on the level of modern quality standards are not carried out. Effective coordination of work between primary, secondary and tertiary care organizations is not organized, respectively, high-quality, comprehensive and patient-oriented approaches in the provision of medical services are not implemented.

Based on the conclusion, it is recommended to conduct point-based comprehensive scientific research of primary health care in Bishkek with a strategic analysis of the results obtained for the development of programs to improve the quality and accessibility of medical services, taking into account benchmarking international experience in the development and implementation of effective models of primary health care.

References