

# Assessment of Awareness of Cardiologists and Therapists on the Provision of High-Tech Medical Care in the Samarkand Region

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**Abstract** An indicator of the socio-economic development of any country, including Uzbekistan, is the level of development of high-tech medical care. Since the availability of the necessary skills and knowledge in the field of regulatory frameworks, the list of profiles, as well as the timely and competent formation of medical documentation related to high-tech medical care and awareness of medical personnel on organization issues, the referral procedure directly depends on the time of establishing the need for assistance to each specific patient. In this article, based on the questionnaire data, the level of awareness of 130 cardiologists and therapists about high-tech medical care working in various medical institutions of the Samarkand region is analyzed. According to the results of the survey, the awareness of cardiologists and therapists was assessed based on their age, place of work, position, qualification category, work experience, etc. According to the results of the survey, it was noted that 59% of doctors had more than 10 years of work experience and more than 60% of them had a qualification category in their specialty. 58% of doctors had a complete understanding of high-tech medical care, the heads of departments and specialist doctors were the most informed. Among doctors, only 55.8% of the surveyed doctors are well acquainted with the regulatory legal acts regulating the provision of high-tech medical care. At the same time, 2/3 of them noted ambiguity in their interpretation. As a result of this study, it became obvious the full picture of the opinions of doctors on a number of issues related to the development of high-tech medical care, which are necessary for the further formation of the most priority areas that improve the awareness of doctors.

**Keywords** Awareness, High-tech medical care, Questionnaire, Cardiologist, Therapist, Questionnaire, etc.

## 1. Introduction

Morbidity and mortality from cardiovascular diseases represent one of the main threats to sustainable world development in the XXI century [1,5,10,15]. Occupying a leading place among the causes of mortality worldwide, Cardiovascular diseases cause more than 17.7 million deaths per year, and most of them are potentially preventable. Significant breakthroughs in the prevention, diagnosis and treatment of cardiovascular diseases achieved in developed countries in recent years have led to a significant decrease in cardiovascular mortality, while in countries with low and middle income per capita, it either continues to grow at an alarming rate, or does not significantly decrease [2,6,11,16].

To date, the development of medicine without the introduction of high technologies is impossible to imagine [3,7,12,17]. Since their application in medical practice is primarily aimed at increasing the level of medical care,

including high-tech care, and as a result, improving the health of the population [4,8,13,17]. In modern conditions of healthcare development, providing the population with high-tech medical care is one of the most important tasks of our state, as it serves as one of the indicators of socio-economic development of the whole country. In order to form a cost-effective management system for high-tech medical care, it is necessary to form and maintain a feedback system in working order [6,14,18,25], based not only on the monitoring of statistical indicators, but also aimed at studying the awareness of all stakeholders [17,19,26]. At the moment, there are all the necessary conditions for improving high-tech medical care, such as regulatory and legal frameworks regulating the process of interaction between participants, stable sources of funding, sufficiently developed material and technical equipped institutions that are aimed at providing it, as well as highly qualified personnel for its provision [15,20,25,30].

To date, high-quality provision of high-tech medical care to the population largely depends on the level of competence of medical personnel, as recently in modern cardiology there

has been an exponential growth of knowledge, the emergence of new drugs, diagnostic methods, high-tech equipment, as well as the emergence of completely new scientific and medical areas, such as molecular, personalized, translational medicine, pharmacogenetics, bioinformatics, etc., which leads to information collapse, to cope with which an ordinary practitioner with the help of standard reference tools is becoming increasingly difficult and against the background of an increase in the information load on the doctor, the time for making a decision when establishing a diagnosis is rapidly decreasing [11,21,26,28].

Awareness of medical personnel plays a particularly important role in the organization of high-tech medical care to the population, since they are the first link between the patient and the care provided to him. The issues and organizational arrangements for routing the patient and the primary selection of patients for receiving high-tech medical care are handled by the attending physician of medical organizations in which patients undergo diagnosis and treatment and are further confirmed by the decisions of the medical commission of municipal healthcare institutions in the direction of these doctors. Also, an extract from the primary documentation for the referral of patients to receive high-tech medical care is filled out by the attending physicians of patients, since they are the ones who monitor the condition of their patients constantly, designed to determine the necessary contingent of patients in need of high-tech medical care. Doctors also depend on the timeliness of determining indications and directions to a particular high-tech medical care, awareness of high-tech medical care, the effectiveness of high-tech medical care and the correctness of medical documentation, since knowledge of the regulatory framework, the list of profiles and types of high-tech medical care and competent registration solves half of all problems for the patient [18,29].

The timeliness of the provision of high-tech medical care for patients with cardiovascular diseases is determined by the level of awareness of doctors on the organization of this type of care, such as the time of receipt of documents to the commission for the selection and referral of the patient to provide him with high-tech medical care [6,16,26]. For this reason, we were interested in the question of the level of awareness of doctors, and in particular inpatient medical institutions on high-tech medical care. The initial selection of patients with indications for high-tech medical care is carried out not only by primary health care physicians, but also by hospital doctors, since it is on them that the correctness of medical documentation and the timely determination of indications for high-tech medical care depend. At the same time, it is the exhaustive knowledge of the regulatory framework, profiles and types of high-tech medical care that is crucial [4,5,17,28,30]. Based on all of the above, the purpose of this study was to identify weaknesses in the issues of awareness of high-tech medical care of doctors of inpatient medical institutions. Based on this, the study of the problem by conducting medical and social research is designed to help understand the activities of each

subject taking part in the provision of high-tech medical care. Based on this, we conducted a study aimed at determining the level of awareness of doctors of various medical institutions of the Samarkand region about the issues of providing high-tech medical care according to a specially developed questionnaire.

**The purpose of the study:** determination of the level of awareness of cardiologists and therapists of various medical institutions of the Samarkand region on the provision of high-tech medical care.

## 2. Materials and Methods

To achieve this goal and assess respondents' awareness, a medical and social study was conducted using a questionnaire survey, followed by statistical processing of the results obtained. To obtain reliable information, we identified respondents who worked at all levels of medical care, whether it was an outpatient clinic in rural areas, a polyclinic or a city hospital, as well as regional and specialized medical institutions.

The survey was conducted anonymously, with full confidentiality and made it possible to study the awareness of doctors depending on gender, age, place of work, position, academic degree, work experience, qualification category and consisted of 26 questions that were divided into three blocks. The beginning of the questionnaire contained questions to clarify the socio-demographic characteristics of the respondents. This was followed by introductory or contact questions with two goals: to interest the respondent and to facilitate his inclusion in the work as much as possible. After the contact questions came the main questions. The block of questions of the questionnaire was designed to assess their knowledge in the field of the regulatory framework, as well as criteria for the selection and referral of patients to high-tech medical care. An important point contained in the questionnaires for all respondents were the questions that made it possible to identify the positive and negative sides in the organization of high-tech medical care. They were the suppliers of basic information. Their content was completely determined by the purpose of the study.

Since it was impossible to conduct a continuous study, a selective method was used to solve this problem. The methodology for conducting such a study was the sampling theory, which is an integral part of statistics. At the processing stage, the collected information was generalized and systematized. The performed calculation showed that to obtain 95% reliability of our sample, it is enough to study 130 questionnaires of doctors. The results of the survey were processed using the Microsoft Access software product.

## 3. Results

The survey we conducted allowed us to present a fairly complete picture of the opinions expressed by medical personnel on a number of topical issues related to the

development of high-tech medical care, which made it possible to propose and recommend the most significant ways to improve the awareness of medical personnel on a number of pressing issues related to the provision of high-tech medical care, as well as to formulate the most priority areas for improving their provision of high-tech medical care assistance to patients with cardiovascular diseases. The number of doctors who took part in the survey was 130 people. Of these, female persons (59.5%) and 40.5% of males predominated by more than 1.5 times. This ratio is natural, since women make up 60% of medical workers. The structure of doctors by age was as follows: 15.1% were under 30 years old, 25.7% were 30-44 years old, 30.2% were 45-59 years old, 29% were 60 years old and older (Fig. 1). Thus, most of the respondents were middle-aged and elderly, as a rule, having more work experience and highly qualified.

One of the questions presented to the doctors concerned the place of work, the answer to which allowed us to freely conduct in-depth analysis among people working in different medical and preventive institutions. Taking into account the place of work of medical personnel, the composition of the respondents was as follows: the largest part (68.4%) was

occupied by workers providing specialized high-tech medical care in hospital settings (of which doctors working in regional institutions accounted for 45.6%, in urban - 17.4% and in district hospitals - 10.4%). Then came the doctors of polyclinics - 18.6%, and worked in other medical organizations of various profiles - 7.0% (Fig. 2).

In the study of respondents, depending on their position, the prevailing majority was occupied by specialist doctors - 57.6%, then 23.7% - heads of departments, 17.1% - resident doctors and 4.7% doctors held positions in the structures of auxiliary medical units (Fig. 3). The reliability and value of the information received among doctors was determined by work experience and availability qualification category.

The distribution of the surveyed doctors by their work experience was represented by fairly experienced staff: 49% had significant experience - more than 10 years, 35.2% of doctors worked in the specialty from 6 to 10 years, about 14.7% of doctors had work experience from 1 to 5 years and 11.1% of doctors had work experience up to 1 year (Fig. 4). That is, the aggregate of respondents was represented by a sufficiently experienced level of respondents, which could not but affect the reliability of the results obtained.

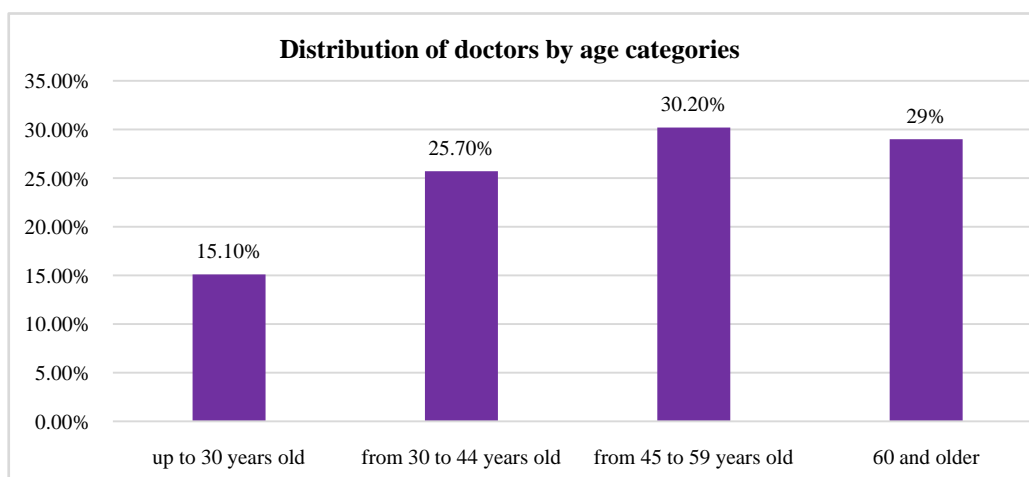


Figure 1. Distribution of doctors by age categories

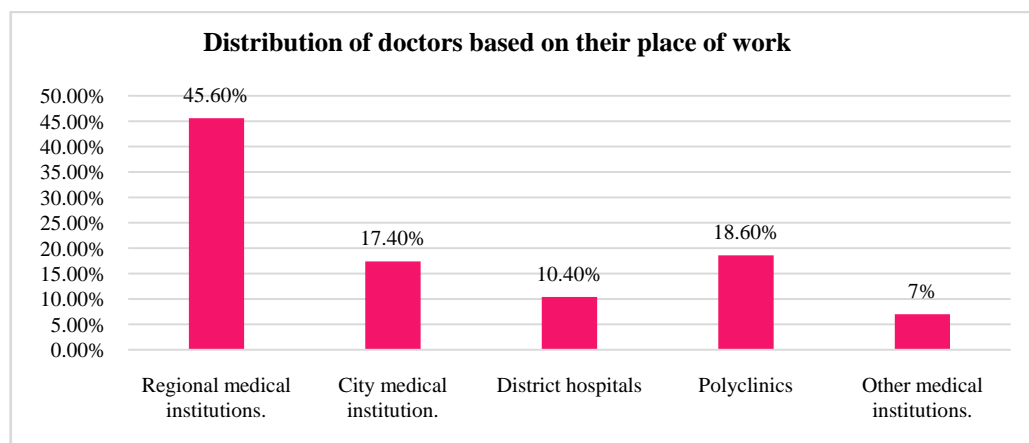
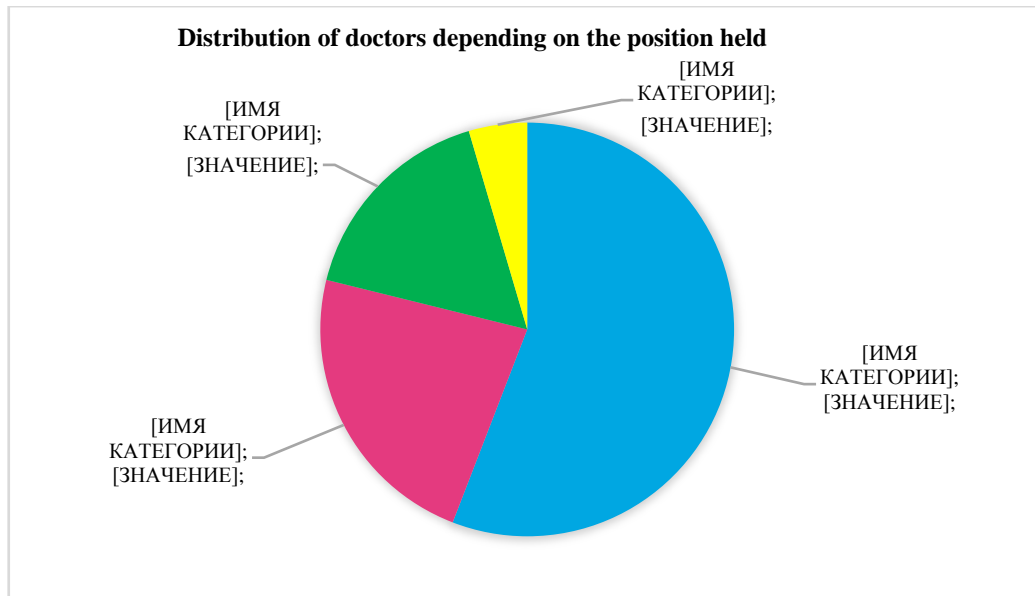
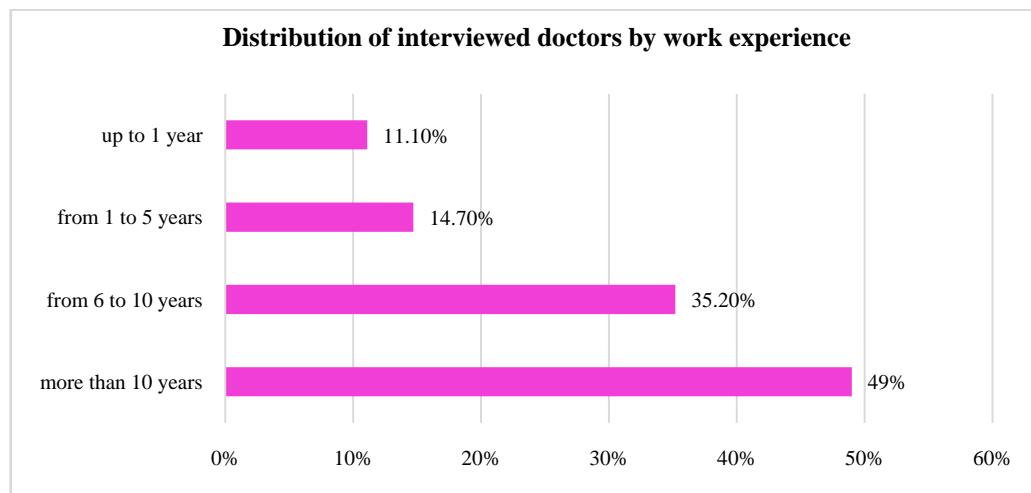


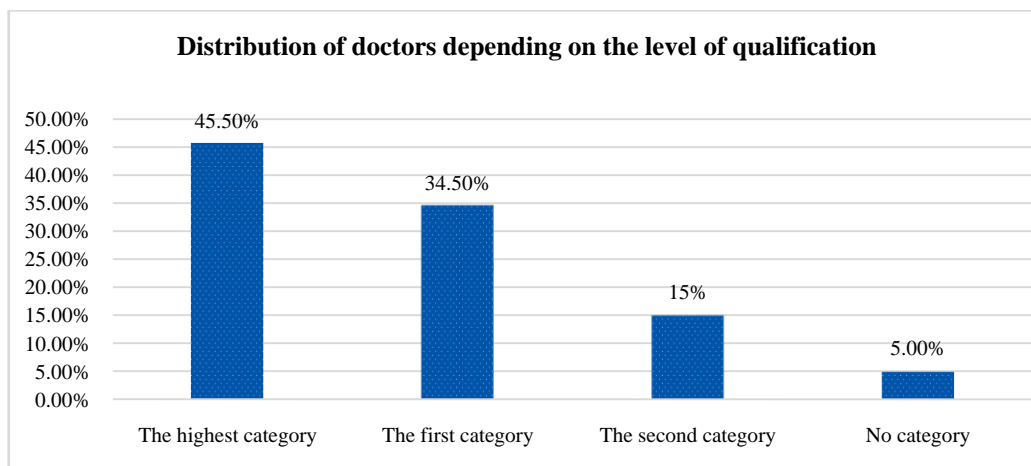
Figure 2. Distribution of doctors based on their place of work



**Figure 3.** Distribution of doctors depending on the position held



**Figure 4.** Distribution of interviewed doctors by work experience



**Figure 5.** Distribution of doctors depending on the level of qualification

The level of medical care provided to patients in a particular medical institution and the degree of professionalism of employees is largely determined by the qualifications of doctors. The length of service was not the least important in

the distribution of qualification categories. Depending on the level of qualification of the medical staff, the structure had the following form: 5% of respondents noted the absence of any category, while most of them were represented by resident doctors, respectively, with up to 5 years of work experience. The rest (63.6%) of doctors had one or another qualification category in their specialty. At the same time, slightly less than half (45.5%) had the highest category, the first - 34.5% and the second category - 15.0% (Fig. 5).

The subsequent block of questions related to the assessment of the level of their own knowledge and ways to obtain the necessary information about high-tech medical care. Among medical workers, in order to determine the level of their competence in the provision of high-tech medical care, they were asked to independently, in their opinion, assess the degree of availability of their existing knowledge. The prevailing majority (79.7%) of respondents noted that they are certainly fully familiar with this type of assistance, another 15.9% doubted the accuracy of their knowledge, and 4.4% noted their complete lack of such information. Unfortunately, 39.7% of uninformed doctors had more than 10 years of work experience.

By virtue of their profession, doctors are required to have an idea of all types of medical care and the latest developments in the field of healthcare, therefore, this distribution was assessed as insufficiently satisfactory, since the first link that patients have to face in order to receive any type of medical care is the attending physician, and success in treatment largely depends on his knowledge. Moreover, it should be noted that the highest level of awareness was noted among outpatient staff, about 84%, which is most likely due to the higher frequency of referral of patients to high-tech medical care. Doctors who had an approximate idea were twice as likely to meet among hospital staff. Moreover, specialist doctors working in polyclinics had an idea in almost 90% of cases, unlike heads of departments, whose awareness was noted only in 81%. Of the specialists familiar with the concept of high-tech medical care, 91.8% believe that this type of care is effective and in demand among the population. Moreover, none of them considered that high-tech medical care is not effective and is not needed, 8.2% found it difficult to give a clear answer to this question. So, 94.5% are confident in the prospects of this direction, and the rest found it somewhat difficult to give an unambiguous answer.

In addition, the survey showed a low level of awareness among doctors regarding the procedure for selecting patients for their subsequent referral to receive high-tech medical care, and as a result of legislative acts regulating its provision. With the existing list of indications for receiving high-tech medical care, 11% of doctors were completely unfamiliar, another 26.6% had an approximate idea and only 62.4% of doctors were completely familiar with them. Less than half of the surveyed doctors (45.5%) were sufficiently familiar with regulatory documents, but 2/3 of them faced difficulties in their interpretation. Another 20% as a whole did not have laws with them, and 1/3 had an insufficient level of knowledge.

The question about the sources of information about high-tech medical care was the most interesting for the respondents. For the majority of the surveyed doctors (44.4%), their supervisor was the main source of new information regarding the provision of high-tech medical care. Quite a significant part of medical workers got acquainted with the concept of high-tech medical care from the specialized literature (26.2%), or during a conversation with colleagues (7.1%). The most popular source of information, regardless of age, was the Internet. This makes it possible to use it in the future as the main resource for increasing the level of knowledge in matters related to high-tech medical care. A significant part of doctors (19.3%) indicated obtaining information via the Internet and the media, and only 3% of doctors responded to a combination of several ways at once or to other sources.

Among the surveyed doctors, more than half (60.5%) had to deal in practice with the referral of patients to high-tech medical care. Upon in-depth examination of the structure of doctors who had referral experience depending on the place of work, it was revealed that the largest percentage fell on outpatient doctors – 32.2%, and the smallest on doctors of city hospitals (14.4%). Among doctors who have never referred patients to receive high-tech medical care, the first place was taken by specialists of regional institutions (39.1%).

The survey, in addition, showed a very low awareness of doctors about the criteria by which a patient can be referred to receive high-tech medical care and regulatory documents regulating its provision. But, unfortunately, not enough people were familiar with the criteria by which a patient can be referred to receive high-tech medical care and regulatory documents regulating its provision: only 61.4% were fully familiar, 24.9% were not fully familiar, and 13.7% were not familiar at all. The most knowledgeable were the doctors of polyclinics 32.4%, the least were the doctors of city hospitals and central district hospitals (16.2% and 17.1%, respectively). The answer to the question about the knowledge of regulatory documents regulating the provision of high-tech medical care revealed that 44.1% of respondents were perfectly familiar, and 65.9% of them did not encounter difficulties in understanding these documents. They are not fully familiar – 33.2%, and 20.7% are not familiar at all, but among doctors who are not familiar with regulatory documents, more than half were specialists of regional and city hospitals. In the structure oriented in the regulatory framework, doctors with more than 10 years of experience were more knowledgeable - 71.9%. As the length of service decreases, awareness also decreases.

The desire of doctors to increase the level of their knowledge in the field of organization of high-tech medical care was not affected by the level of their awareness. Thus, out of 73% of respondents who had a sufficient understanding of high-tech medical care, almost 96% of cases would like to expand them, out of 21% who did not fully possess information, 92% sought to fill it in, and out of people who did not know anything about high-tech medical care, 90% set this goal. Among people who do not know

anything about this direction in medicine at all, after the survey, they set this goal (85.4%). I would like to note that 95% of the surveyed doctors affirmatively expressed a desire to receive additional information about high-tech medical care. Among those who do not want to expand their knowledge, most of them had more than 10 years of work experience and worked in a hospital. With a thorough analysis of the answers to the question about ways to expand existing knowledge in the field of high-tech medical care. The absolute majority of the surveyed doctors (95.3%) would like to expand their knowledge about this type of care and in most cases by listening to a course of lectures (61.6%). Another, not significant part is ready to engage in self-education by reading scientific articles (3.7%) or watching TV shows (2.7%). Numerous respondents (17.5%) indicated a combination of several sources of obtaining important information for them, which largely indicates their interest in it.

The majority of the surveyed doctors (65.3%) in their practice had to refer patients to provide them with high-tech medical care. At the same time, 40.1% of them worked in regional medical organizations, and doctors of district and city hospitals accounted for 13.4% and 12.9%, respectively. The first place among doctors who did not have to refer patients for high-tech medical care was taken by specialists of regional institutions (38.8%).

At the same time, the respondents also noted negative aspects in the provision of high-tech medical care. The structure of responses among the surveyed doctors was as follows: 25.7% indicated the length of time required to collect a package of documents, 15.6% – faced a prolonged wait for a response from a medical organization, 14.9% – indicated that doctors were not informed. Another 17.4% noted other negative aspects, and 26.4% indicated a combination of them.

Among the doctors, a question was asked about the sources of funding for this type of medical care. To the question: "Do you know what funds are used to pay for high-tech medical care?" – 45.1% answered that from the regional and state budget, 35.7% of respondents believe that only from the state budget, and 4.2% – from the regional, 3.2% - from hospital funds, but 10.1% at the expense of the patient's personal funds, i.e. on a paid basis, and 1.6% did not answer this question at all.

Since the quality of high-tech medical care is one of the priorities in healthcare, we were interested in the question: "Can, in your opinion, high-tech medical care really improves the quality of medical care?" To which we received a positive response in 89.1% of cases, 0.6% expressed a negative attitude and 10.3% found it difficult to assess its impact in general. At the moment, the sources of financing of high-tech medical care are the means of compulsory medical insurance, state and regional budgets and at the expense of the patient's personal funds. Knowledge about high-tech medical care as a form of care does not guarantee that doctors have an idea about the sources of its financing. Therefore, they were asked to indicate the source of funds

intended in their opinion, used to pay for high-tech medical care. Experts' opinions were divided. Some believed that the source was the means of compulsory medical insurance (4.2%), others – 5.1% noted only the regional budget, the majority – 36.2% referred to the state budget and the bulk considered that this type of assistance is paid from several sources at once, by co-financing – 54.5%.

At the conclusion of the survey, all respondents noted, in their opinion, positive and negative aspects in the process of receiving and providing high-tech medical care. From the positive points. Among doctors, the structure of answers to this question differed only in percentage terms. The majority (68.5%) also said that in the presence of serious diseases, and not the possibility of delay, this assistance is paramount for this category of patients, 6.7% and 5.2% attributed the economy of time and money, respectively, another 15.4% also noted that this type of medical care has many positive aspects, and 14.1% noted the presence of other positive aspects not specified in the questionnaire.

## 4. Discussion

The conducted medical and social research, with subsequent processing of the information received and data analysis, contributed to the opportunity to present a fairly objective picture on a number of topical issues of providing high-tech medical care expressed by specialist doctors. This made it possible to determine the level of awareness of all participants on important issues in this direction. Unfortunately, it is necessary to agree with a number of authors [11] and note the unsatisfactory level of awareness of specialist doctors, both in terms of general knowledge about the type of medical care in question, and in the field of knowledge of regulatory legal acts and the possibility of applying them in their professional activities. The data obtained during the analysis made it possible to assess the presence of an insufficient level of awareness of medical personnel both in the field of knowledge of the legislative framework governing the provision of high-tech medical care and its application in their practice, and awareness of this type of medical care in general. Since doctors are the first link from whom patients learn about the available opportunities in medicine, the ignorance or lack of awareness of the medical staff hinders the availability of this type of care. Many respondents misunderstand the procedure for providing high-tech medical care and believe that it can be provided only at the expense of personal funds, i.e. on a paid basis.

## 5. Conclusions

The sample study made it possible to formulate key provisions aimed at raising the awareness of medical personnel by introducing several classes on pressing problems in the organization of high-tech medical care into the cycles of professional retraining and advanced training.

The main thing, of course, is the desire of all respondents, regardless of the degree of their knowledge, to expand the level of their competence in this direction. Proceeding from this, in order to increase the awareness of doctors about the rights of patients to free high-tech medical care and the procedure for its organization, it is necessary to include in the cycles of professional retraining and advanced training for students of the Faculty of postgraduate education a number of topical issues regarding high-tech medical care.

The conducted research made it possible to determine the level of awareness of hospital doctors on issues related to the organization of high-tech medical care, as well as to formulate the most priority areas for raising their awareness. It should be noted that there is still a fairly high level of awareness of inpatient doctors on the provision of high-tech medical care, both in relation to the criteria for selecting citizens to provide high-tech medical care, and in the field of regulatory documents. Unfortunately, not all doctors who directly encounter or work in the field of healthcare have information about the sources of funding for this type of care. The most important result of our research is the revealed desire of respondents, both those who possess information and those who do not possess it, to deepen their level of knowledge. To do this, it is advisable to include in the cycles of certification and thematic improvement in the organization of healthcare issues related to knowledge of the regulatory framework, conditions for providing high-tech medical care, financial and economic fundamentals, a list of types, criteria for referral of patients and the organization of selection and in accordance with the needs of the region.

It should be noted that there is a lower level of awareness of the medical staff of the inpatient unit, which is most likely due to the lack of the need to select patients for referral to high-tech medical care. But the most important thing is the desire of respondents working at all levels of medical care, both those who have information and those who do not have it, to expand their level of awareness.

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