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Prospects for the Development of the Electronic Healthcare System

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Abstract: This article examines the positive aspects of financing the healthcare system based on medical insurance. The dynamics of funds allocated from the State Budget to the State Medical Insurance Fund during 2022–2025 are analyzed. Based on the use of digital technologies within the state medical insurance mechanism, practical proposals and recommendations for the development of the electronic healthcare system are formulated.

Keywords: State Budget, Public Procurement, Social Sector Expenditures, Healthcare Sector, Medical Insurance, Budget-Funded Organization, Electronic Healthcare System, State Medical Insurance Mechanism

1. Introduction

The process of reforming the healthcare system in Uzbekistan has been initiated, encompassing fundamental transformations in the provision of social services, healthcare financing mechanisms, and the digitalization of the healthcare sector [1]. These reforms were launched within the framework of the initiative of the President of the Republic of Uzbekistan through Decree No. PF-5590 of December 7, 2018, “On Comprehensive Measures to Radically Improve the Healthcare System of the Republic of Uzbekistan”. As part of the implementation of healthcare system reforms, significant progress has been achieved in establishing a modern and sustainable system of medical care for the population. In particular, the state medical insurance mechanism was introduced on a pilot basis in the Syrdarya region in 2021. Following the successful implementation of this pilot project, the mechanism was gradually extended to other regions, facilitating the nationwide implementation of the planned healthcare reforms [2].

Overall, the healthcare reform agenda has focused on three key areas: restructuring the provision of primary healthcare services, introducing reforms in healthcare financing, and advancing the development of an electronic healthcare system. These measures aim to enhance the efficiency, accessibility, and quality of healthcare services across the country [3].

2. Material and Methods

In the course of the research, methods of logical reasoning, forecasting, synthesis, mathematical and systematic analysis, structural and comparative analysis, economic comparison, scientific generalization, and statistical calculation were employed.

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Literature Review

“The social sector is an essential component of societal development, as it represents the interests of society. Healthcare expenditures constitute an important share of total social spending” [4].

When planning healthcare expenditures in the Republic of Uzbekistan for 2024, the following factors were taken into account: the introduction of a medical insurance system; the transition to a comprehensive financing system based on referrals and preferential access for patients; the development and implementation of increased tariffs for medical services; granting medical institutions and specialists greater autonomy in determining service fees; the creation of a unified electronic system to ensure transparent tracking of medicines from the moment they enter the territory of the republic until they reach the patient; and increasing the share of medical institutions connected to computers and local networks from the current 80 percent to 100 percent through the widespread implementation of the “Electronic Healthcare” system [5].

“Social insurance is a mechanism for the implementation of state social policy and represents a process of financial provision of this policy and the redistribution of financial resources included in insurance”. Taking into account the social significance of medical services, the state assumes the obligation to finance and regulate the healthcare system. Due to the specific characteristics of medical services, state participation in the management and financing of the healthcare system is an objective necessity, regardless of the level of development of market relations. Medical services play an important role in the structure of social services provided to the population because of their preventive role in protecting population health, which is a key driving force of societal development, and their fulfillment of essential healthcare functions [6].

Based on an analysis of the scientific literature and taking into account the scope of application of medical insurance, medical insurance is classified as a form of social insurance, reflecting its role in social protection. Accordingly, the national medical insurance model should be based on strong social protection principles and the gradual development of the medical insurance system itself.

The provision of medical services requires the assignment of financial responsibility to both medical workers and healthcare institutions, which contributes to improvements in the quality of medical services. For this reason, a system of compulsory liability insurance for medical workers has been introduced. Compulsory liability insurance may be regulated in several ways: by including it in the documentation for a medical worker entering a new position at a medical institution; by assigning the employer responsibility for monitoring compliance with compulsory liability insurance requirements; and by establishing the employer’s obligation to compensate for damage caused to recipients of medical services [7].

3. Results and Discussion

It should be emphasized that the current mechanism for introducing state medical insurance has had a negative impact on improving the socio-economic efficiency of financial resources allocated to the healthcare sector [8]. In particular, the following issues have been identified:

- the share of inefficient expenditures within the healthcare system reaches **up to 40%**;
- direct out-of-pocket payments by the population for medical services remain high, accounting for approximately **40–45%**;
- more than **60%** of total state budget allocations to the healthcare sector are directed toward inpatient treatment and preventive services;

- the majority of funds allocated to primary healthcare institutions are spent on wages, while **only about 10%** is allocated directly to the provision of medical services;
- the absence of equal conditions and a competitive environment between public and private medical organizations in the provision of healthcare services hinders improvements in service quality;
- the financial autonomy of medical institutions remains insufficient, limiting their ability to implement modern management practices and ensure adequate remuneration for healthcare personnel;
- the average workload per physician in medical institutions exceeds **2.0**, indicating an excessive burden on medical staff [9].

As part of the implementation of the state medical insurance mechanism across all regions of the republic, the following measures have been undertaken:

- ✓ medical institutions have been equipped with computer hardware and digital devices, and local information networks have been established within these institutions;
- ✓ medical institutions have been provided with the necessary medical equipment and supplies required to deliver healthcare services included in the state-guaranteed package of medical care;
- ✓ the package of free medical services and medicines guaranteed by the state has been revised, differentiated by levels and types of medical care, and implemented nationwide;
- ✓ the information system developed by the Ministry of Health, which facilitates financial settlements between the State Medical Insurance Fund and medical institutions, has been transferred to and implemented by the Fund [10].

To introduce the state medical insurance system, 1,721.3 billion soums were allocated from the State Budget to the State Medical Insurance Fund in 2022; 3,770.2 billion soums in 2023; 3,708.5 billion soums in 2024; and 22,386.2 billion soums in 2025.

In 2024, the revenues of the State Medical Insurance Fund are forecast to reach 4,000.5 billion soums. The amount of transfers allocated to the Fund from the State Budget is projected at 3,708.5 billion soums. In accordance with the budget transfers, these funds are mainly used for the purchase of medical services from state and private medical organizations within the framework of state-guaranteed medical care and for the operational needs of the Fund [11].

Table 1. Dynamics of funds allocated from the state budget to the State Medical Insurance Fund

T\r	Years	Funds allocated from the state budget
1.	2022	1721.3
2.	2023	3770.2
3.	2024	3708.5
4.	2025	22,386.2

Taking into account the expansion of the activities of the State Medical Insurance Fund to other regions of the republic, its branches will first be established in Syrdarya Region and the city of Tashkent, followed by the remaining regions. The State Medical Insurance Fund was established on December 1, 2021. The level of financing for costs associated with maintaining the Fund was set at 2 percent of the funds allocated from the

State Budget for the purchase of guaranteed medical services. Budget funds allocated for the purchase of medical services are transferred to the Fund's special treasury account for extrabudgetary funds, and the balance of funds at the end of the reporting period remains at the disposal of the Fund [12].

The concept for the pilot implementation of state medical insurance in Syrdarya Region was developed within the framework of the State Program for the implementation of the Strategy of Actions in Five Priority Areas of Development of the Republic of Uzbekistan for 2017–2021, in the context of the “Year of Development of Science, Education and the Digital Economy.” The concept defines the main directions for piloting and testing the state medical insurance system in the provision and financing of state-guaranteed medical care. It was planned to pilot the state medical insurance system in Syrdarya Region from July 1, 2021 to the end of 2022, and, based on positive results, to gradually introduce it in other regions of the republic starting in 2023.

The population of Syrdarya Region has reached 846.3 thousand people, and the average life expectancy is 71.9 years (the republican average is 75.1 years). Over the past ten years, the birth rate in the region has averaged 24.8 per 1,000 population, while the death rate has averaged 4.6 per 1,000 population. The overall morbidity rate in the region, depending on disease category, is up to 3.1 thousand per 100,000 population [13].

In 2021, there were 137 healthcare institutions in the region, including 99 outpatient polyclinic institutions, 26 inpatient treatment and prevention institutions, and 12 administrative medical institutions. A total of 1,400 physicians and 12,500 medical workers were employed in these institutions. The number of physicians was 17.6 per 10,000 population (the republican average is 23.0), and the number of mid-level medical personnel was 150.6 per 10,000 population (the republican average is 103.6). In 2019, 358.9 billion soums were allocated from the State Budget to medical institutions; outpatient medical services were provided, and 162,400 patients received inpatient medical care [14].

As a result of the implementation of the concept for introducing the state medical insurance system on a pilot basis in Syrdarya Region and within the framework of the pilot project, the following outcomes are expected:

- a gradual reduction in the share of inefficient expenditures in the healthcare system;
- improved openness and transparency in the medical services market and a reduction in the level of out-of-pocket payments by the population for medical care;
- an increase in the share of primary health and sanitary care within total healthcare expenditures;
- increased financial autonomy of medical institutions and the expansion of financial incentive mechanisms for medical workers;
- improved access to high-quality medical services for socially vulnerable population groups;
- the creation of opportunities to develop a competitive environment in the medical services market by involving private medical organizations in the provision of state-guaranteed medical care to the population.

The system was introduced in two stages: the first stage began on January 1, 2023, in the city of Tashkent; the second stage began on October 1, 2023, in the Republic of Karakalpakstan and the Fergana, Samarkand, Navoi, and Surkhandarya regions [15].

4. Conclusion

The President of the Republic of Uzbekistan, Sh. M. Mirziyoyev, has emphasized that “human dignity means creating decent living conditions and modern infrastructure for every citizen, providing qualified medical services, quality education, a social protection system, and a healthy ecological environment.”

In this context, the full digitalization of the State Medical Insurance Fund and medical institutions is of particular importance. This includes the digitalization of patient flows and all operational processes within medical institutions, ensuring that daily activities, periodic reporting, and statistical data are conducted entirely in electronic form, with a gradual transition away from paper-based documentation.

In our view, it would be advisable to develop a national electronic information system for assessing patient satisfaction with the quality of medical services in Uzbekistan. This would make it possible to further improve access to primary healthcare services, ensure lifelong electronic exchange of patients' medical data across all regions of the republic to support continuity of care, and strengthen public oversight of the financing of medical services.

In regions where state medical insurance mechanisms have been introduced, it would also be appropriate to implement an electronic queuing system for free scheduled inpatient medical care at district- and city-level medical institutions. This would contribute to improving the quality and accessibility of medical services for minors, students of educational institutions, pregnant women and caregivers of children under two years of age, individuals officially registered as unemployed with labor authorities, recipients of state pensions, members of families classified as low-income through the "Unified Register of Social Protection" information system, payers of personal income tax or social tax, and individuals who have paid the required taxes for the calculation of work experience.

Furthermore, an integrated "Electronic Health" information system should be developed and launched, with interoperability with the information systems of other government agencies and full integration into the operational processes of medical organizations.

Finally, it would be appropriate to introduce and scale up integrated "Electronic Polyclinic" and "Electronic Hospital" information systems in the regions where state medical insurance mechanisms are being implemented.

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