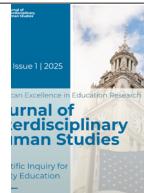




The Journal

OF INTERDISCIPLINARY HUMAN STUDIES

https://mijournals.com/index.php/Human_Studies/index



 <https://doi.org/10.57033/mijournals-2026-2-0043>

Dildora RUSTAMOVA^a 

^a*Director of the Multidisciplinary Clinic of Tashkent Medical Academy*

Gozal UMRKULOVA^b 

^b*1st year Master's student, Specialty "Medical Insurance Business", Tashkent State Medical University
E-mail: gozalshukhrat@gmail.com*

THE ROLE OF MEDICAL INSURANCE IN THE HEALTH CARE SYSTEM OF UZBEKISTAN

Abstract. *This article comprehensively analyzes the role of medical insurance in the health care system of Uzbekistan, the theoretical, institutional and socio-economic foundations of its implementation. In the course of work, the introduction of the compulsory medical insurance (MHI) system is considered as an important mechanism for achieving Universal Health Coverage (UHC). The actuarial and theoretical approaches developed by Pitacco are analyzed, adapted to the conditions of Uzbekistan, and the need for collective sharing of health-related financial risks is substantiated. The article highlights the importance of determining insurance premiums, the regulatory role of the state, the high share of the informal sector and solidarity financing in conditions of uneven income distribution.*

Keywords: *Health insurance, compulsory health insurance, Universal Health Coverage (UHC), health financing, risk pooling, moral hazard, adverse selection, actuarial analysis, solidarity financing.*

INTRODUCTION

In recent years, the issue of introducing mandatory health insurance (MHI) has been central to the reform of the healthcare system in Uzbekistan. This process is considered a significant institutional change on the path to achieving Universal Health Coverage (UHC), ensuring that all citizens have access to quality health services. The MHI system not only provides financial protection but also acts as a mechanism to safeguard public

health based on principles of social justice (Pitacco, 2014; Woolhandler et al., 2017). Additionally, the population's awareness, trust, and institutional readiness are crucial factors affecting the effectiveness of the insurance system (Baicker et al., 2012; Barnes & Hanoch, 2017).

MAIN PART

In recent years, the issue of introducing compulsory health insurance has been central to the process of reforming the health care system in Uzbekistan. This process is considered an important institutional change on the way to achieving Universal Health Coverage (UHC). This article analyzes the actuarial and theoretical foundations of health insurance, developed in 2014, adapted to the conditions of the Uzbek health care system. The actuarial essence of health insurance and the Uzbek context interpret health insurance as a mechanism for collectively sharing financial risks related to health. This approach is particularly relevant in Uzbekistan, where out-of-pocket payments still account for a large proportion of health-related costs (Pitacco, 2014).

The issue of the impact of health insurance on mortality is largely related to the theory of social determinants and the concept of health equity. Uninsurance is often associated with low income, low educational attainment, and limited access to health resources. Theoretically, the availability of health insurance increases the use of health services, ensures early detection of diseases, and improves the effectiveness of treatment, which ultimately reduces the risk of death. The results of this scientific review are important in scientifically substantiating the policy of expanding health insurance. The mortality-reducing effect of insurance allows it to be viewed not only as a social protection mechanism, but also as a life-saving health intervention. These findings are important for the development of universal health coverage strategies, especially in low- and middle-income countries (Woolhandler et al., 2017).

The Uzbek health system has historically been based on a budget-based system (Semashko model) and has long relied on the principle of free provision of medical services. However, in practice, informal payments, high drug costs, and interregional inequality have limited the financial protection of the population. In recent years, Uzbekistan has initiated reforms to introduce mandatory health insurance, strengthen primary health care, and diversify health financing. This process is an important step towards achieving UHC.

The coverage–take-up distinction put forward by Baicker, Congdon, and Mullainathan (2012) may also be relevant for Uzbekistan. When introducing mandatory or voluntary insurance mechanisms, the following risks arise: the population may have the right to insurance but not use it; lack of trust in the insurance system; and low coverage due to complex registration processes. These factors slow down the achievement of UHC goals. For some people in Uzbekistan, the processes of submitting documents, registering, and understanding insurance terms can be complicated. According to behavioral economics, even minor administrative complications can dramatically reduce the likelihood of taking out insurance. In the context of Uzbekistan, some people may be skeptical about the inadequacy of state-guaranteed services and the potential for increased service quality through insurance. This situation acts as a psychological barrier that reduces insurance take-up. From a behavioral perspective, lack of trust can be a stronger barrier than financial incentives. In Uzbekistan, health care services are often used after an illness occurs, in urgent cases. The long-term benefits of prevention and insurance are underestimated. This is explained by the present bias and limits voluntary insurance take-up. Achieving UHC in Uzbekistan requires not only increasing financial resources, but also properly shaping the institutional design of health insurance. The behavioral economics approach proposed by Baicker et al. (2012) serves as an important theoretical and practical basis for making insurance coverage realistic and effective. Therefore, the introduction of an insurance system that takes into account the social status of the population in Uzbekistan's health care reforms is an important condition for achieving UHC (Baicker et al., 2012).

The following strategic measures are considered for Uzbekistan: Ensuring financial sustainability – solidarity financing of mandatory contributions (state + employer + employee contribution); setting premiums based on health expenditure forecasts and actuarial calculations. Institutional strengthening – strengthening the insurance fund management and monitoring system; introducing audit mechanisms for providers and insurance organizations. Political and social consensus – taking into account the interests of the private sector; communication campaigns on the benefits of insurance among the population. Defining the service package and controlling costs – determining a quality and efficient service package; reducing moral hazard and provider-induced demand. In the conditions of Uzbekistan, financial stability, institutional strengthening, defining the service package, and social acceptance are important in the implementation of

health insurance. The conceptual model can be used in the dissertation as a means of systematically explaining the health insurance system on the path to achieving UHC (Journal of C. B.-S. S. A. M., 2009).

The financial, institutional, and social risks arising from the implementation of the MHI system are considered. The MHI system is based on the following theoretical and practical principles: risk pooling (financial protection by distributing health risks among the population); adverse selection (preventing high-risk individuals from accessing insurance); moral hazard (mechanisms that reduce excessive use of services due to the availability of insurance); and mandatory participation (stabilizing the system and expanding financial risks). However, financial, institutional, and social readiness are necessary for the success of the system (Analysis Group, 2006).

In health insurance systems, errors in claims processing cause financial losses. Studies show that 15–30% of claims require rework, which consumes a significant portion of company resources (Kumar, Ghani, & Mei, 2010). This problem is not effectively solved in traditional rule-based systems, as they do not take into account complex errors, dynamic data, and complex provider-service combinations. Data mining and machine learning approaches – such as supervised learning, feature selection, concept drift management, and active learning – allow early detection of errors and real-time system adaptation. In the conditions of Uzbekistan, this approach helps to increase the efficiency of the MHI system and minimize errors (Kumar et al., 2010).

Practical recommendations for Uzbekistan: Integrate informal sector workers and vulnerable groups into the insurance system; implement data mining and auditing systems to ensure financial and institutional sustainability; identify a minimum package of services and guarantee them for all groups. It shows the biggest challenges of national health insurance from political, financial, institutional, and social aspects. This is also relevant for Uzbekistan. A modern version of this in the context of Uzbekistan could focus on sustainable financing of the compulsory health insurance system; increasing administrative efficiency through auditing and electronic monitoring systems; ensuring social protection for the informal sector and vulnerable groups (Health, 1976; Somers, 1972).

Stone (1993) argues that actuarial justice is an anti-redistributive ideology that bases individual responsibility and market outcomes on individual rather than social solidarity.

He describes this approach as a way of fragmenting the concept of “mutual aid” by dividing it into small groups, weakening social networks. Individualism in American society – the idea that each person should be independently responsible for his health and financial situation – plays an important role in the formation of insurance policy. Stone (1976, 1993) shows that health insurance policy is not only an economic or technical issue but also a question of social justice and societal values. He illustrates the struggle between groups that promote the principle of distributive justice and market forces that support actuarial justice. This confrontation plays a central role in the formation and reform of health insurance policy. The article is among the most important scientific works that analyze national health insurance and public health policy based on the principles of social justice (Health, 1976; Politics & Law, 1993).

Barnes and Hanoch (2017) emphasize the importance of studying the level of knowledge and understanding of consumers in health insurance systems (“health insurance literacy”). They note that the lack of consumer knowledge to choose appropriate insurance packages is a problem in many health systems. In Uzbekistan, the level of understanding of health insurance by the population is an important factor for the success of reforms. Making information simple, visual, and understandable, optimizing the choice environment, and targeted campaigns can be effective solutions (Barnes & Hanoch, 2017; Ericson, 2017).

Geruso and Layton (2017) provide an in-depth analysis of the problem of “selection” in health insurance markets. Adverse selection occurs especially when the market is competitive and consumers have a wide range of choices. The article describes mechanisms through which policy instruments can reduce selection and increase market efficiency (Geruso & Layton, 2017).

In conclusion, the introduction of a mandatory health insurance (MHI) system in Uzbekistan is an important institutional and financial mechanism for achieving Universal Health Coverage (UHC). Collective risk pooling, solidarity-based financing, and mandatory participation are essential for sustainability, while institutional strength, administrative efficiency, and social trust remain decisive factors for successful reform.

CONCLUSION

As analyzed in this article, the introduction of a mandatory health insurance system in Uzbekistan is a vital institutional and financial mechanism for achieving UHC. Principles

such as collective risk-sharing, mandatory participation, and solidarity financing are essential to ensure the sustainability of the system. Moreover, social justice, institutional strength, and public trust are key determinants of the system's success. This study provides a scientifically grounded framework for implementing MHI in Uzbekistan and serves as a valuable reference for future policy-making and financial planning in the healthcare sector (Stone, 1993; Health, 1976).

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