**BLOCKHAIN TECHNOLOGY IN THE HEALTH CARE SYSTEM: ISSUES OF LEGAL PROTECTION**

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The implementation of the health care reform in Ukraine is accompanied by the introduction of new technologies. The use of 3-D technologies in medicine can serve as an example thereof. Although, some innovations provide only the implementation of such technologies in the long run. Thus, the adoption of the Laws of Ukraine "On electronic documents and electronic document circulation", "On State Financial Guarantees of Medical Care of the Population" was a prerequisite for the adoption of the Order of the Ministry of Health of Ukraine "On Amendments to the Order of the Ministry of Health of Ukraine of 19 July 2005 No. 360," as of April 18, 2018, No. 735. In our opinion, the main novelty of this act is an introduction of "electronic recipe", issued under the same rules as the usual recipes by authorized person in the information (information and telecommunication) system of the business entity and signed with an electronic digital signature using the enhanced certificate of a public key via reliable electronic digital signature. At the same time, the business entity is free to decide on using of electronic prescriptions, except when the requirements for mandatory electronic prescription are specified by law.

With the consent of the patient, the business entity may provide additional services related to the electronic recipe (recipe notification via mobile phone, e-mail, etc.).

For example, medical institutions have to register a declaration between a patient and chosen medical institution (a doctor), and such information allows the National Health Service to keep records for the further financing of such medical facilities. And block-chain could be used to display such information, simultaneously simplifying the process since collecting and sharing of such information is automated and timely.

In addition, block-chain is used in the healthcare sector in order to deliver high quality and effective medicines to patients. Some researchers believe that global pharmaceutical supply chains are complex and work with outdated platforms that do not provide effective partner collaboration in complying with regulatory guidelines, so that they cannot guarantee the security of medecines distribution.

In this sense, according to experts, block-chain is a decentralized platform for transactions between equal partners in a secure environment protected from unauthorized access. This technology allows to safely performing homogeneous operations with information without intermediaries in displaying all transaction data.

The above means that the benefit of using the block-chain system in healthcare is not in doubt, but there is a problem of legal support for such an innovation, and not only in health care, but also in general.

Theoretical problems of legal regulation in healthcare and patients’ rights protection attract the attention of many scholars. They were researched, in particular, by R.A. Maydanyk, I.Ya. Senyuta, Z.S. Hladun, I.O Bohomazova, Ye.A. Hriekov, A.O. Harkusha, and others. However, the peculiarities of digital technologies’ use and the use of block-chain in particular has remained unscathed by scolars and medical law specialists.

The purpose of this study is to analyze the potential impact of block-chain technology on healthcare, its legal nature and the possibility of legal protection of patients’ rights in the block-chain system.

The author of the research used scientific publications of leading experts in the field of medical law, current and prospective Ukrainian legislation. The research is based on an organic combination of general scientific and special-legal research methods.

From the experts’ point of view, the block-chain could be used at least in the following spheres.

Firstly: as an instrument of patients’ data storage. Till now, for example vaccination records (and almost all medical data in general) have been stored mainly in hard copies, and only in some cases, in electronic databases of medical institutions. In this case, patients do not have any mechanisms for controlling what happens to personal data stored in various medical documents. Theoretically, such data can be transferred to unknown organizations or just being lost as a result of a system failure.

Secondly: block-chain can be used for monitoring of the supply of pharmaceutical products, including medicines containing virulent substances. It should be noted that the technology of Supply Chain Management (SCM) has been used for a long time. Supply Chain Management (SCM) – is a relatively new term. This concept is complex and includes earlier used definitions such as ECR (Efficient Customer Response) and DRP (Distribution Resource Planning).

Nowadays, the patient cannot track which drug is being sold to him or her, both in independent purchasing and in inpatient treatment. Although, the patient has the right to demand, for example, a quality certificate for a medicinal product, but nobody prevents an unscrupulous vendor or employee of a pharmacy institution from tampering with it.

Thirdly: such technologies can be helpful for the execution of smart contracts by legal entities including but not limited to insurance companies. Smart contract is an electronic protocol designed by using a computer code. Using block-chain technologies aims to transfer information and to ensure fulfillment of contract terms by both parties.

Smart contracts could be replicated with the direct provision of medical care services between a patient and a health care facility, as well as with settlements between the National Health Service and medical institutions, with doctors of which patients have signed a declaration. But, the most interesting would be the use of such smart contracts for medical insurance (and not only medical).

Analysis of the prospects of using the block-chain technology allows us to conclude that the objects of legal relations in this sphere are the following: 1) software; 2) telecommunication networks; 3) information resources, products and services; 4) the rights of patients in healthcare; 6) information security.

The entire scope of legal relations in healthcare, including but not limited to block-chain, is private (dispositive) by its legal nature despite the publicity of using block-chain. Nevertheless, that the lack of imperative principles of block-chain implementation in healthcare, including ensuring of patients' rights, can make it impossible to use such up-to-date progressive technologies. Summarizing all mentioned before, it should be noted that it is very likely that the lack of legal clarity and unambiguousness of block-chain technology in healthcare can cause uncertainty in patients’ rights legal protection.