

# Directions for Improving the Efficiency of Supply Chain Management Regulation of Health Care in Ukraine: A Case Study of Western European Countries

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**Abstract.** In modern conditions Ukraine has a steady trend of high mortality rates caused by the low level of health care quality. In this regard, it becomes relevant to develop scientific approaches to improving the efficiency of administrative and legal regulation of the health service in the country. The article substantiates the main factors of the efficiency of the administrative and legal regulation of health care in Western Europe. The current state of the health service in Ukraine was analyzed. The key factors of the critical health care state in the country are identified. The expert evaluation technique was used to assess the efficiency of medical reform in Ukraine and to justify the main directions for improving the legal regulation of the health care service, taking into account the efficiency factors applied in Western Europe. A system of recommendations was developed for improving the legal framework of health care in Ukraine. The research results are practical in nature and will become the basis for the implementation of Ukraine's European desire to strengthen the health care system and its potential, increase its safety and protect public health as a prerequisite for sustainable development and economic growth.

**Keywords:** health care, supply chain management, administrative and legal regulation of health care in Western Europe, medical insurance, health care quality, health service.

## 1. Introduction

Health care refers to an independent function of public authorities and local government. The implementation of this function is based on special legislation, a system of government bodies that ensure the enjoyment of the citizens' rights of to health, provide sources of funding, methods of their implementation [1, 2, 3]. In modern conditions, Western European health service is recognized as one of the most efficient in the world; it is characterized by a high level of funding (on average up to 10% of GDP), a low mortality rate (up to 8 persons per 1000 population) and a high level of health care quality (the top 20 countries for

the health care quality in the world) [4, 5, 6]. Unlike Western Europe, Ukraine is characterized by a critical state of the health care system, having a steady downtrend. Ukraine, as a country of the former Soviet Union, inherited a health care system based on the Semashko's system [7]. The essence of this system lies in ensuring equal access to health facilities for the entire population; provision of full medical care, lack of financial restrictions for citizens with different income levels; the availability of a holistic system of treatment, prevention, rehabilitation and sanitary-epidemiological surveillance; high qualification of personnel [8]. Patients had to pay only for medications administered outside of hospitals. At the legal level, this system is reflected in the Constitution of Ukraine, according to which health care is provided by sanitary-and-prophylactic institutions, health and fitness centers, health resorts, pharmacies, research hospitals and other health care institutions [9]. The Ministry of Health of Ukraine is a specially authorized central executive body in the field of health care service, whose competence is determined by the provision approved by the Cabinet of Ministers of Ukraine. Thus, there is a three-step system of health service management in Ukraine. The Ukrainian health care system is based on primary therapeutic and preventive care, which is mainly provided territorially by general practitioners. The principle of accessibility to therapeutic and preventive care is implemented by Article 49 of the Constitution of Ukraine, according to which "Everyone has the right to health care, medical attendance and medical insurance" [9]. Health care is provided by public funding of relevant socio-economic, health and wellness and preventive programs. The state creates conditions for effective health care that is affordable for all citizens. Medical attendance is provided free of charge in state and municipal health care facilities; the existing network of such

institutions cannot be reduced. The state promotes the development of medical institutions of all forms of ownership. The state cares about the development of physical culture and sports, and ensures sanitary and epidemic well-being" [9]. Meanwhile, in modern conditions, the mortality rate in Ukraine is one of the highest in the world – 13.9% per 1000 population as of 2017. The country ranks 5<sup>th</sup> in terms of the death rate in the world, giving place to such countries as Monaco (18.6%), Bulgaria (15.1%), Lithuania (14.4 %) and Latvia (14.3%). At the same time, according to the recent data of the World Health Organization (WHO) for 1981-2017, the country's mortality rate increased by 2.6% [6, 10]. The average rate of increase in mortality over the period under study exceeded the rate of population growth by 4%, which is accompanied by a sharp decline in medical institutions in the country (over the past 27 years by 44% with a virtually unchanged incidence rate of the population). Over the past ten years, the population of Ukraine has decreased by 7.7%, while the incidence rate has increased significantly in most classes of diseases. Life expectancy in Ukraine is by 11 years less than in the EU countries [11]. Coronary heart disease, stroke (cerebrovascular accident) and oncology are considered the main factors of high mortality in Ukraine [12], which is indicative of the poor quality of health care in the country. Thus, according to the official Numbeo data, the health system of Ukraine takes the 77<sup>th</sup> place in terms of quality rating from 84 countries of the world – the value of the Health Care Index 2019 was 50.95; and this is almost the very last place among European countries [5]. In the WHO health rating Ukraine ranks 97<sup>th</sup> out of 156 countries, having passed ahead not only developed western countries, but the entire former USSR: Belarus is on the 54<sup>th</sup> line, Russia being on the 73<sup>rd</sup> and Moldova on the 75<sup>th</sup> lines. Only the residents of poor Arab countries, Africa and Afghanistan have health and medical care worse than the Ukrainians [13]. The low proportion of government funds for health care is one of the significant reasons. In 2018 the level of funding in Ukraine amounted to 3.5% of GDP against 7.01% of GDP in 1995 (Population-based Incidence Rate). The current critical situation in the country, even with the medical reform implementation, did not find its practical solution. According to the Law of Ukraine "On the State Budget for 2019", it is planned to increase spending on health care by UAH 9.5 billion, but

regarding the fact that it is also planned to increase the country's GDP to UAH 3.946.9 billion (against UAH 3.332.3 billion in 2018), the indicator of health care funding will decrease down to 3.2% of GDP (About the State Budget of Ukraine for 2019, 2018; the Government predicts the growth of Ukraine's GDP in 2019 from 1.1% to 4.4%, 2018). This figure contradicts the WHO recommendations for health care funding to make at least 6% of GDP and the requirements of the fifth part of Article 4 of the Law of Ukraine "On State Financial Guarantees of Medical Services for the Population" on the expenditures for implementing the program of medical guarantees of at least 5% of GDP (the need is UAH 197 billion) (On State Financial Guarantees of Medical Services for the Population, 2017). The next generation of the Ukrainians will be even weaker, as experts predict, because young citizens of the country are getting sick more and more often. According to the annual report of the Ministry of Health for 2017, currently almost every sixth child already has deviations in health status at birth. And only 10% of first-graders start studying fully healthy, and by the fifth grade only 1.5% of them remain in this health state [14]. In view of the above, it can be stated that the current critical situation in the Ukrainian health care system is primarily determined by the imperfection of administrative and legal regulation. Since September 1, 2017, the Association Agreement between Ukraine and the EU (2014) has entered into force. This means that all further legislative initiatives should be considered in the context of European integration. The health care reform proposed by the Ministry of Health of Ukraine contradicts the European integration course of Ukraine and contains significant corruption risks. Until now, the Constitution of Ukraine is at the head of legal acts; its norms create the legal framework in the health care system governing relations in the provision of medical care at all levels of social life [15]. By virtue of the fact that the Constitution is a fundamental document, practical implementation of the health care reform will inevitably conflict with Article 49 of the Constitution (1996). One of the disputable questions will be the legal regulation of the financial part of rendering medical services, as well as the health care mechanism. In this connection, the purpose of this article was to develop conceptual recommendations for improving the administrative and legal regulation of the health care system of Ukraine, taking into account the best

practices of Western European countries. In the course of the study, the following tasks of the scientific research were solved: to analyze the main advantages and the factors of the health care system efficiency in the countries of Western Europe; to substantiate the main destructive factors of administrative and legal regulation of health care in Ukraine; to assess the effectiveness of modern health care reform in Ukraine; to develop practical recommendations for improving the administrative and legal regulation of the health care system in Ukraine, taking into account the experience of Western European countries.

## 2. Methods and Materials

Based on the absence of officially approved indicators, which would allow assessing the effectiveness of the health care reform implementation, an expert evaluation was conducted within the framework of this research. The effectiveness of the health care reform implementation in Ukraine in the legislative plane can be reliably assessed by lawyers; the financial aspects can be evaluated by economists; lawyers, economists, and subjects of medical relations – doctors and patients can provide a reliable assessment in organizational terms. In the regional context, the research was conducted in Kyiv, Kharkiv, Lutsk, Kherson, and Chernihiv. The use of such a broad geography (center, south, west, east, and north) made it possible to take into account the mood and readiness for the reform of its participants throughout Ukraine, regardless of political convictions. In addition, respondents represent cities with different levels of economic development in order to form adequate conclusions about the feasibility of implementing the financial component of the reform. The representativeness of the research results was verified in terms of the sample size sufficiency:

$$s = \frac{Z(p)^2 \cdot v \cdot (1-v)}{e^2},$$

Where  $s$  is the minimum size of the sample, sufficient to ensure the representativeness of the research results;

$Z(p)$  is the normalized deviation. The acceptable confidence level at which the results of expert evaluation are representative and statistically significant is 90%. At this confidence level the normalized deviation amounts to 1.65;

$p$  is the confidence level;

$v$  is the sampling variation;

$e$  is the acceptable margin of error [16].

According to the calculations, the sample will be characterized by the principle of sufficiency in conditions of a large general sample (more than 30 people), if the number of respondents exceeds 273 persons. This study involved 300 people. The reliability of the sample, the random nature of its formation, diversification by geographic, economic, and professional grounds indicates the representativeness of the research results and the possibility of taking them into account when implementing health care reform in Ukraine. Expert evaluation was conducted by face-to-face questionnaires.

Respondents were asked to give their grades on a 5-point scale for the following positions (3 statements in each of the 3 blocks). The grade “5” corresponded to the highest level of readiness for the reform, at which specific measures on the way to the reform implementation are felt. The grade “0” corresponded to the respondent’s categorical disagreement with the possibility of carrying out a certain type of measures for the health care reform implementation.

Positions by which the efficiency of the health care reform in Ukraine was evaluated:

### 1. Legislative support:

1.1. The adoption of laws promoting the reform implementation has begun in Ukraine.

1.2. The legislation eliminated all contradictions in the field of health care service.

1.3. All legal provisions contributing to the reform implementation are implemented.

### 2. Financial support:

2.1. The country is complying with the standard of health care budget financing.

2.2. The state finances the provision of medical services and the purchase of medicines to the public.

2.3. An adequate level of medical workers’ remuneration is ensured.

### 3. Organizational support:

3.1. The system of compulsory medical insurance is operating.

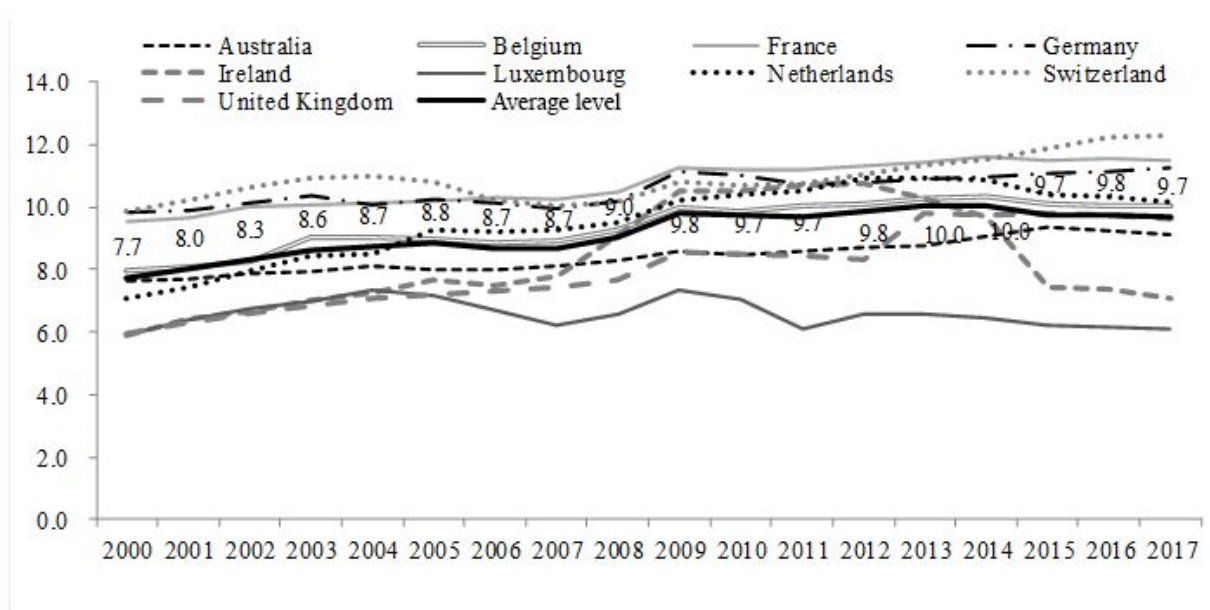
3.2. Transferring the duties of other doctors to the family physician is justified from the standpoint of ensuring medical efficacy.

3.3. Ukraine has solved the problem of mortality.

### 3. Analysis of the advantages of the health care system in Western Europe

According to the EU legislation, all citizens must have access to health care. Despite the differences between individual countries regarding the range of services, depending on the type of the health system funding, there is a social consensus concerning the provision of medical services at the level of diagnostics and therapy, regardless of their cost, which must be accessible to all [in 17, 18, 19]. This goal is the basis of the administrative and legal regulation of health care in the EU. Nowadays, the quality of the health care system in

Western European countries is one of the best in the world. The average level of funding has increased by 2.7% of GDP over the past 17 years. In general, it should be noted that in 2000-2017 there was a positive trend in medicine funding in Western Europe, with the minimum value of health funding being always above 6% of GDP. The highest level of financing can be traced in Switzerland, as of 2017 it amounted to 12.3% of GDP, being 11.5% of GDP France and 11.3% of GDP in Germany (Figure 1) [20]. These are the countries where the death rate is one of the lowest in the world.



**Figure 1.** Dynamics of health care funding in Western Europe (% of GDP)

There is a complex combination of the private and public sectors of Western European countries both in financing the health care system and in providing medical care [18, 21]. The budget financing model (the Beveridge model), according to which the public sector accounts for the majority of expenditures for maintaining health care facilities. This model has become widespread in the UK, Spain, where the state finances more than 80% of all medical expenses [20]. The insurance-based financing model (the Bismarck model), which provides support to the health care sector from three sources: contributions from business structures, workers and the state, with 10-20% of the cost of medical services paid from the personal funds of citizens, is used in European countries such as France, Germany, Austria, Switzerland, the Netherlands, and Belgium [22,23, 24,25]. Such a system of health care financing based on insurance principles allows for an

increase in the amount of funding by 1.5–2 times compared with the budget model [26]. A wide range and almost unlimited amount of medical services are provided both at the hospital and at the outpatient levels, and patients have freedom to choose a service provider. The UK National Health Service (NHS) is the most well-known universal medical care system in the world. It is a state system, funded mainly through taxes, providing services to all segments of the population and, mainly, on a non-repayable basis. The NHS is financed through the general taxation system (95%) and other payments (5%) within the framework of the general budget, which is developed by the Ministry and adopted by the Parliament [National Health Service (NHS) UK – 27]. The system of remuneration for general practitioners is a combination of fees and allocated payments determined by their contracts. The main form of payment is per capita payment for each

patient of a given doctor. The level of payment depends on the patient's age. Some services (such as contraception or vaccination) are covered by a separate article [28]. The cost of drugs is not refundable to consumers. Prices are set by manufacturers, but profits are controlled by the central government [29]. The cost of drugs that are administered without a prescription is fully paid by patients; total payment for prescription drugs is based on a uniform rate, with an average of 24% of the price of medicines paid by the patient [29]. Administrative and legal regulation and financing of the health care system in Germany is based on the traditional principles of social solidarity, decentralization and self-regulation. The role of the central government is limited to the development of a legal framework within which health services are provided, while the main executive functions belong to the administrations of individual lands [in 30]. The Federal Ministry of Health is the main institution at the federal level; scientific expertise bodies are subordinated to it. The compulsory health insurance system covers about 88% of the population (of which 13% are voluntary) [31]. The program is funded by contributions from employees and employers. The average amount of all contributions is 13.52% (making 13.92% in eastern lands) [32, 33]. Employees always pay 6.76% (in the East - 6.96%) of their wages, the employer pays the same percentage on average, but this rate is different for different lands and foundations and ranges from 4.75 to 7.5%. Approximately 60% of the funding come from compulsory or voluntary contributions, 21% are financed from general taxes, 7% are provided by private insurance, and the remaining 12% are covered by direct payments from patients [32]. Medical institutions, both private and public, are funded in a double way: it is assumed that the land government will cover the capital expenditures, and the operating expenses will be paid by sickness benefit funds. Hospital services for the insured patients are privately covered in accordance with the individual rates [22]. In Germany, common prices for medicines are established. The cost of most drugs is reimbursed by the reference pricing system [32]. The doctor has the right to prescribe a more expensive product to the patient, but the patient will have to pay the difference between the actual price of the medication and the reference price. The level of co-payment for drugs in Germany is one of the lowest in the EU [22]. Health care in the Netherlands is financed largely by a combination of social and private insurance, with

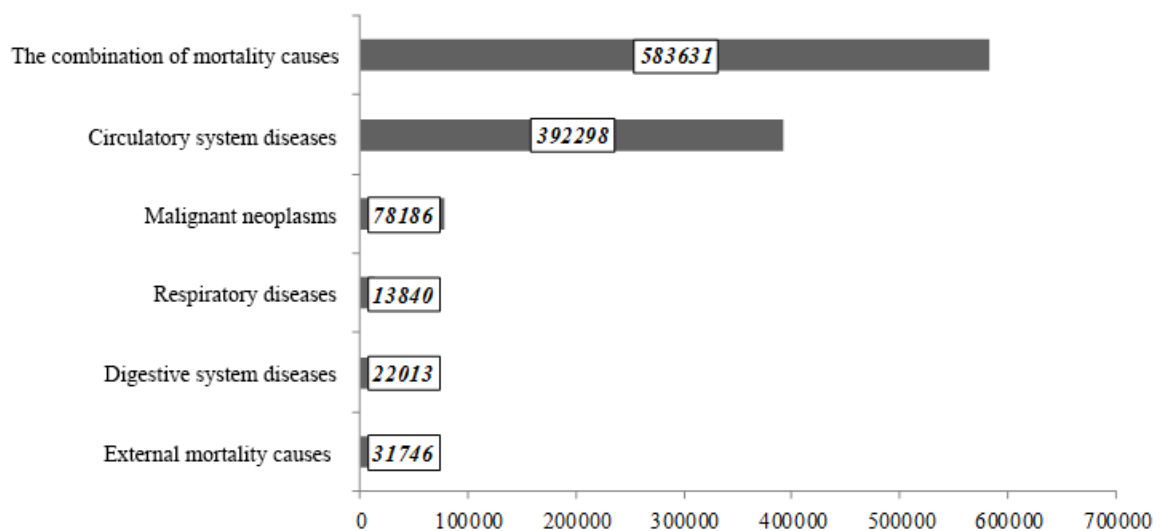
64% of the population covered by social insurance and 31% by private insurance [34]. The statutory health insurance program (SHIP) is provided by approximately 40 sickness benefit funds and covers about 64% of the country's population. There is an income threshold that excludes a significant portion of the population (about 31%) from this program – mainly population groups with high incomes as well as self-employed people [34]. They should buy private health insurance to cover the cost of acute illnesses. Civil servants make up approximately 5% of the country's population; they are insured by a special mandatory program, the services in which are larger in volume than in the SHIP system. In addition, members of social health insurance funds may purchase supplemental insurance to cover additional risks. Also, 90% of the members of the sickness benefit funds use additional insurance to cover the cost of dental services [35]. The Ministry of Health, Welfare and Sport is the main body responsible for planning and implementing health policy [35]. Social insurance is the dominant form of health care financing in the Netherlands, covering about 70% of health care costs. Personal insurance covers 13% of all expenses [35]. Funding is supplemented by direct co-payment by patients and government subsidies. The Ministry is submitting a total budget for health expenditures to the Parliament for approval. In addition, for some sectors of the health care system, cost targets are established, for example, for inpatient and outpatient care. Contributions to sickness benefit funds are based on the income size and are mainly paid by the employer (5.6% of the wage fund); the amount of the employee's contribution is significantly lower (1.55% of gross income). There is an upper limit on income for contributions making EUR 29,314 per year (Calculating the income-dependent contribution pursuant to the Health Care Insurance Act [36]. Management and distribution of contributions is carried out through the central fund on the principle of per capita financing by partial risk accounting. Additionally, members of the sickness benefit fund pay a small fixed amount, which is established by each sickness benefit fund separately (on average EUR 180). This fixed contribution covers approximately 10% of all health expenditure [37]. There are parallel systems of the private and public sectors in France for funding and provision of medical services. The health care system is based on the mandatory state health care program, which is largely complemented by voluntary insurance. However,

in general, the system covers almost the entire population of the country. A wide range and almost unlimited amount of medical services are provided both at the hospital and at the outpatient level, and patients are free to choose a service provider. Some family physicians and hospitals have local arrangements with reciprocal partners to reduce payments at the point of medical care. The health care system in France is largely regulated by the government. At the local level, there are 22 Regional Directions for Medical and Social Affairs (DRASS). General access to medical services is guaranteed by the national health insurance system, which is part of the compulsory social security system and covers 99% of the country's population [38]. The general insurance program is financed by collecting taxes from employers and employees – 12.8% of wage costs from the employer and 0.75% from the employee, which cover 74% of all expenditures on health care. Joint companies cover about 7%, and private insurers account for 5% of health care costs. Less than 3% come from a general tax collection, and the rest – more than 12% – comes from a patient's co-payment [39]. Pharmaceutical preparations are included in the list of drugs for which costs are reimbursed. Prices and reimbursement rate are determined by order of the Ministry of Social Affairs and Health. Over-the-counter pharmaceuticals, the cost of which is not covered by insurance, are not subject to

regulation. Patients' direct payments for medicines average 20%, although they can range from zero (necessary medicines) to 65% for so-called "comfort medicines". There is no budget limit for pharmaceuticals and no restrictions on the issuance of prescriptions in France [40].

#### 4. The study of modern problems of administrative and legal regulation of health care in Ukraine

Currently, in Ukraine, as shown in Fig. 2, diseases make the lion's share (86.8%) of all causes of mortality [41,42]. In other words, mortality is caused by those negative phenomena, for the prevention and treatment of which the health care system was created. The mortality rate of the working-age Ukrainians is by 2.3 times higher than in the EU countries. Child mortality is twice as high as in the EU, and maternal mortality is three times higher. Mortality from tuberculosis is by 16 times higher than in Europe (Estimated maternal mortality per 100 000 live births (WHO/UNICEF/UNFPA estimates), 2019; Estimated probability of dying before age 5, per 1000 live births (World Health Report), 2019; SDR, cancer of the cervix uteri, all ages, per 100 000, 2019; SDR all causes, all ages, per 100 000, 2019; SDR, all causes, 0–64, per 100 000, 2019; SDR, external causes of injury and poisoning, all ages, per 100 000, 2019; SDR, tuberculosis, all ages, per 100 000, 2019).



**Figure 2.** Mortality rate of the Ukrainian population by causal factors as of 2017

At the same time, Ukraine equals to more developed countries, for example, such as Poland and France, in the number of doctors per 100 thousand population, and even significantly exceeds them in the number of hospital beds (see Table 1) [42].

**Table 1.** Comparison of quality indicators and effectiveness of health systems

Country	Risk of death from non communicable diseases (30-70 years)	Number of doctors per 100.000 population	Number of maternal deaths per 100.000 population	Presence of qualified medical personnel during childbirth	Number of beds per 100.000 population
Ukraine	28%	315	23	99%	784
Poland	20%	231	3	100%	663
Germany	12%	411	7	98%	823
France	11%	323	8	97%	641
USA	14%	-	28	99%	-

The ratio of the number of maternal deaths during childbirth with the participation of qualified personnel is rather indicative (23 deaths with a 99% presence of qualified personnel during childbirth in Ukraine against 8 deaths with a 97% presence in France). Such statistics naturally cast doubt on the qualifications of the relevant personnel. Also, in Ukraine, the risk of death for the age group of 30-70 years from one of four non communicable diseases (cancer, cardiovascular diseases, which are the main cause of death, diabetes, or chronic respiratory diseases) is 28%, which is higher than in Poland (20%), and significantly higher than the United States and Western European countries [42]. Circulatory system diseases (this cause of death accounts for 392.298 of all 583.631 cases) are also one of the main causes of hospital mortality (equally with cancer and some infectious and parasitic diseases). At the same time, in Ukraine the number of cardiologists is not inferior to that of the Netherlands and Poland (55.5 doctors per 1 million of population), however, according to the obtained data, one third of acute myocardial infarction cases are not diagnosed in Ukraine (an average of 1716 in Europe and only 1136 in Ukraine), its proper diagnosis in a timely manner significantly increases the patient's chances for recovery [42]. It is unknown how many of these fatal cases in Ukraine occurred due to insufficient medical qualifications. There are only a few specialized studies on medical error (for example, out of 112 cases studied for rendering medical assistance in the Ternopil Region, medical errors were found in 92 cases (82.1%). In turn, in Eastern European countries, statistics show that medical errors occurred in 8-12% of hospitalization cases and there were negative consequences caused by the medical care provided. At the same time, the Ukrainian certification system, which is aimed at tracking and improving the doctors' qualifications, demonstrates high rates of physicians' certification (91% in 2017). Meanwhile, 9% of doctors were not certified mainly for reasons that had no connection with their professional skills (the qualification period ended less than 1 year

ago, maternity leave, etc.). This phenomenon can be explained as follows. In Ukraine, in practice, two options for the implementation of medical practice are legislatively regulated: employment (conclusion of an employment contract with a public health institution or a self-employed individual, having a license to carry out economic activities in medical practice), and acquisition of a medical practice license (self-employed doctor and a physician carrying out independent professional activities according to Article 14.1.226 of the TCU. In other words, a license is acquired by a legal entity or an individual entrepreneur, who does not have to be a doctor. Thus, the licensing of medical practice, which exists in Ukraine in modern conditions, does not solve the problem of incompetence of Ukrainian doctors. The main professional requirements for licensees are compliance of health workers, with whom they conclude employment contracts, with qualification requirements (in fact, it is a question of whether these medical workers have a certificate of medical specialist) (On approval of license conditions for carrying out economic activities in medical practice). The TCU stipulates that the doctors' activities are independent professional activities, provided that such a person is not an employee or an individual entrepreneur and uses hired labor of no more than four individuals. But at the same time, doctors who carry out independent medical activities cannot obtain a license for medical practice – they need to register a legal entity or work as a sole proprietor in accordance with clause 2 of the Resolution of the Cabinet of Ministers No. 285 (On approval of license conditions for carrying out economic activities in medical practice). There is no statistics on the number of doctors engaged in independent professional activities in Ukraine. Also, according to the current legislation, the qualification of doctors is very subjective in Ukraine and involves considerable discretion – it is based on certification for assigning the title of “medical specialist”, which allows unqualified doctors to continue their professional activities in accordance with clauses 1 to 9 of Section II - IV of Order No. 359 (On further improvement of

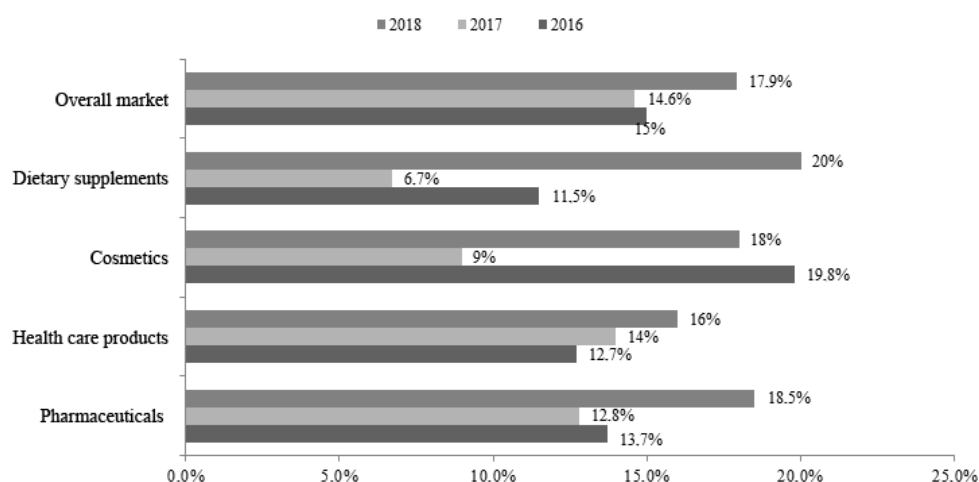
physicians' certification) and Order of the Ministry of Health of Ukraine No. 752 (About the procedure for quality assurance of medical aid). There is no effective response mechanism in cases of a physician's incompetence. The decision to prosecute is made subjectively according to Article 147 and clause 2 of Article 40 of the Labor Code of Ukraine (2018), Article 2448 of the Code of Ukraine on Administrative Offenses (2019), Article 55 of the Criminal Code of Ukraine (2001). In 2018, the implementation of health care reform began in Ukraine; this reform is designed to reduce the mortality rate in the country and improve the health care quality for the Ukrainians. Legislative amendments in the reform process will affect not only the sphere of medical services financing, but the whole system of legal regulation of the health care industry, since precisely the problems of its functioning are the main reason for the low level of health care quality. The adoption of the Law of Ukraine No. 6327 "On State Financial Guarantees for the Provision of Medical Services and Medicines", (2017) by the [in9], a Draft Law No.6604 on the required amendments to the state budget (On Amendments to the Budget Code of Ukraine regarding the Provision of State Financial Guarantees for the Provision of Medical Services and Medicines, 2017) and the Presidential Draft Law No. 7117 (On Improving the Affordability and Quality of Medical Services in Rural Areas, 2017), Law of Ukraine "On State Financial Guarantees of Medical Services for the Population" (2017), Draft Law No. 6634 which was rejected by the [in 9] (On Primary Health Care based on Principles of Family Medicine, 2017) became prerequisites and grounds for the health care reform. The beginning of the health care reform has affected only the primary level: the Ukrainians sign declarations with general practitioners, family physicians or pediatricians. The doctors now receive their salaries for the assigned patients. The therapist, family physician and pediatrician will receive UAH 370 per year for one person. The National Health Care Service will pay more for children and the elderly patients – UAH 740 (Personal doctor, electronic medicine and high salaries: how the medical reform has changed life in 2018, 2018). But nevertheless, attention should be paid to the fact that today in Ukraine there are less than 50% of the required number of family physicians, district physicians and pediatricians who, according to the decree of the Ministry of Health, are authorized to conclude a declaration for providing health care to the population (What will the health care reform be in

Ukraine in 2019: new limits and paid specialized doctors, 2018). According to the documents, about 14 thousand family physicians were trained in Ukraine, and actually 7-8 thousand people work, whereas 30 thousand specialists are needed (Start of the medical reform: what difficulties await the Ukrainians in hospitals, 2018). And patients usually sign declarations with doctors whom they trust, while the rest receive the former level of wages, which in turn leads to a decline in the prestige of the medical profession and a corresponding reduction in the number of potential personnel. Thus, the extremely low salaries of medical workers do not provide them with even the minimum subsistence level. According to the State Statistics Committee of Ukraine, in June 2018 the average salary of health workers was UAH 6.258, which is by 1.5 times less than the figure in industry (UAH 9552), by 1.4 times less than in education (UAH 8.553), and by 1.1 times less than in the sphere of culture (UAH 6.641) [43]. And this is despite the fact that, according to the Law of Ukraine "On State Financial Guarantees of Medical Services for the Population", the Law of Ukraine "On Improving the Affordability and Quality of Medical Services in Rural Areas" and the Law of Ukraine "On Emergency Medical Aid" the size of capitation rates of the medical workers' remuneration should increase in an amount of not less than 250% of the average salary in Ukraine for July 2017 (Salaries in the public sector since January 1, 2018, 2018). In addition, the medical subvention amounted to UAH 57.4 million in 2018, while the deficit of the wage fund made about UAH 3.6 billion. This led to arrears in the payment of wages to employees of health institutions in 11 regions of Ukraine in the amount of UAH 98.2 million [43]. In the context of reforming the Ukrainian health care system aimed at raising its financing, taking into account the indicators of the Law of Ukraine "On the State Budget for 2019", it can be argued that the availability of existing problems was completely ignored. The volume of medical subventions is provided for 2019 in the amount of UAH 55.502.068.3 thousand, which is by UAH 1.9 billion less than in 2018. Whereas, based on the provisions of Resolution No. 524 of the Cabinet of Ministers dated May 11, 2011 (Issues of remuneration of employees of establishments, institutions and organizations of certain branches of the budget sphere, [48], the demand, which was calculated proceeding from the minimum salary since January 1, 2019 and the 1<sup>st</sup> tariff category of the Unified Salary Schedule (USS) (USS-2019:



salaries, indexation and adjustment of average earnings, 2019), demonstrated that payroll budget (with charges) should be UAH 89.070.1 million. In other words, the criteria for differentiation of the medical workers' salary are completely leveled. In addition, the WHO recommendations were also completely ignored. Articles 7 and 8 of the Draft State Budget provide for the establishment of a minimum cost of subsistence for able-bodied persons in Ukraine starting from January 1, 2019 in the amount of UAH 1921 and the minimum wage in the amount of UAH 4173 (On the State Budget of Ukraine for 2019, 2018). Therefore, since January 1, 2019 the size of the USS basic tariff category will be only 46% of the minimum wage, and the existing "equalization" in remuneration from the 1<sup>st</sup> to the 11<sup>th</sup> tariff category will not only be preserved, but will extend to the 13<sup>th</sup> tariff category (USS-2019: salaries, indexation and adjustment of average earnings). Consequently, salary for medical workers is established at the level of the minimum wages. Chronic under-financing of health care provokes payment for treatment at the expense of patients, which violates Article 49 of the Constitution of Ukraine. Thus, in 2004-2018 the proportion of household spending on medicine was steadily increasing and in 2018 it reached 4.7% of the total household expenditure against 2.8% in 2004, while public funding for the period under study decreased by 1.1% (State Budget Expenditures of Ukraine, 2018). The current situation causes a change in the moral and ethical attitude of medical workers towards the patients, and, accordingly, patients' attitude towards the medical workers. With the constitutional right to free medicine, the Ukrainian health care sector is recognized today as one of the most corrupt social spheres in the country. Thus, of UAH 120 mln damage inflicted to the state, 90% of the funds were lost due to corruption offenses in the field of medicine (Investigations of the NABU in the social sphere, 2018). Moreover, for refusal to provide treatment or extortion of money from a patient, a doctor can be put in jail. Under Article 184 of the Criminal Code, violation of the right to free medical care carries a penalty in the amount of UAH 170 or up to six months of arrest. The low level of remuneration in the health care system and the high level of its corruption provoke emigration of doctors from Ukraine. According to an investigation by the BBC News Ukraine, about 66 thousand medical workers left Ukraine. The

access to medical facilities and the ensured balance of interests between patent holders and consumers of pharmaceutical services are basic components of healthcare and high-quality medical assistance. According to the findings of the USAID-funded "(Cost)less Medicine" project, nowadays every other patient in Ukraine refuses from treatment because of money shortages (Medicines in Ukraine are sold at a 300% premium compared with neighboring countries, 2017). This is despite the fact that many Ukrainians buy medicines at their own expense, although according to the law of Ukraine they should receive drugs free of charge from the state [9]. One of the reasons for the current situation is that now more than 60% of Ukrainians are below the poverty line. However, it should be noted that this is not a key factor in the absence of availability of medicines for the population in the country. Many medicines in Ukraine are sold at a premium of up to 300% as compared with neighboring countries. For example, Norvasc (for diseases of the cardiovascular system) costs by 25 times more in Ukraine than in Lithuania. Though it is the same manufacturer, it is the same brand. Today, high prices for medicines are the reason why many Ukrainians cannot afford treatment (Medicines in Ukraine are sold at a 300% premium compared with neighboring countries). The state tried to improve administrative and legal regulation in the field of pricing in the pharmaceutical market. Thus, based on the Resolutions of the Cabinet of Ministers of Ukraine dated 09.11.2016, No. 862 "On State Regulation of Prices for Medicines" and No. 863 "On the Introduction of Reimbursement of the Cost of Medicines", the government program "Available Medicines" was launched in Ukraine for reimbursing the outpatient treatment of persons suffering from cardiovascular diseases, type II diabetes and asthma. But nevertheless, the problem of the high prices for medicines has not been adequately reflected for its resolution. Over the past three years, medications have only continued to increase in price for the Ukrainians. In general, the average increase in the pharmaceutical market amounted to 15.8% over the first 9 months of 2016-2018. The highest growth rate of weighted average prices was observed in 2017-2018 for pharmaceuticals (+ 18.5%) and dietary supplements (+ 20%) (Fig. 3) (Pharmacy market of Ukraine at the first 9 months' end of 2018: 44).



**Figure 3.** Growth rates of weighted average prices for various categories of the “pharmacy basket” goods in Ukraine at the first 9 months’ end in 2016–2018

People with cardiovascular diseases, diabetes, oncology cannot afford to buy medicines, as there are unreasonably expensive prices in the country, which often exceed by 2-4 times the prices in Europe (Medicines in Ukraine are sold at a 300% premium compared with neighboring countries, 2017). The reason for such a difference in prices is that the Ukrainian drug market was monopolized by distributors and pharmaceutical companies – they regulate prices at their convenience. At the 11 months’ end of 2017, the share of three largest distributors in the wholesale supply of the “pharmacy basket” goods made 78.8%. This means that more than 20% of wholesale deliveries are carried out by second-tier distributors

(Distribution of medicines in Ukraine – who occupies second-tier positions?, 2018). The current state of affairs leads to the consolidation of the pharmacy segment, which may ultimately lead to the emergence of regional monopolies in this segment. After all, today there are no restrictions in Ukraine on the number of outlets belonging to the same network in a particular region.

## 5. Results

Table 2 gives the expert evaluation results regarding the effectiveness of the health care reform implementation in Ukraine in addressing the problems of the health care system functioning identified in the research.

**Table 2.** Expert assessment of the effectiveness of the Ukrainian health care reform aimed to ensure quality health care for the population

Statement	Average score	Maximum possible score	Readiness percentage, %
1.1. The adoption of laws promoting the reform implementation has begun in Ukraine.	4.7	5	94.0
1.2. The legislation eliminated all contradictions in the field of health care service.	2.5	5	50.0
1.3. All legal provisions contributing to the reform implementation are implemented.	1.9	5	38.0
<b>Legislative support</b>	<b>9.1</b>	<b>15</b>	<b>60.7</b>
2.1. The country is complying with the standard of health care budget financing.	0	5	0.0
2.2. The state finances the provision of medical services and the purchase of medicines to the public.	1.3	5	26.0
2.3. An adequate level of medical workers’ remuneration is ensured.	0.8	5	16.0
<b>Financial support</b>	<b>2.1</b>	<b>15</b>	<b>14.0</b>
3.1. The system of compulsory medical insurance is operating.	1.2	5	24.0
3.2. Transferring the duties of other doctors to the family physician is justified from the standpoint of ensuring medical efficacy.	2.2	5	44.0
3.3. Ukraine has solved the problem of mortality	0	5	0.0
<b>Organizational support</b>	<b>3.4</b>	<b>15</b>	<b>22.7</b>
<b>General Indicator of Readiness</b>	<b>14.6</b>	<b>45</b>	<b>32.4</b>

Thus, according to the results of expert evaluation, at the current stage of the health care reform the level of its efficiency makes 32.4%.

## 6. Discussions

Advanced international experience shows that an effective management process can provide effective health care. In particular, the practices of administrative and legal regulation of health care

in Western countries show that it is most effective to combine state budgeting and a certain health insurance system. The advantage of state budgeting is that this is the way of enforcing the constitutional right of citizens to receive free medical care, thereby ensuring a high degree of social protection. On the basis of the conducted research, it is also possible to state that an effective health care system is based on the regulation of a specific list of services and the sources of their financing. The amount of financing for health care institutions depends rather on the quality of medical servicing and treatment of patients than on the number of services provided and patients attended. The constant growth of funding for the health care system ensures a high level of quality of medical services, and government control over the pharmaceutical market guarantees the availability of medicines for consumers. In addition to the ministries, there is a professional self-management of medical workers – physicians, pharmacists and nurses, which decentralizes administrative and legal regulation of health care. The administrative and legal framework of Western European countries provides professional self-governing organizations with a part of state authorities in the field of professional relations, which ensures a high level of medical competence [40, 35, 29, 32]. And most importantly, the health care system is motivated and focused on the quality of rendering medical services. The conducted research revealed that the effectiveness of the health care reform implementation in Ukraine makes 32.4% (Table 2). At the same time, the effectiveness of administrative and legal regulation in the aspect of health financing amounts to 14%; making 22.7% in terms of organizational support and 60.7% in terms of legislative support, of which the maximum score falls to the beginning of the adoption of relevant legislative acts to improve health care quality in the country. With reference to the identified factors of the health care system effectiveness in Western Europe, it is possible to identify the following directions for improving the administrative and legal regulation of health care in Ukraine in order to improve the health care reform implementation. Modification of the regulatory framework governing health care, including laws on national health care service, on public and private health care systems, on making amendments to the already existing laws directly or indirectly related to administrative regulation of health care should be based on:

- determining methods of health care financing;

- improving the administrative structure of the health care system management;
- creating a basic state package of free medical care;
- developing a policy of state support for regional medical institutions;
- developing new approaches to the pharmaceutical market (introducing tight control of prices for essential medicines and government procurement of medicines for medical institutions, combined supply of medicines from the state budget and medical insurance).

Taking into account the advanced experience of Western Europe, the new health care system in Ukraine should be targeted to provide quality medical care affordable to all segments of the population, which is possible, in our opinion, provided to the introduction of compulsory health insurance along with budget financing. This means that health insurance requires certain government regulations and guarantees. The state should not only determine the amount of basic medical care, but also guarantee medical attendance to everyone in need. It is important to take into account the practice applied in the countries of Western Europe (securing the amount of health financing in the State Budget at least 6% of GDP) and lay down the family medicine principle as the basis for health insurance rather than that of the territorial affiliation. This concept would allow enforcing the patient's right to choose a physician and an appropriate insurance organization. To implement this concept, relevant medical professionals should be trained and a legal mechanism should be developed for interaction between the family physician and medical institutions. Contracts between health care economic entities should become the foundation of this interaction. Contractual relationships can be drivers in the regulation of financial issues. In this regard, we recommend introducing a supplement to the law of Ukraine "On State Financial Guarantees of Medical Services for the Population" Article 8 "Peculiarities of contracts on medical servicing of the population under the program of medical guarantees (2017), appending the following to clause 1: "It is recommended for the subject of medical economic activities to enter into agreements on financial cooperation with state authorities on one part, and with medical insurance organizations on the other part". Should bilateral contractual commitments be introduced into the health care system, conditions may be created for healthy competition among medical

institutions. This will help improve the quality of medical services, the implementation of the right of choice, both by the patient and by the medical institutions of the insurance medical organizations, which in turn will create conditions for competition among the latter. It is important to understand that in a globalized economy, the commercial basis will be a guarantee for the survival of any industry, including the medical one [1]. At present, the facts of violation of the constitutional right to health are observed everywhere in Ukraine. Patients who apply to medical institutions do not know what kind of services are payable by law. Medical personnel often use ignorance of patients and provide a guaranteed amount of free medical care on a paid basis. Therefore, along with the introduction of compulsory health insurance, it is necessary to develop a system for monitoring the quality of medical services. Such a monitoring system should be accompanied with an improvement in administrative and legal liability, which is currently subject to the Code of Ukraine on Administrative Offenses (2019). It is advisable to supplement Article 44 of Chapter 5 “Administrative Violations of Rights in the Sphere of Occupational Safety and Public Health Protection” to read as follows:

1. For concealing complete information about the upcoming treatment from patients, improper registration of the appropriate documentation for the provision of medical services;
2. For collecting money in the provision of medical services related to the list of guaranteed free services;
3. For inflicting harm to health in the course of medical care delivery and for significant bodily injury to the patient as a result of medical error.

The above administrative measures will not only contribute to prevent re-violation of health legislation by medical workers, but also they will significantly improve the quality of medical services provided to the population, and allow the citizens to exercise their constitutional rights to health protection. As mentioned above, the state’s guarantees of respect for patients’ rights in the form of a regulatory framework are the basis for the formation of a system for the citizens’ rights protection in the health sector in Western European countries [1]. In the current legislation of Ukraine, the rights of patients are dispersed in various regulatory acts and regulations. Therefore, the creation of a Law “On the Rights of Patients”, consistently structured, reduced to a common denominator with other regulatory acts, is an

important task within the legal framework of government activities. Also, one of the most important areas for improving the administrative and legal regulation of the health care system in Ukraine should be the elimination of the system of physicians’ certification regulated by the Order No. 359 of the Ministry of Health of Ukraine dated December 12, 1997 [45]. It is mandatory to develop an appropriate Law of Ukraine on the implementation of a system for independent licensing of physicians, which will be based on continuous professional development. At the same time, the current licensing system of medical practice in accordance with the Law of Ukraine “On Licensing Types of Economic Activity” (2015) will remain generally unchanged. The statutory regulation of the licensing system creation is more expedient, since it is impossible to amend the Law confidentially, unlike the by-laws of the Ministry of Health of Ukraine. In the countries studied by the authors – France, Germany, the Netherlands, and the United Kingdom – the status of the bodies licensing physicians is defined at the level of laws [in 17, 18]. In Ukraine, the legislative practice also determines the legal status of bodies that provide access to certain professions, such as, the Audit Chamber of Ukraine, the Qualification Commission of Private Executors, the Council of Advocates of Ukraine, etc. To determine the criteria and requirements of the physicians’ licensing system in Ukraine, members of the Licensing Board should involve association of physicians, as well as foreign experts (for example, representatives of the European Medical Association), who may be members of interview panels. It is also advisable to attract foreign experts to the Licensing Board as members or independent consultants. The composition of the Licensing Board must be approved by order of the Ministry of Health. Since practicing a health care profession without a license will be prohibited, the new law should regulate obtaining a license by already practicing (certified) physicians. Among the possible options for resolving the situation, we see only the granting of a license under the conditions of passing a special examination. In order to interest physicians to switch quicker to a new licensing model during the transition period in Ukraine, a communication campaign for patients should be conducted to inform about the license as a confirmation of the physician’s professional qualifications and encourage attending licensed physicians for quality health care. In modern conditions there is a monopoly of

health care management in Ukraine. The only central executive body that determines and implements the state policy in the health sector is the Ministry of Health of Ukraine. In general, attention should be paid to the fact that the health care reform in Ukraine should begin with the adoption of legislation on public law professions. Only this will change the paradigm of the relationship between a physician and a patient. A medical self-government body should be established by entering the Draft Law on Medical Self-Government (2018) into effect. Payments for physicians' services are stipulated by the Resolutions of the Cabinet of Ministers of Ukraine (On the remuneration of employees based on the Unified Salary Schedule of categories and coefficients for the remuneration of employees of institutions, establishments and organizations of certain sectors of the public sector, [47]; On approval of the procedure for payment of long service allowance to medical and pharmaceutical workers of state-owned and municipal public health institutions, [46]; Issues of remuneration of employees of establishments, institutions and organizations of certain branches of the budget sphere, [48, 49]; On some measures to increase the job prestige of medical workers providing medical care to patients with tuberculosis, Some issues of compensation for healthcare workers of anti-tuberculosis institutions, Some issues of compensation for healthcare workers of the emergency medical service system, Some issues of compensation for primary health care providers). Amendments in the legislation in the field of licensing of economic activities in the pharmaceutical market should envisage introduction of restrictions on the issuance of wholesale licenses to retailers, which is consistent with European approaches.

## 6. Conclusion

Based on the conducted research, it was revealed that in modern conditions the health care system in the countries of Western Europe is one of the most effective. The effectiveness of administrative and legal regulation of health care is ensured by the availability of comprehensive budgetary and commercial funding, tight control over the quality of medical services, guaranteed affordability of pharmaceuticals, and decentralization of the health care regulatory system. The expert analysis showed that currently the effectiveness of the Ukrainian health care reform makes 34.2%, with the assumption that the high mortality rate in Ukraine is primarily caused by the low level of

health care quality. The main problems of administrative and legal regulation of health care in the country are non-compliance with statutory regulations on the amount of funding and remuneration in the health care system, high levels of corruption and lack of control over the physicians' competence, unaffordability of medicines for consumers due to the monopolization of the pharmaceutical market. Taking into account the best practices of health care in Western Europe, the developed set of recommendations for improving the administrative and legal regulation of the health care system is based on three components: legislative, financial and organizational support. The creation of legislative instruments on physicians' licensing in Ukraine and establishment of self-governing medical organizations should be the basis for the improvement. Thus, the recommendations proposed in the article are intended to contribute to the improvement of current legislation in the matters of administrative and legal regulation of health care in Ukraine, thereby improving its quality and, as a consequence, raising the nation's health index to a higher level. Unconditionally, the current problems of the Ukrainian health care system and the implemented health care reform are extensively studied in detail, including the aspects of ensuring the manufacturers and suppliers' competition in the pharmaceutical market of Ukraine, the mechanism for standardization of medical services and decentralization of healthcare regulation and other important aspects. The subject of the research, by virtue of the critical state of the health care system, concerns numerous problems whose solutions are closely interrelated. Therefore, the results obtained in this research will be the basis for the development of scientific approaches to improving the administrative and legal regulation in various aspects of health care in Ukraine.

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