REVIEW ARTICLE

CONTENTS

An indicative model of compulsory health insurance

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ABSTRACT

Aim: To propose an indicative model of compulsory health insurance in the context of a significant deficit in budget financing of the healthcare sector and a decrease in the population's financial access to medical care.

Materials and Methods: The search strategy involved the use of the keywords "health insurance", "health financing", "affordability", "patients", "healthcare", "insurance companies".The primary selection of materials was based on the analysis of the titles and abstracts of publications in accordance with the previously defined inclusion and exclusion criteria, formed according to the research topic. Of the 69 publications found, 21 were used. Methods used in the study: bibliographical, medical-statistical, analytical, graphical, functional-structural modelling, generalisation. The average salary "in hand" was calculated by subtracting from the average salary, according to official Ukrainian government sources (gov.ua, Ministry of Finance of Ukraine), personal income tax – 18.0% and military levy – 1.5% for the period until 01.12.2024; from 01.12.2024 the military levy increased to 5.0%. The real wage index, taking into account tax payments, was calculated according to the Methodology for calculating real wage indices

Conclusions: The proposed model is aimed at increasing the financial accessibility of medical care for the population, minimising the risks of inefficient use of resources, and strengthening the preventive component in health care. Its implementation requires further regulatory and organisational support.

KEY WORDS: patients, healthcare, insurance companies, payers, financing

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INTRODUCTION

Achieving the Sustainable Development Goals by 2030 includes, among other things, ensuring universal health coverage, financial risk protection, access to quality essential health services, and safe, effective medicines and vaccines. These targets are set out in Target 3.8. Coverage of the population with essential health services and the proportion of the population with high household expenditure on health are indicators of achievement of the goal [1].

Billions of people in the world are not covered by basic medical services and do not have full financial access to them. The prerequisites exist for catastrophic direct healthcare costs under the "out-of-pocket" model. It is typical for most countries in the world with low and medium levels of economic development. Other models are financed by taxes, such as the Beveridge model. It provides free medical care at the point of delivery. This model operates only in some economically developed countries – the United Kingdom, New Zealand, Spain. Insurance models are most consistent with Goal 3.8. This is the Bismarck model, when financing is provided by contributions from employees and employers to insurance funds. It is supplemented by tax payments. This model has been introduced in Germany, France, the Netherlands, Japan, and Switzerland. The national health insurance model is provided through payments from state insurance programmes (Canada, South Korea). The USA combines elements of different models [2].

Thus, insurance-based health financing models are operational in a small number of countries, and despite some progress, the achievement of Target 3.8 remains at risk [3].

In Ukraine, the right to medical care and health insurance is guaranteed by law [4]. However, the healthcare system is characterized by insufficient financial support and a significant share of out-of-pocket expenditures over a long period of time, which has intensified since the outbreak of the war in 2022 [5].

The authorities considered the issue of introducing compulsory health insurance in Ukraine at the legislative level as one of the mechanisms for improving the

financial access of the population to medical care even in peacetime, but this did not happen. O. V. Brezhneva-Yermolenko, A. O. Baiduzh (2019) [6]; I. Mishchuk, I. Vinnichuk (2019) [7]; N. V. Filipova (2021) [8]; D. V. Krylov (2023) [9]; B. Shevtsiv (2024) [10] and other scientists conducted scientific research on this topic. Separate directions for solving the problem of financing medical care by introducing various forms of medical insurance were identified. The topic of compulsory health insurance remains relevant and requires further development, as the war continues, the health of the population is deteriorating, the pressure on the healthcare system is increasing, and there is a deficit in healthcare funding.

AIM

The aim of the study was to propose an indicative model of compulsory health insurance in the face of a significant deficit in budget financing of the healthcare sector and a decrease in the population's financial access to medical care.

MATERIALS AND METHODS

The research materials were used at the stage of substantiating the relevance of the topic and discussing the results. The materials included domestic scientific publications posted on the websites of higher education institutions and on the ResearchGate platform, domestic regulatory and legal acts located on the Official Web Portal of the Verkhovna Rada of Ukraine (https://www.rada.gov.ua), and foreign scientific sources from the scientometric database PubMed; a total of 21 units. The review included publications that met the following criteria: thematic relevance to the study of health insurance; original research; reviews, studies, and recommendations of international organizations; domestic regulatory acts in force at the time of the study; publications from the past 5–7 years; availability of full text of publications.

The exclusion criteria included publications that did not correspond to the topic of the study, with no full text, not indexed in PubMed, without DOI (if there were other signs of low quality), with a publication period of more than 7–10 years; journalistic and popular science sources.

The search strategy involved the use of the keywords "health insurance", "health financing", "affordability", "patients", "healthcare", "insurance companies".

The primary selection of materials was based on the analysis of the titles and abstracts of publications in accordance with the previously defined inclusion and exclusion criteria, formed according to the research topic. Of the 69 publications found, 21 were used.

METHODS

Bibliographical, medical-statistical, analytical, graphical, functional-structural modelling, generalisation. The average salary "in hand" was calculated by subtracting from the average salary, according to official Ukrainian government sources (gov.ua, Ministry of Finance of Ukraine), personal income tax – 18.0% and military levy – 1.5% for the period until 01.12.2024; from 01.12.2024 the military levy increased to 5.0%. The real wage index, taking into account tax payments, was calculated according to the Methodology for calculating real wage indices [11].

ETHICS

The principles of bioethics were observed during the preparation of the article in accordance with the requirements of the Declaration of Helsinki and the legislation of Ukraine, which was confirmed by the conclusion of the commission on bioethics of the State Institution of Science «Center of innovative healthcare technologies» State Administrative Department.

FRAMEWORK

The study was conducted as a fragment of the scientific project of the Scientific Department of Healthcare Organization of the State Scientific Institution «Center for Innovative Healthcare Technologies» State Administrative Department on the topic «Medical and social justification, development and implementation of the «Center of innovative healthcare technologies» model based on the trinity of science, education and practice in the work of a multidisciplinary healthcare institution and determining its role in the formation of a single medical space» (state registration number 0125U000318; term: 2025-2029).

REVIEW AND DISCUSSION

The reform of the healthcare financing system began in Ukraine in 2017. The Law was adopted [12]. It provided for the allocation of 5.0% of funds as a share of the gross domestic product from the State Budget for the implementation of the medical guarantees programme. The programme represents a model of strategic procurement of medical services in its content. This is carried out through the National Health Service of Ukraine. The state hereby guarantees citizens, foreigners, stateless persons permanently residing in the territory of Ukraine, and persons recognised as refugees, full payment from the State Budget for necessary medical services and medicines. Payment is provided

Table 1. Expenditures on the medical guarantee program as a percentage of gross domestic product in 2022-2025 (according to gov.ua State websites of Ukraine, Ministry of Finance of Ukraine)

Years	Amount of financing for the medical guarantee program, billion UAH	Gross domestic product (GDP), billion UAH	Percentage of funding for the medical guarantee program from GDP
2022	143.9	5191.0	2.77
2023	139.4	6537.8	2.13
2024	157.3	7658.6	2.05
2025	172.8	8931.2	1.93

Source: compiled by the authors of this study

Table 2. Consumer price index (inflation index), average salary and purchasing power of citizens in Ukraine in 2022-2025 (according to gov.ua State websites of Ukraine, Ministry of Finance of Ukraine and authors' own calculations)

Years	Consumer Price Index (Inflation Index)	Average Nominal Wage (UAH)	Average Wage (UAH) after Taxes	Real Wage Index, including Taxes
2021	-	12993.56	10511.79	-
2022	126.6	13376.21	10822.21	81.3
2023	105.1	14308.46	11575.54	101.8
2024	112.0	17486.6	14146.66	109.1
2025	108.0	20653.55	15903.0	104.1

Source: compiled by the authors of this study

for emergency, primary, specialised, palliative medical care, medical rehabilitation, medical care for children under 16 years of age, and medical care in connection with pregnancy and childbirth.

However, almost half of healthcare spending was financed through out-of-pocket expenditures, and the level of household healthcare spending was 17.0% in 2021, before the full-scale invasion. This was one of the highest rates among 40 countries in the European Region [13].

Dynamic analysis showed that funding levels for the health guarantee programme did not meet legal obligations and decreased significantly – from 2.77% in 2022 to 1.93% in 2025 – during the war (Table 1).

At the same time, inflationary processes were taking place, as confirmed by the consumer price index, changes in wages, and purchasing power of citizens. There was significant tax pressure on the population, which continues to this day (personal income tax – 18.0% and military levy – 1.5% for the period until 01.12.2024; from 01.12.2024 the military levy increased to 5.0%; total taxes to the budget amounted to 19.5% from 2016 to 01.12.2024, and from 01.12.2024 to the present – 23.0%). Wages were growing but noticeably lagging behind inflationary processes (Table 2).

Therefore, financial access to medical care for citizens is constantly decreasing, although under the programme it is guaranteed by the state free of charge. This is leading to out-of-pocket expenditures when they need medical care. Expenses for medical care mean giving up some food and non-food products, incurring debt for housing and communal services and other socially necessary services that do not include medical care.

That's why, the author's model of compulsory health insurance provides for the collection of insurance funds on the principle of a balanced financial burden between several insurers (payers), but without the participation of citizens. Payments can be made by the state as deductions of insurance contributions for certain population groups (children, pregnant women), by employers from the employee compensation fund, by individual entrepreneurs, by the pension fund for persons with disabilities, the unemployed, pensioners, and other payers not prohibited by law. Insurance contributions supplement funds from the state budget allocated for health care. Payments of insured persons are credited to single centralized accounts of the Fund (insurer) of compulsory health insurance (hereinafter referred to as the Fund) - a non-profit self-governing organization - in authorized state banks. The main functions of the Fund are the accumulation of financial resources, maintaining a register of insurers, personalized accounting of all insured persons, receipts of funds. Part of the accumulated funds (in the amount of a two-month or monthly budget) is directed to the Fund's reserve to ensure its financial stability.

The Fund's responsibilities include developing standard forms of contracts with providers and consumers of medical services, which stipulate their rights and obligations, coding the insured person's insurance policy, forming standards for exchanging information

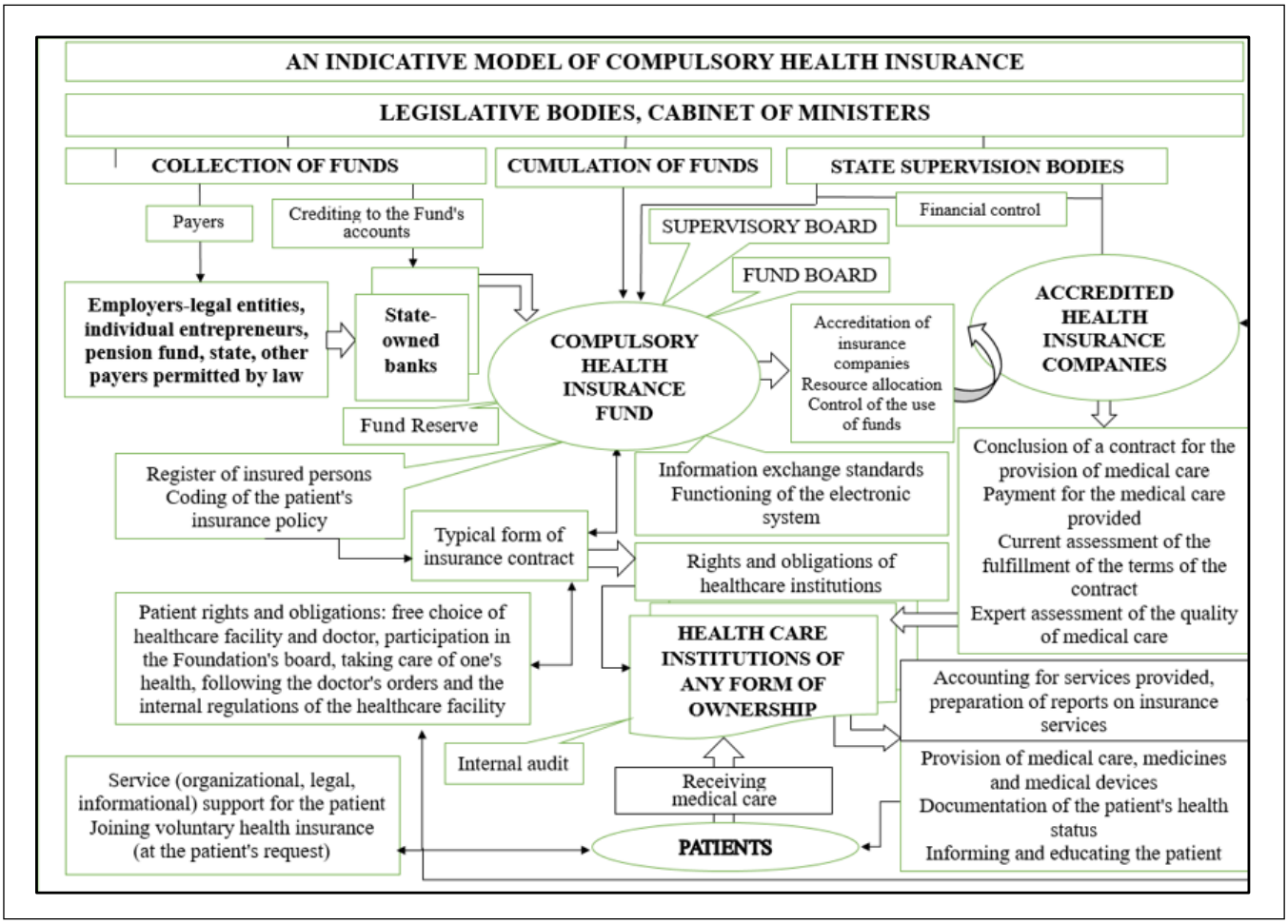

Fig. 1. An indicative model of compulsory health insurance
Picture taken by the authors

with participants in insurance relations using an electronic system, and ensuring confidentiality, use, and storage of data.

Insurance companies - other subjects of the compulsory health insurance model. The obligations to conclude contracts for the provision of medical services with their providers are assigned to them. Licensed/accredited healthcare institutions of any form of ownership may be providers of medical care. The Fund accredits insurance companies for compliance with the requirements for conducting activities in the compulsory health insurance system, namely: maintaining personalized records of insured persons who use medical services in healthcare institutions with which contracts have been concluded; making payments for medical services provided using an advance payment system (for example, not less than 50–70% of the cost); conducting an ongoing assessment of the fulfillment of the terms of the contract and an expert assessment of the quality of medical care provided in accordance with standards; providing service support to the patient in the event of an insured event, i.e., organizational, legal, and informational support; joining voluntary medical insurance at the patient's request. A prerequisite for the operation of such companies is not to receive profit from financing medical services in the compulsory health insurance system.

Providers ensure the provision of medical care to insured persons in accordance with the requirements of medical and technological documents and the terms of the contract. The list of services necessarily includes prevention, diagnostics, treatment, rehabilitation, palliative care, medical care during pregnancy and childbirth. They provide patients with medicines and medical devices; issue disability certificates, extracts from medical records and other documents necessary for receiving social benefits; provide patient information (providing complete information about the state of health, treatment methods, risks and cost of services provided); provide counseling and training of the patient in self-help methods; keep records of services provided; draw up insurance certificates and cost estimates to receive payments for services; provide access to external experts to verify compliance with the terms of the contract.

The insured person acts as an active subject of the compulsory health insurance system. He has certain

guarantees from the state/insurer and bears responsibility to them, determined by the contract. The insured person-patient has the right: to freely choose health care institutions and doctors (in particular primary health care) among those operating in the system; the right to medical care without out-of-pocket expenditures at the time of receiving services within the insurance program; participation in the Fund's board through representatives (trade unions, public associations); legal protection and confidentiality of information. A typical contract stipulates the obligations of the insured person/patient: taking care of their health (adhering to a healthy lifestyle, timely passing of preventive examinations, screening tests, receiving vaccinations); compliance with the internal regulations of the healthcare facility and the treatment regimen, providing reliable information about your status, and compulsory presentation of the insurance certificate (policy/card) code when seeking help.

The proposed an indicative model of the compulsory health insurance system provides for a system of risk management of irrational and inappropriate use of funds, abuse and corruption, and poor-quality provision of medical care. The subjects of external risk management are the Ministry of Finance of Ukraine, the Ministry of Health of Ukraine, the Accounting Chamber, the Supervisory Board of the Fund, patients, and the internal management is carried out by professional experts of the Fund, experts of insurance companies, and internal auditors of healthcare institutions (Fig. 1).

The authors of studies in the field of health insurance recommend that state authorities consider universal health insurance as a priority of healthcare, which corresponds to the purpose and results of the authors' study [14].

The principal approach that distinguishes the authors' model from health insurance models in draft domestic legislative acts of 2002–2016 and insurance models of European countries is a mechanism for collecting funds in which citizens do not participate. Unlike the proposed model, in Germany and the Czech Republic the insurance model operates due to an approximately parity distribution of the insurance burden between the employee and the employer [15, 16]. In Poland, the main sources of insurance contributions are taxes of employees and self-employed persons; the employer does not participate in financing medical care [17]. In France, employers, self-employed persons, and employees pay insurance contributions, but the amount of employee contributions is minimal. Also, all participants pay taxes from which funds for medical care are allocated [18].

In the considered models of health insurance of European countries, the Insurance Fund directly concludes contracts with health service providers, controls the quality of medical care, and manages risks without the participation of insurance companies. However, in Switzerland a health insurance model has been introduced based on a basic programme that is mandatory for all citizens, and more than 40 private insurance companies provide its implementation. The latter are not entitled to receive profit from the sale of compulsory health insurance plans [19]. A similar approach has been introduced in the Netherlands, where the basic package is implemented through insurance companies whose activities are strictly controlled by the state [20].

The authors see the advantages of including insurance companies in the proposed model in their ability to provide patient service support and expert functions in relation to healthcare institutions, in order to eliminate corruption risks and inappropriate use of insurance funds. Given the geographical extent of Ukraine, with full-fledged state administration in the territories of 23 regions and the city of Kyiv, insurance companies can relieve the Fund of work related to direct interaction with patients and healthcare providers.

In the proposed model, preventive services are added to the guaranteed list. These should be structured by procedures, interventions, and manipulations for a clear definition of cost, which is not observed in the medical guarantee programme. Positioning them only by name within the framework of primary and outpatient medical care services shifts the emphasis to diagnostic and therapeutic interventions, which leads to a reactive response of the healthcare system to changes in the patient's health status, rather than a proactive approach to health maintenance, prevention, and early detection of diseases [21]. The inclusion of structured preventive services in the list corresponds to the patient's obligation to take care of their health.

Methodological limitations of the study should be considered to include the use of theoretical data analysis to substantiate the model, which requires further empirical verification of its effectiveness. The dynamic nature of inflation, income levels, and the tax burden on the population may also affect the reliability of the proposed financial mechanisms.

Further research should focus on assessing the results of pilot implementation of the model in individual regions of Ukraine according to specified indicators of financial sustainability and quality of medical care, the development of digital infrastructure and information systems as structural components of the model, the impact of the system's functioning on the preventive activity of the population, and strategies for managing financial and corruption risks.

CONCLUSIONS

The proposed model of compulsory health insurance provides patient-oriented medical care, increases the financial accessibility of medical care for the population, is proactive in nature, motivates the population to maintain health and prevent diseases, does not create an additional financial burden on the population, whose taxes will not include additional costs for medical care, minimizes the possibility of abuse and irrational use of healthcare resources, and contributes to improving relations between the state, patients, the population, and healthcare providers.

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CONFLICT OF INTEREST
The Authors declare no conflict of interest

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