

Decision-Making about Conclusion of Contractual Obligations in the Field of Medical Services

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Abstract

The article proves the urgency, importance and relevance of the task of supporting the decision-making about the conclusion of contractual obligations in the field of medical services. The conducted state of the art has shown that nowadays the task of supporting the decision-making about the conclusion of contractual obligations in the field of medical services remains unsolved. The rules, method and structural scheme of the system of decision-making about the conclusion of contractual obligations in the field of medical services were first developed by the authors. The developed method of decision-making about the conclusion of contractual obligations in the field of medical services provides an opportunity to quickly check the existence of all mandatory essential conditions in the contract in the field of medical services before its conclusion. Such checking allows to conclude unmistakable (from the point of view of civil law) contractual obligations in the field of medical services. The method of decision-making about the conclusion of contractual obligations in the field of medical services was tested on 124 contracts in the field of medical services. The analysis of contracts showed that without performing such a check, only 30% of contracts would be correct in terms of civil law (would have all mandatory essential conditions).

Keywords

Decision-making, contractual obligations in the field of medical services, civil law, system of decision-making about conclusion of contractual obligations in the field of medical services

1. Introduction

Contracts in the field of services can undoubtedly be considered one of the most important institutions of civil law. The contract in the field of medical services is one of the most common grounds for the emergence of legal relations for the provision of medical services. This transaction serves as the main legal mechanism for the realization of the rights and legitimate interests of its participants (individuals, medical institutions, doctors) and to stimulate the economic feasibility of private medical activities.

Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011 on the application of patients' rights in cross-border healthcare [1] is aimed at protecting patients' rights. Article 4 of this Directive contains the requirements for medical care, insurance and compensation. The main problem is to increase the material responsibility for the damage caused to the patient by gross mistakes in the provision of medical services.

The contract in the field of medical services can be considered as an agreement under which one party (doctor, medical institution) undertakes to provide appropriate medical services at the request of the other party (patient), aimed at restoring and maintaining his health, and the patient undertakes to pay for it the amount of money specified in the contract. As a civil contract, a contract in the field of

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medical services is the basis of the occurrence of the rights and obligations of the doctor and the patient.

Given the above, the issue of concluding a contract in the field of medical services needs more and more attention today, in particular, the issue of checking the existence of all essential conditions in the contract. The lack of essential conditions in the contract in the field of medical services can lead to a number of problems:

- Absence or incorrect definition of the subject of the contract in the field of medical services
- Errors in determining the legal status of the parties (often in the contracts the conditions that should be specified is omitted – as a rule, the rights of the parties)
- Inability to offer their own terms and conditions of the contract

In order to increase legal correctness, to ensure in the contract in the field of medical services all the essential conditions and to defend both the doctor who provides the service and the patient who receives the service, it is necessary to support the decision-making about the conclusion of contractual obligations in the field of medical services, due to which the existence of all essential conditions in the contract will be checked free of charge and automatically, and on the basis of this check a recommendation on concluding or not concluding a contract will be provided. Nowadays, the decision-making processes in the field of medical services are time-consuming, complex and not transparent [2]. The review of medical informatics, which was made in [3], showed that among the advances expected in the next decade include advanced clinical decision support; improved population health and public health. Shared decision-making takes many forms, involving different kinds of agents who share the requirement that they must have sufficient decision-making capacity for the decision in question [4].

In general, reducing the share of manual labor and minimizing the impact of the human factor through the automation of processes (including decision-making processes) is the main goal of the information society of Ukraine [5].

Therefore, currently *the urgent task* for Ukraine is to support the decision-making about the conclusion of contractual obligations in the field of medical services.

2. State of the Art

Today, many researchers pay attention to the task of supporting the decision-making about the conclusion of contractual obligations in the field of medical services.

Author of [6] proved that for the concrete implementation of the Law No. 219/2017, an adequate information system and decision support system are needed to promote and enhance the relationship of care and trust between doctor and patient, which includes the competence, professional autonomy and responsibility of the doctor and the decisional autonomy and right to self-determination - to make an informed and voluntary choice about treatment proposed by the doctor - of the patient, to guarantee certainty about the consequences of behaviour and protection of the rights of all the subjects involved.

Author of [7] proposed an autonomy model of decision-making in medical matters, which, according to French law, after making patients' consent to medical procedures compulsory by case law then by legislation, established the primacy of the expression of patients' wishes.

The purpose of the paper [8] is to define the most important factors that influence the decision-making process of clients in the market of selected healthcare services and to identify the role and the importance of those factors in regard to the decision-making process.

Paper [9], on the legal side, shows that to avoid liability, professional actors, such as doctors and managers, may soon be legally compelled to use explainable machine learning models. Paper [9] argues that the importance of explainability reaches far beyond data protection law, and crucially influences questions of contractual and tort liability for the use of machine learning models.

In Sweden a national health information exchange (HIE) platform has been developed that enables information exchange between different health information systems. The aim of study [10] is to explore the opportunities and limitations of accessing and interacting with important health information through the Swedish national HIE platform. Authors of [10] proved that it is of great importance to involve patients throughout the design and evaluation of eHealth services on both national and local levels to ensure that their needs for interoperability and information exchange are met.

The paper [11] describes effective for medical law domain ontology-based approach for evaluating the sufficiency of information in the surrogate motherhood contract.

The paper [12] proposes a new effective missing data imputation method through SGTm neural-like structure, which can be used in various areas such as medicine, materials science, economics, and science services.

The state of the art has shown that the task of supporting the decision-making about the conclusion of contractual obligations in the field of medical services remains unsolved.

Given the above urgency, importance and relevance of the task of supporting the decision-making about the conclusion of contractual obligations in the field of medical services, *the goal of this research* is to design a system (subsystem) for supporting the decision-making about the conclusion of contractual obligations in the field of medical services.

3. Essential Conditions of Contractual Obligations in the Field of Medical Services

Analysis of Article 901 of the Civil Code of Ukraine [13] gives grounds to claim that both the executor and the customer can be individuals (citizens of Ukraine, foreign citizens and stateless persons) and legal entities (enterprises, institutions, organizations of all forms of ownership and management), as the article does not contain any restrictions on the subject composition of the obligation. The patient and, accordingly, a party to the contract may also be a minor person. However, one of the spouses cannot enter into a contract instead of the other.

The essential conditions of the contract in the field of medical services include:

- Subject (scope) of the contract. The subject of the contract is actions for the provision of medical services, i.e. the commission by a doctor (medical institution) of certain actions for the provision of medical services for prevention, diagnosis, treatment, rehabilitation. It should be noted that the subject of the contract will not be a service, but the process of providing the service (actions of the executor);
- Purpose of the contract. The purpose of concluding a contract is not only the result, but also the process consequence of which the result is achieved, which, in turn, is the motive for concluding contracts in the field of medical services;
- Price of contract. The price of a medical service is usually set by the service provider (doctor or medical organization) unilaterally, based on its nature, volume and taking into account market prices for similar services. At the same time, providers of paid medical services cannot ignore the provisions of the civil legislation of Ukraine on the publicity of legal relations for the provision of medical services. An individual may agree with the price set by a particular entity for the provision of medical services and, accordingly, to express the will to enter into a contract or apply to another provider of service;
- Condition about the right to accessible, timely, veracity and complete information about the patient's health. The current Civil Code of Ukraine [13] contains an Article 285, which provides for the right of an individual to information about the state of health;
- Quality of service. The doctor and the patient evaluate the quality of the provided medical service differently. The patient evaluates the quality of medical care from the standpoint of his health after treatment and the attitude of the doctor. Doctors evaluate the quality of medical care primarily by technical skills, achieving the desired result of treatment. The quality of medical service depends on the following factors: the profile of the medical institution, the professional competence of the doctor and his conscientious attitude to his responsibilities, the correctness of the chosen methods of treatment, necessary modern medical equipment in the medical institution;
- Terms of contract termination. Termination of the contract in the field of medical services may occur on one of the following grounds: death of one of the parties, by mutual consent, after the cessation of manipulations, the choice of another doctor due to loss of confidence in the doctor or medical institution;
- Contract term;

- Term of obligations. The contract may expire and the obligation continues to exist (for example, when after some time the patient asks the medical institution to correct the deficiencies that occurred during the provision of medical services).

4. Decision-Making about Conclusion of Contractual Obligations in the Field of Medical Services

Given the essential conditions of contractual obligations in the field of medical services, *the rules for decision-making about the conclusion of contractual obligations in the field of medical services* will look like:

1. If in the contract in the field of medical services there is an item "Subject of the contract", then: $dm=dm+1$ and $a[1,1]=0$, else $a[1,1]=1$;
2. If the contract contains information about the process of providing the service (actions of the executor), then $dm=dm+1$ and $a[1,2]=0$, else $a[1,2]=1$;
3. If the contract contains the item "Purpose of the contract", then $dm=dm+1$ and $a[1,3]=0$, else $a[1,3]=1$;
4. If the contract contains information about the result of the contract, then $dm=dm+1$ and $a[1,4]=0$, else $a[1,4]=1$;
5. If the contract contains information about the process of achieving the result, then $dm=dm+1$ and $a[1,5]=0$, else $a[1,5]=1$;
6. If the contract has an item "Price of contract", then $dm=dm+1$ and $a[1,6]=0$, else $a[1,6]=1$;
7. If the contract contains a condition about the right to accessible, timely, veracity and complete information about the patient's health, then $dm=dm+1$ and $a[1,7]=0$, else $a[1,7]=1$;
8. If the contract has an item "Quality of service", then $dm=dm+1$ and $a[1,8]=0$, else $a[1,8]=1$;
9. If the contract contains information about the profile of the medical institution, then $dm=dm+1$ and $a[1,9]=0$, else $a[1,9]=1$;
10. If the contract contains information about the professional competence of the doctor, then $dm=dm+1$ and $a[1,10]=0$, else $a[1,10]=1$;
11. If the contract contains information about treatment methods, then $dm=dm+1$ and $a[1,11]=0$, else $a[1,11]=1$;
12. If the contract contains information about the necessary modern medical equipment in the medical institution, then $dm=dm+1$ and $a[1,12]=0$, else $a[1,12]=1$;
13. If the contract contains the item "Terms of contract termination", then $dm=dm+1$ and $a[1,13]=0$, else $a[1,13]=1$;
14. If the contract contains the item "Contract term", then $dm=dm+1$ and $a[1,14]=0$, else $a[1,14]=1$;
15. If there is an item "Term of obligations" in the contract, then $dm=dm+1$ and $a[1,15]=0$, else $a[1,15]=1$.

The elements of the second line of the matrix a are the mandatory essential conditions of contracts in the field of medical services, namely: $a[2,1]$ = subject of the contract; $a[2,2]$ = information about the process of providing the service (actions of the executor); $a[2,3]$ = purpose of the contract; $a[2,4]$ = information about the result of the contract; $a[2,5]$ = information about the process of achieving the result; $a[2,6]$ = price of contract; $a[2,7]$ = condition about the right to accessible, timely, veracity and complete information about the patient's health; $a[2,8]$ = quality of service; $a[2,9]$ = information about the profile of the medical institution; $a[2,10]$ = information about the professional competence of the doctor; $a[2,11]$ = information about treatment methods; $a[2,12]$ = information about the necessary modern medical equipment in the medical institution; $a[2,13]$ = terms of contract termination; $a[2,14]$ = contract term; $a[2,15]$ = term of obligations.

Method of decision-making about conclusion of contractual obligations in the field of medical services has the following steps:

1. Analysis of the contract in the field of medical services using each of the developed rules for decision-making about the conclusion of contractual obligations in the field of medical services, and calculation of the counter dm ;

2. If $dm = 15$, then the conclusion of contractual obligations in the field of medical services is possible (because all essential conditions of contracts in the field of medical services are mandatory for the conclusion of contractual obligations in the field of medical services);
3. If $dm < 15$, then: 1) the conclusion of contractual obligations in the field of medical services is impossible, and the contract need refinement; 2) the user is provided with the mandatory essential conditions, which are absent in the contracts in the field of medical services - if the element of the matrix $a[1, j]=1$ ($j=1..15$), the user gets the corresponding element of the matrix $a[2, j]$ as a guide about the mandatory essential conditions that must be added to the contract to enable it to be concluded.

On the basis of the developed method of decision-making about the conclusion of contractual obligations in the field of medical services we designed the structural scheme of the system for supporting the decision-making about the conclusion of contractual obligations in the field of medical services – Figure 1.

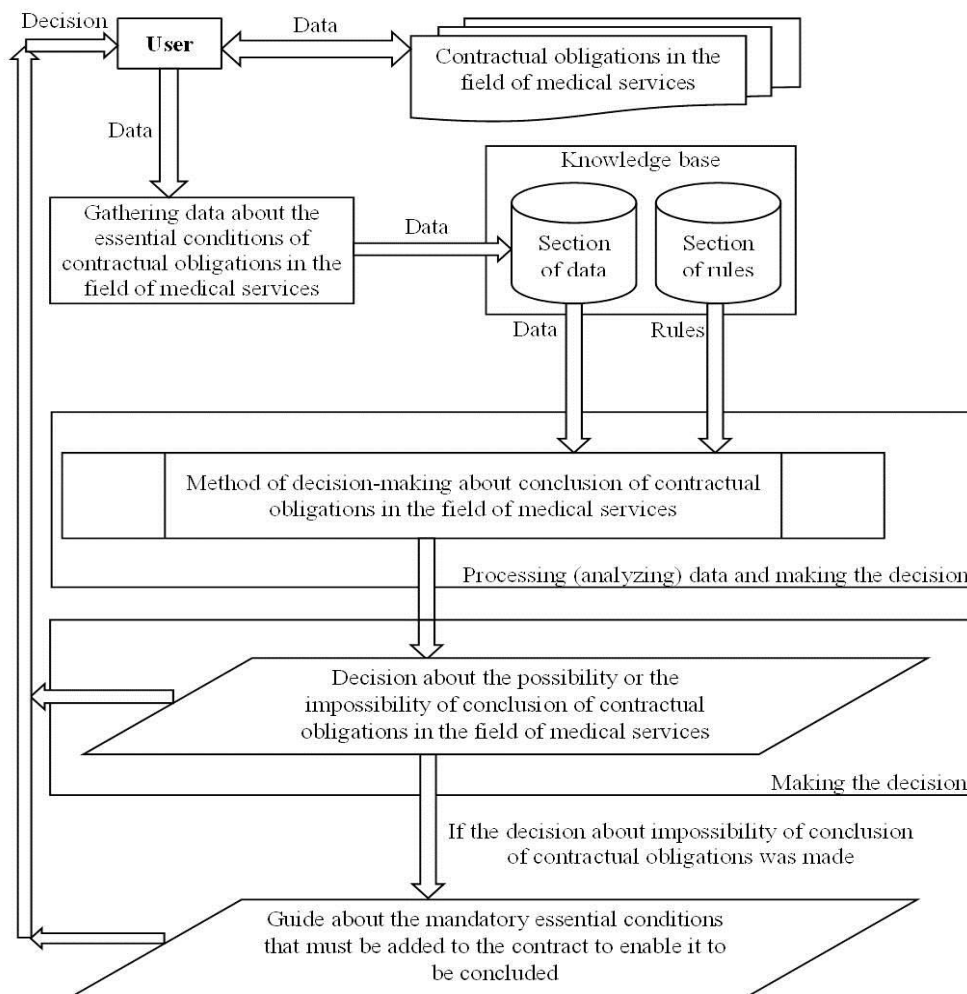


Figure 1: Structural scheme of the system for supporting the decision-making about conclusion of contractual obligations in the field of medical services

Therefore, the user works with data from contracts in the field of medical services, after which the knowledge section of the database is filled. Further, the method of decision-making about the conclusion of contractual obligations in the field of medical services is applied to the data on contractual obligations in the field of medical services. In step 1 of the method, processing (analyzing) data is performed using the developed rules for decision-making about the conclusion of contractual obligations in the field of medical services, which are contained in the rules section of the knowledge base. In steps 2 and 3 of the method, the decision is made. The generated decision is

provided to the user. If the decision about the impossibility of concluding the contractual obligations has been made, the user is additionally provided with a guide about the mandatory essential conditions that must be added to the contract to enable it to be concluded.

5. Results & Discussion

The developed method of decision-making about the conclusion of contractual obligations in the field of medical services was tested on 124 contracts in the field of medical services. The results of the method functioning are presented in Figure 2. Thus, only 38 of the 124 contracts in the field of medical services were ready for their conclusion, and the remaining 86 contracts needed to be finalized in terms of adding the mandatory essential conditions, i.e. without this check only 30% of contracts would be correct in terms of civil law.

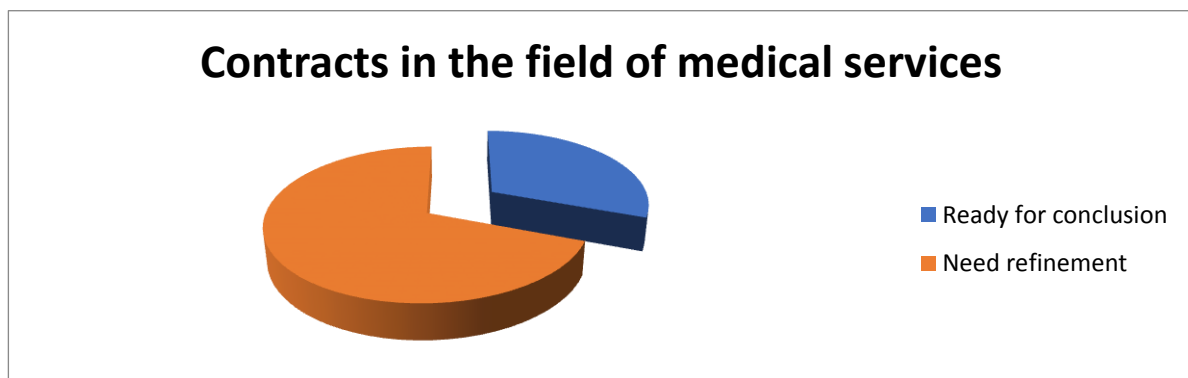


Figure 2: Results of functioning the method of decision-making about conclusion of contractual obligations in the field of medical services

Let's consider 2 contracts from the set of analyzed contracts. When analyzing the Contract1 using the method of decision-making about the conclusion of contractual obligations in the field of medical services we received that the counter $dm=15$, so the decision about the possibility of concluding the contractual obligations in the field of medical services was made. When analyzing the Contract2 using the method of decision-making about the conclusion of contractual obligations in the field of medical services we received that the counter $dm=10$, so the decision about the impossibility of concluding the contractual obligations in the field of medical services was made. In addition to this decision, the user was provided with a guide about the mandatory essential conditions that must be added to the contract to enable it to be concluded: "information about the result of the contract"; "condition about the right to accessible, timely, veracity and complete information about the patient's health"; "information about the professional competence of the doctor"; "information about the necessary modern medical equipment in the medical institution"; "term of obligations". Without adding these essential conditions to the Contract2, its concluding is impossible.

Thus, the developed method of decision-making about the conclusion of contractual obligations in the field of medical services provides an opportunity to quickly check the existence of all mandatory essential conditions in the contract in the field of medical services before its conclusion. Such an inspection allows concluding unmistakable (from the point of view of civil law) contractual obligations in the field of medical services.

6. Conclusions

The article proves the urgency, importance and relevance of the task of supporting the decision-making about the conclusion of contractual obligations in the field of medical services.

The conducted state of the art has shown that nowadays the task of supporting the decision-making about the conclusion of contractual obligations in the field of medical services remains unsolved.

The rules, method and structural scheme of the system of decision-making about the conclusion of contractual obligations in the field of medical services were first developed by the authors.

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The authors plan to dedicate their further research to the implementation of the system for supporting the decision-making about the conclusion of contractual obligations in the field of medical services, which will fully automate: the process of checking all mandatory essential conditions in the contract in the field of medical services before its concluding, and the decision-making process about the conclusion of contractual obligations in the field of medical services.

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