

Legal and Organizational Economic Aspects of the Functioning of the Main Models of Health-Care Systems

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Abstract

Introduction: World health develops by huge progressive tempos. Each separate state has features of health-care system. Despite this, there are only few general models of health care all over the world. Scientific summarizing of main legal and organizational and economic aspects of functioning of each of general models of health care system should have a place periodically including its topical changes. This is the purpose of our review. **Materials and Methods:** We used empirical methods (data collection, study, and comparison), methods of comparative analysis, and generalization of statistical data. It has been used regulatory legal acts regulating the functioning of health systems, reports from the World Health Organization (WHO), Bloomberg analytical agency, and Foundation for Public Welfare (published in English on the site) also. **Results and Discussion:** Shot comparative characteristic of the functioning of the main models of health-care systems and analysis of the indexes of the efficiency of functioning of the health-care models including all available disadvantages allows us to conclude about slightly higher efficiency of the one model compared to others (the state system and the Beveridge system). **Conclusion:** Assessment of the approaches for describing the effectiveness of the functioning of health-care systems allows us to describe two mechanisms of calculation of the health-care effectiveness index - the Bloomberg and The Commonwealth Fund. The obtained results allow claiming that the most effective model of health-care system is system of public health financing. Given study shows the features and predicted benefits of actual models of health-care systems. Given results may be used in the process of reforming of health-care system for the developing and developed countries.

Key words: Beveridge system, legislation, models of health-care systems, organization of health-care system

INTRODUCTION

Increasing efficiency, full and qualified medical and pharmaceutical care is a priority for the National Healthcare System of any country in the world. Ensuring the quality of this assistance at the level of international standards and its continuous increase requires considerable financial resources. In turn, chronic underfunding of the health system has led to significant worsening problems of accessibility and quality of medical and pharmaceutical care to the population.^[1,2]

The functioning of the National Health Systems depends on the socioeconomic policy of the state. Thus, in countries with a developed economy, the functioning of the health-care system is aimed to increase the volume of the provision of free medical and pharmaceutical

care to the population, optimization of funding sources, and methods of its allocation.^[3,4] Today, there are three classic models of the health-care system. It should be noted that none of the existing health-care models are universal.^[5]

All health systems are different due to the different combinations of components they can consider. Ranking of health systems is important for informing policy-makers and for strengthening health systems as well as prompt

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attention to inequalities among different populations. It is also in the interest of the United Nations (UN) and the World Health Organization (WHO) for systems to be assessed and compared for policies to be developed so that the Sustainable Development Goals signed by the 193 member countries can be achieved.^[6] Efficiency of a health system is often considered as the degree of achievement of the goals of a health system given the resources utilized to achieve these goals.^[7,8]

The analysis of organizational and economic parameters of models and summarizing experience of the health-care models in the leading countries of the world are important for reforming and optimizing the existing model.

The main object of our research was the analysis of legal and organizational-economic aspects of the functioning basic models of health-care systems.

MATERIALS AND METHODS

The methodology of the research is based on the principles of system analysis and interdisciplinary scientific-system approach. We used empirical methods (data collection, study, and comparison), methods of comparative analysis, and generalization of statistical data. It has been used regulatory legal acts regulating the functioning of health systems, reports from the WHO, Bloomberg analytical agency, Foundation for Public Welfare (published in English on the site), publications in periodicals, and materials posted on the Internet. The models of health-care systems have been analyzed according to the classification of the WHO (S. Hakansson, V. Majnoni, D'Intignano, G.H. Mooney, J.L. Roberts, G.L. Stoddart, K.S. Johansen, H. Zollner). For research, an algorithm was developed which reflects the sequence of stages and main directions [Figure 1].

RESULTS

At the end of the last century, the World Declaration on Human Rights (1997) and the WHO Program "Health for All in the 21st Century" (1999) set out the priority areas for implementing the principles of equity, equity, accessibility and feasibility in the health sector. In this case, mobility, dynamism and marginal functionality of health systems are important.^[9,10]

The first phase was the analyzes of legal and regulatory aspects of health-care models which included an assessment of the main provisions of the World's Constitution.

It is established that most of the constitutions of EU countries contain provisions that introduce one of the most important postulates of the development of modern society, namely, "everyone has the right to health care." This norm

is presented in Art. 64. Portugal's Contingencies, Art. 33 of the Constitution of Romania, Art. 40 of the Constitution of Slovakia, Art. 58 Constitution of Croatia, Art. 17 of the French Constitution, Art. 32 Constitution of Italy, Art. 23 of the Constitution of Belgium, Art. 51 The Constitution of Slovenia, Art. 28 Constitution of Estonia, and Art. 49 Constitution of Ukraine.^[11-20] At the same time, in England and Germany, the right to health in the Basic Law is not enshrined.^[21,22]

According to the experience of the leading countries of the world, the effective functioning of the health-care system and pharmaceutical provision of the population in the sphere of public relations are achieved through the harmonization of humanistic principles and modern legal norms, which are laid down in the current legislation.

Next, we conducted an analysis of the scientific literature on the classification of health-care system models according to different criteria and approaches.^[23,24] There is a classification of models of health-care system as shown in Figure 2. It is established the main indicators of the classification of models of health-care systems.^[25]

- A method of financing pharmaceutical and medical care;
- Mechanisms for the formation and distribution of financial resources to provide medical and pharmaceutical care;
- Forms and methods for controlling the volume and quality of medical and pharmaceutical care;
- Forms of legal and property relations in the country between the objects of the National Healthcare System;
- System of provision (access and provision) of medical and pharmaceutical care;
- Mechanisms for stimulating medical and pharmaceutical workers.

Thus, according to the sociopolitical structure of the society, M.G.Field conditionally shows five models of health-care systems. According to the level of social development of the countries, M.Fotaki identifies nine types of models, and WHO experts distinguish three main models of health-care system.

Taking into account the importance of WHO in developing the functioning of an effective system of health care in the world (achievement in improving the state of global health of the population, respect for financial justice, increasing the sensitivity of the system to the expectations of the population), we, on the basis of literary sources, analyzed the models in accordance with the WHO classification.^[25] For this purpose, reference countries were selected in which a model of the health-care system operates. So, it has been selected Germany, France, Canada, Japan with compulsory health insurance (social insurance system, Bismarck system). Great Britain was taken as a standard example of the functioning of the system of public health financing (state system and Beveridge system), and the United States - a classic example of a private health-care system with financing based on

market-based insurance policies. The general results of the comparative analysis of the functioning of models of health systems are presented in Table 1.^[26-32]

Next stage of our implementation was the estimation of efficiency of models of health systems, which show us the success of the reforms in the regions and countries of the political power of the state. There are several approaches to conducting such assessments. We, for the purpose of evaluating the effectiveness of the functioning of health-care

system models, used the data of the Bloomberg analytical agency, as well as the Public Welfare Fund. The above-mentioned organizations use different approaches to the evaluation; therefore, comparisons (or comparative analysis) of the results can fully reflect the current state of development of health-care systems.

The Bloomberg analyst agency ranked the health systems of countries based on the WHO, UN, and World Bank (WB) statistics in 2015. Bloomberg ranked countries based on the efficiency of their health-care systems. Each country was ranked on three criteria: Life expectancy (weighted 60%), relative per capita cost of health care (30%), and absolute per capita cost of health care (10%). Within each criterion, 80% of the score was derived from the most recent health-care system assessment and 20% to changes, if any, over the previous year. Relative cost is health cost as a percentage of GDP. Absolute cost is total health expenditure, which covers preventive and curative health services, family planning, nutrition activities, and emergency aid. Changes were measured by baseline-adjusted life expectancy improvements, relative health-care cost increase, cost increase relative to increase in general income and consumer prices, and absolute per capita health-cost increase in the U.S. dollar terms. Countries were scored

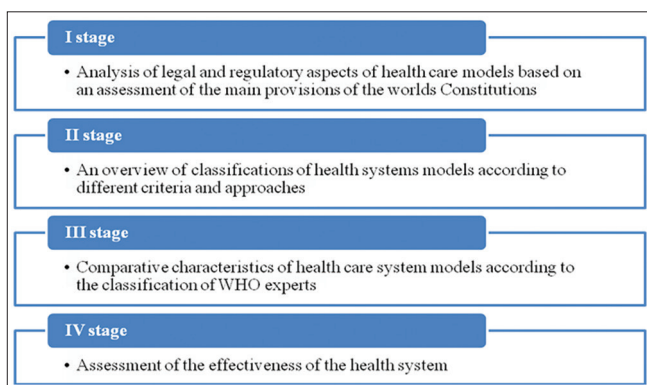


Figure 1: Algorithm for conducting research

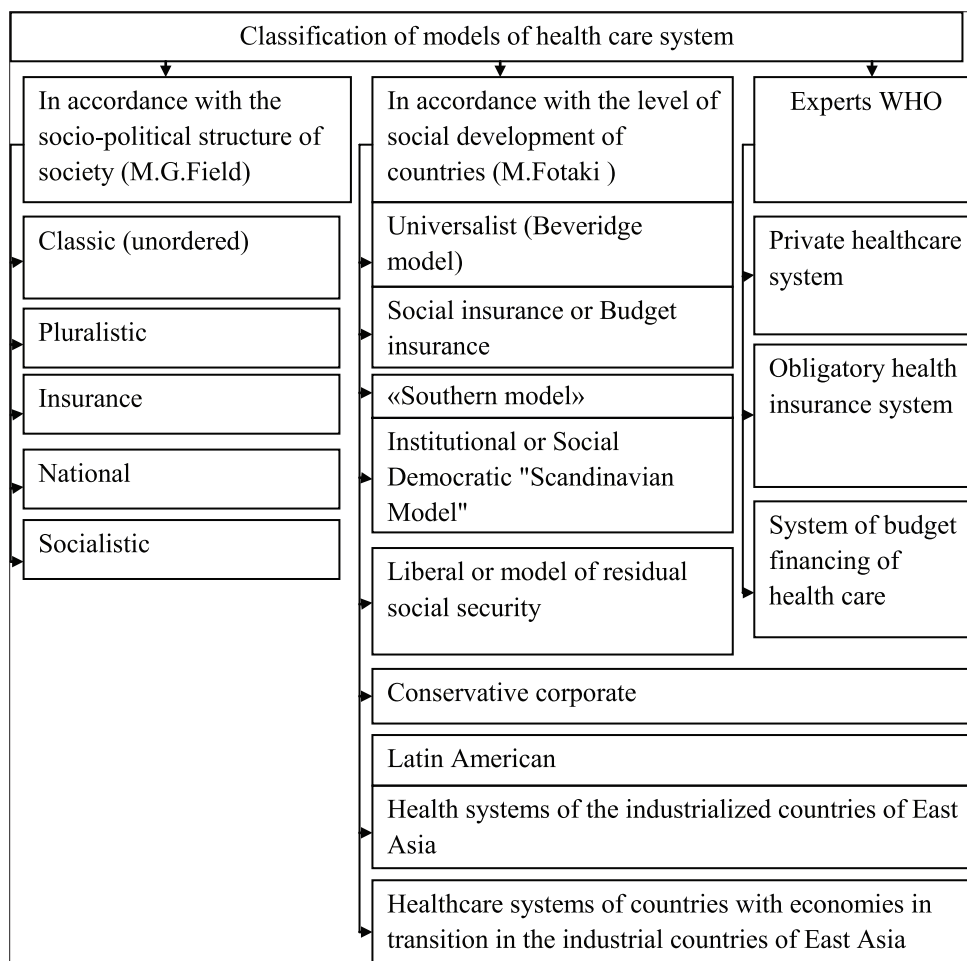


Figure 2: Classification of models of health-care system

Table 1: Overall characteristics of health-care system models

Type of model	Obligatory Health Insurance System (Social Insurance System, Bismarck System)	Japan	France	Canada	Great Britain	USA
Country	Germany	Japan	France	Canada	Great Britain	USA
The principle underlying the model	Health is the factor determining the quality of "human capital." Medical service - the costs necessary to maintain health	Medical service is a mixed public good. OMI programs reimburse part of the cost of medical care	Medical service is a mixed public good. OMI programs only cover the part of the cost of medical care. The rich pays for the poor, healthy - for the patient	Medical service is a public good. The health-care system should be controlled by the state	Medical service is a public good. The rich pays for the poor, healthy - for the patient	Medical service is a private good, i.e., a product that can be bought or sold
Share of health-care expenditures, % of GDP (2015.)	11, 30	10, 30	11, 66	10, 86	9, 12	17, 10
Control over the efficiency of spending funds	Control is carried out by private and public insurers	Control is carried out by insurance companies - private insurers	Inspection is carried out by insurers - private insurance companies and the state social insurance organization	The control is carried out by the state	The monitoring is carried out - the state represented by the Ministry of Health Care	Control is carried out by insurance companies - private insurers
Availability of medical services	90% of the population is covered by OMI programs; 10% - programs of the VMI; with 3% of the insured in the OMI have VMI	40% of the population is covered by the National Insurance System; 60% - a professional production insurance system	80% of the population is covered by OMI programs	98-99% of the population is covered by OMI programs	Universal accessibility, public financing of medical care	It is limited by patient solvency, programs for the elderly, and the poor do not apply to all those in need

(Contd...)

Table 1: (Continued)

Type of model	Obligatory Health Insurance System (Social Insurance System, Bismarck System)	System of budget financing of health care (state system and Beveridge system)	Private health-care system with financing based market principles of insurance
Assortment of available medical services	A wide range of services due to a combination of OMI and VMI programs	A wide range of preventive measures and a set of curative services are limited by production opportunities	A wide variety of medical and preventive medical services
	A wide range of services due to a combination of OMI and VMI programs	OMI programs provide the necessary set of medical services, and the introduction of new medical technologies is limited	

GDP: Gross domestic product

on each criterion, and the scores were weighted and summed to obtain their efficiency scores. Included countries were countries with populations of at least five million, GDP per capita of at least \$5,000, and life expectancy of at least 70 years.^[33]

The results of the ranking of the functioning health systems of countries in 2008 and 2015 are presented in Table 2.

The data show that Hong Kong is the most effective health-care system, which scored 89.65 in 2015. Subsequently, countries such as Singapore (85.5 points), Israel (71.3 points), Spain (70.9 points), South Korea (70.0 points), Italy (67.8), Japan (66.9) also had high score. It should be noted that, in 2015, there were significant changes in the ranking of countries on the effectiveness of health systems compared to 2008 data. Thus, Spain in 2008 ranked 8th in the ranking and in 2015 took 4th place. Japan in 2008 ranked 3rd place in the rating and in 2015 - 7th place. Poland with 31 seats in 2008 rose to 23 places in 2015. These facts influence on the functioning of the health care system.

Analysis of data according to health-care model has shown that countries with social insurance and state system have a better rating than a private system. Hence, Germany (48.5 points) ranked 32nd, France (54.2 points) - 18th place, Canada (51.6) - 24th place, and Japan (66.9 points) - 7th place. United Kingdom (55.9 points) ranked 17th (public system), while the United States (private health system) received only 32.6 points and ranked 50th.

At the same time, countries such as Mexico (15th place), Ecuador (25th), Cuba (24th), and others ranked unexpectedly high. This is due to the low cost of medical services for the population per capita. This fact indicates the possible imperfection of this rating methodology, since the effectiveness of health-care systems in these countries cannot be significantly higher than, for example, in the United States, which took only 50th place among 55 countries.

In our opinion, today, the above-mentioned criteria for ranking are not able to objectively assess the effectiveness of the functioning of health-care systems in countries.^[34] Next, we analyzed the performance rating of the health-care system according to published data of the Foundation for Public Welfare. It has been established that WHO, OECD, UN, and WB data are used by experts of the Public Welfare Fund to determine the rating. The experts of the Public Welfare Fund analyzed 11 advanced economies, namely Australia, Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, and the United States.^[35]

To determine the rating, the following criteria of effectiveness were taken into account:

- Quality indicators: The effectiveness of medical care (preventive and measures and treatment of chronic diseases), safety of care, coordination of treatment in

Table 2: The effectiveness of health-care systems in 2008 and 2015 years

Rank 2015	Rank 2008	Country/region	Efficiency Score	Life expectancy	Relative Cost, %	Absolute Cost, \$
1	1	Hong Kong	89.6	83.83	5.2	1.856
2	2	Singapore	85.5	82.35	4.55	2.507
3	4	Israel	71.3	82.06	7.24	2.599
4	8	Spain	70.9	82.43	8.88	2.581
5	7	South Korea	70	81.46	7.17	1.880
6	5	Italy	67.8	82.29	9.09	3.155
7	3	Japan	66.9	83.33	10.30	3.966
8	6	Australia	63.1	82.20	9.44	6.110
9	10	U.A.E.	62.6	77.13	3.20	1.569
10	13	Taiwan	60.4	79.90	6.62	1.350
11	9	Switzerland	59.6	82.75	11.47	9.276
12	14	Saudi Arabia	59.4	75.70	3.16	8.08
13	11	Sweden	58	81.70	9.71	5.680
14	15	Libya	57.8	75.36	4.30	4.33
15	17	Mexico	57.4	77.35	6.24	6.64
16	12	Norway	56.1	81.45	9.57	9.715
17	25	United Kingdom	55.9	80.96	9.12	3.598
18	17	France	54.2	81.97	11.66	4.864
19	20	Malaysia	53.9	75.02	4.03	4.23
20	22	China	53.5	75.35	5.57	3.67
21	16	Chile	52.8	79.84	7.73	1.204
22	23	Finland	52.8	80.83	9.40	4.449
23	31	Poland	52.6	76.85	6.66	8.95
24	21	Canada	51.6	81.40	10.86	5.718
25	37	Cuba	51.6	79.24	8.81	6.03
26	26	Czech Republic.	51.3	78.28	7.24	1.367
27	35	Venezuela	50.7	74.64	3.60	5.20
28	19	Ecuador	49.8	76.47	7.54	4.31
29	34	Peru	49.8	74.81	5.32	3.54
30	23	Greece	49.6	80.63	9.82	2.146
31	36	Portugal	48.7	80.37	9.71	2.037
32	33	Germany	48.5	81.04	11.30	5.006
33	38	Turkey	47.6	75.18	5.59	6.08
34	28	Thailand	47.2	74.37	4.57	2.64
35	27	Austria	47	80.89	11.03	5.427
36	32	Netherlands	46.9	81.10	12.89	6.145
37	30	Argentina	44.8	76.19	7.28	1.074
38	43	Romania	44.2	74.46	5.34	5.04
39	29	Belgium	43.3	80.39	11.19	5.093
40	39	Slovakia	42.2	76.26	8.21	1.454
41	40	Denmark	41.7	80.30	10.62	6.270
42	41	Dominican Republic	39.1	73.45	5.40	3.15
43	46	Hungary	38.3	75.27	8.05	1.056

(Contd...)

Table 2: (Continued)

Rank 2015	Rank 2008	Country/region	Efficiency Score	Life expectancy	Relative Cost, %	Absolute Cost, \$
44	47	Iran	36.8	74.07	6.69	432
45	NA	Kazakhstan	34.6	70.45	4.26	580
46	49	Bulgaria	34.3	74.47	7.63	555
47	50	Belarus	34.1	72.47	6.07	463
48	45	Colombia	33.9	73.98	6.81	533
49	51	Jordan	33.9	73.90	7.22	336
50	48	United States	32.6	78.84	17.10	9.146
51	44	Azerbaijan	32	70.69	5.58	436
52	42	Algeria	31.5	71.01	6.64	314
53	52	Serbia	30.6	75.14	10.60	475
54	NA	Russia	29.6	71.07	6.55	9.57
55	53	Brazil	19.7	73.89	9.67	1.085

Table 3. The effectiveness of health systems (sampling), 2014 *

Indicators of the effectiveness of Health Systems, 2014	Social Insurance			State	Private
	Canada	France	Germany	Great Britain	USA
Quality of medical care	9	8	7	1	5
Effectiveness of assistance	7	9	6	1	3
Security	10	2	6	1	7
Coordination	8	9	10	1	6
Orientation to the patient	8	10	7	1	4
Access to medical care	9	11	2	1	10
Solving the problems of the cost of medical services	5	10	4	1	11
Solving the latency problems	11	10	4	3	5
Efficiency of the system	10	8	9	1	11
Universal coverage	9	7	4	2	11
QALY	8	1	7	10	11
Total rating	10	9	5	1	11

Источники: Davis K., Schoen C., Stremikis K., Fund C. Mirror, mirror on the wall: How the performance of the US health care system compares internationally: 2014 update. QALY: Qualitatively lived years

the course of patient treatment between different health professionals, and patient orientation;

- Availability indicators: The cost problem and the problem of waiting time for medical care;
- Efficiency: The level of total health expenditure in percentage of GDP, the level of administrative costs, the use of information technology to optimize the time and cost of medical care, etc.;
- Equality: Equality of health-care provision regardless of income, geographical location, and patient's social status;
- The indicator of high-quality years of life (QALY).^[34]

We selected the baselines for Canada, France, Germany, the United Kingdom, and the USA for the study. Table 3 shows

the rating of health-care systems according to the data of the Foundation for Public Welfare.

The first place in the ranking is found in the United Kingdom, which leads the quality of care, access to health care, and system efficiency. France is the leader in the QALY and is ranked 11th in terms of availability of medical care to the population. It should be noted that Germany is second only to the availability of medical care. At the same time, it takes only 9th place of system efficiency.

The United States occupies the last 11th place in the Public Welfare Fund rating by indicators such as system efficiency, universal coverage, and high-QALY. At the same time, by the indicator of total expenditures on health care, 17.1% of

GDP and health care expenditures per capita 8 895.1 USD. The United States takes the leading position. This fact confirms that the model of the private health system needs to be reformed to provide the population with high-quality, affordable, effective medical, and pharmaceutical assistance.

The most notable way the U.S. differs from other industrialized countries is the absence of universal health insurance coverage. Other nations ensure the accessibility of care through universal health systems and through better ties between patients and the physician practices that serve as their medical homes. The Affordable Care Act is increasing the number of Americans with coverage and improving access to care, though the data in this report are from years before the full implementation of the law. Thus, it is not surprising that the U.S. underperforms on measures of access and equity between populations with above-average and below-average incomes.

DISCUSSION

Shot comparative characteristic of the functioning of the main models of health-care systems and analysis of the indexes of the efficiency of functioning of the health-care models including all available disadvantages allows us to conclude about the slightly higher efficiency of the one model compared to others. First, comparison of existing health system rankings has been used for the explanation of effectiveness of functioning of different models of health care by grouping of appropriated countries. In study of Schutte S. others ranks were compared but we have analyzed effectiveness of each of model of health care using two ranks of efficiency of health system.^[35] Given results had made us surprised because both of compared ranks have established the same model of health care as most effective - this was a Beveridge model.

CONCLUSION

Finally, an analysis of the legal aspects of the functioning of the models of health care on the basis of basic principles of the Constitution had been carried out and had proved present of the norm “everybody has a right for health care”.

Analysis of the models of the health-care systems had been indicated three general classifications - according to the social and political structure of the society, to the level of social development of the country and given by the WHO’ experts.

Comparative assessment of the models of health-care system by the WHO’ expert’s classification had allowed to conclude that the highest part of budgeting of health care does not guarantee the highest level of affordability of health-care services (e.g., USA).

Assessment of the approaches for describing the effectiveness of functioning of health-care systems allows us to describe two mechanisms of calculation of the health-care effectiveness index - the Bloomberg and The Commonwealth Fund. The obtained results allow claiming that the most effective model of health care system is system of public health financing (the state system, the Beverage system).

Given study shows the features and predicted benefits of actual models of health-care systems. Given results may be used in the process of reforming of health-care system for the developing and developed countries.

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