



COMPLEX EVALUATION OF HIGH TECHNOLOGICAL MEDICAL CARE FOR CARDIOLOGIC PATIENTS AND RESPECT FOR THESE CARE PRODUCTS IN THE POPULATION OF THE SAMARKAND REGION (LITERARY REVIEW)

Rizaev Jasur Alimzhanovich

Doctor of Medical Sciences Professor
Rector of Samarkand State Medical University
Samarkand, Uzbekistan

Saidov Maksud Arifovich

Candidate of Medical Sciences,
Director of Samarkand branch of the Republican Specialized Scientific-Practical Medical Center of Cardiology
Samarkand, Uzbekistan

Farida Odylovna Khasanjanova

Candidate of Medical Sciences,
Assistant of Internal Diseases and Cardiology Department 12
Samarkand State Medical University
Samarkand, Uzbekistan

Article history:	Abstract:
Received: December 11 th 2022 Accepted: January 11 th 2023 Published: February 20 th 2023	This article reviewed the incidence of cardiovascular diseases (CVDs) and the causes of morbidity, mortality and disability from these diseases worldwide, including in Uzbekistan. The prevalence of high-tech medical care (HMC) and the role of HMC in reducing complications, mortality and disability due to (CVD) was studied.
Keywords: high-tech medical care, cardiovascular diseases, mortality, morbidity, etc.	

INTRODUCTION. Cardiovascular diseases (CVDs) are an important problem not only in the medical sphere, but also is a problem in the social sphere due to the significant prevalence in the population, the most frequent development of severe complications, which most often lead to disability and mortality of the population [1, 4, 18]. Development of cardiovascular pathology in one person of working age is not only a tragedy for this person, but this pathology can lead to significant social and economic damage to the whole society due to significant loss of ability to work, expenses for treatment, rehabilitation and health recovery of this patient [2, 5, 20].

According to the World Health Organization (WHO) over the past 15 years, cardiovascular diseases still retain their leading position among the causes of mortality and disability in adults and young people, with an annual mortality from cardiovascular diseases (CVD) of about 17.9 million people, accounting for 31% of all global mortality [3, 11]. Numerous studies have found that circulatory system diseases (CSD) cause 4,300,000 deaths annually in Europe and in the developed countries of the European Union more than 2,000,000 deaths are observed, which is respectively 48 and 42% of all deaths [6, 15].

Cardiovascular diseases include many diseases, but the most common diseases leading to disability and

mortality include such diseases as coronary heart disease (CHD), acute myocardial infarction (MI), cerebrovascular disease (CVD), hypertension (HD), malignant arterial hypertension, diseases of peripheral arteries and veins, acquired heart defects of rheumatic and non-rheumatic genesis, congenital heart defects and anomalies, acute and chronic heart failure, malignant vital various types of arrhythmias, myocarditis, etc. pathologies [7, 16].

At study of statistical parameters at these diseases the following data have been revealed. Thus, according to C.D. Fryar, in the USA, angina attacks in patients are noted every 40 seconds (more than 805000 cases are registered annually) of which 605 000 attacks occur for the first time, and 200 000 attacks occur repeatedly [10, 13]. In Europe, about 85,000,000 people suffer from various types of CVD, of which 49,000,000 are residents of the European Union and more than 6.1 new cases of CVD are registered per year [8, 12]. In the Russian Federation, the group of CVD diseases occupies the first position in the structure of the main causes of mortality, while accounting for more than half of all cases and according to statistics in 2018 with a total mortality rate of 1240 per 100 thousand population, the mortality rate from cardiovascular pathologies was 573.6 per 100 thousand population with a share of 46.3%. In Kazakhstan, the incidence of



CVD in the last 10 years has also increased, with mortality in 2020 from CVD increasing by 18.8% (193.8 per 100 thousand population), in 2021 - another 17.1% (226.9 per 100 thousand population) [9, 14]. As indicated by the results of WHO studies, our republic, as well as other countries of the world belongs to the countries with high risk of CVD and statistical studies show that, in Uzbekistan, mortality from non-communicable diseases in 2019 was 83.5%, making 702.8 per 100 thousand population, of which mortality from CVD was 60.3% [17]. The mortality rate from CVS in 2021 was 61.7% (107,666 out of a total of 174,500), with twice as many male patients aged 18-74 years as female patients [17,19]. According to statistics in 2022 from 01.01.2022 to 30.09.2022. 74109 deaths in Uzbekistan are due to BSC and this represents 56.2% respectively [2,3,8]. About 23.6 million people are projected to die from HPS by 2030, but the individual prognosis can change positively or negatively, depending on the diagnostic, therapeutic and preventive measures. The tactics of measures aimed at the diagnosis, prevention and treatment of CVD, in general, depends on such global problems of the population, as the need for long-term treatment, the high cost of drugs and high-tech medical care (HCT) for the treatment of a particular disease, rehabilitation of patients after inpatient and outpatient treatment, which lead to significant financial costs for the state and the population. One of the main directions and goals of the state social policy is the protection of public health, prevention of morbidity, reduction of mortality and disability of the population from CVD using optimally financial, material and human resources [6]. In order to fulfill the goals set for the state and the health care system to improve the health of the population, it is necessary to improve medical organizations according to the appropriate methodology of reorganization of the health care system [5,15].

In order to fulfill the reduction of mortality, morbidity and disability from CVD the following tasks were set before the state cardiology services: 1. Control of risk factors at the state level, primary prevention of CVD. 2. To create favorable conditions for all patients to be examined and treated in primary health care, providing them with the necessary medications. 3. In cardiology departments of primary health care hospitals to increase the availability of medical, diagnostic and therapeutic high-tech equipment. 4. Expand the coverage of patients with CVDs and improve the quality of VMP for patients with CVDs with the travel of specialists in the regions. 5. Increase the professional skills and capacity of primary care specialists and cardiology teams providing VMMC. 6. To introduce

modern digital technologies to provide medical services and organize remote consultation "telemedicine" for patients with CVD [3, 9]. In order to fulfill the above-mentioned goals, tasks and directions in all countries of the world, including our republic, new ways of preventive and treatment aimed at strengthening and preserving the health of primary health care and providing them with specialized, including VMM [3, 7] began to be implemented. The relevance of the problem of improving the provision of VMM has significantly increased in the last ten years. HMP includes a complex of therapeutic and diagnostic medical services, using complex and unique, highly resource-intensive medical technologies, which are carried out in specialized hospital-preventive conditions [2]. HMP is a type of medical care performed for the treatment of complex diseases using innovative high-tech methods of treatment, as a result of which positive effects are achieved not only in the medical sphere, a positive effect is also noted in the economic and social sphere [3].

VMP has several distinctive features: firstly, due to the minimal size of the surgical access it is minimally invasive and traumatic for the patient, secondly, it has maximum accuracy of intervention, thirdly, under visual observation with the help of various modern devices it is possible to bring a surgical instrument to the lesion, in the fourth therapeutic manipulation is performed using video, X-ray, ultrasound and ECG control under bilateral information support of patient-doctor-patient, in the fifth it is possible to perform therapeutic manipulation using the following methods The use of high-tech equipment and materials for the provision of VMM, makes this type of medical care much more financially expensive not only for the state and the medical institution, but also for the patient himself [12].

Statistical analysis on the study of activities in the health care system of developed countries in recent years has shown that the main attention is paid to the role of VMM evaluation used to preserve, promote and restore health, which consist of any diagnostic, therapeutic, preventive and rehabilitative methods [3,10]. The provision of VMM requires several component parts, which include: appropriate high-tech equipment, the training of medical personnel with the necessary skills in the use of high technology, all third-party supply of consumables, continuity of work between municipal health facilities and regional clinics, as well as between regional and state medical institutions [19]. Establishing and maintaining a balance of all the components of the provision of the HMP is a major organizational problem [11].



The health care system of the Republic of Uzbekistan has been using IAPs for quite a long time, but in the last ten years the urgency of the problem of improving the provision of IAPs has increased significantly. Thus, the analysis of cardiology service structure has revealed that by 2020 there are only 7 branches of the Republican Center for Cardiology, 6 dispensaries, 80 cardiology departments, 400 cardiology consulting rooms, 4 operating rooms with IR equipment, 7 angiography complexes, and 1 EPI station, But by 2026 it is planned to increase the number of these figures, increasing the number of branches of RSNMMS to 13, cardiology departments to 207, cardiology departments to 400, surgical rooms to 20, angiography complexes to 50 and EPI stations to 14 [12].

When studying the dynamics of growth in the number of angiographic equipment in 2010 was only 4, by 2021 this number increased to 39. Over the last 5 years the number of coronary angiographies increased 3.8 times, and the number of percutaneous coronary interventions (PCI) increased 4.3 times. The number of coronary angiographic (CAG) studies for patients with ACS in 2010 was 2519, in 2021 - 20682, and in 2022 - 10863, of which 1611 studies were performed in Samarkand branch of RSNPMC [5, 13]. The rates of PCI also increased and in 2010 there were only 597 PCIs, in 2021 there were 8452, in 2022 there were 5179 PCIs of which 608 were performed in the Samarkand Branch of RSNPMSC. The number of heart surgeries in 2010 was 613, in 2021 - 5005. In 2022 there were performed 1876 open-heart operations in RUz; 538 of them were performed in Samarkand branch of RSNPMSC [3,14]. When analyzing interventional interventions for various types of arrhythmias in 2015 there were 24 operations for radiofrequency ablation (RFA), 1 operation for CRTD/ implantation of cardioverter/defibrillator (CRTD/ICD), 32 operations for implantation of electrocardiac pacemaker (ECS). In 2021 these indicators significantly increased and amounted to 580 RF operations, 18 operations for CRTD/ICD and 260 operations for ACS implantation. In 2022 there were performed 395 RFA surgeries in the republic and 101 of them were performed by Samarkand branch of RSNPMCC. An ACS was performed in 287 patients with ACS; among them, 46 patients had an ACS installed in Samarkand branch of RSNPMCC [3].

Unfortunately, to date, the systematic approach in the formation and implementation of VMM is not fully used, the continuity among the stages of VMM is violated, the capabilities of public institutions involved in the provision of VMM are not properly studied, the centralized method of planning prevails, and there is

inefficient funding, which is difficult to control [19]. In the field of diagnostics and treatment of VMMC there are significant achievements in the implementation of high technologies in the provision of VMMC, but the increase in the cost of providing VMMC led to the fact that this type of assistance is not provided universally, to all types of VMMC, unfortunately, there is no equal and unlimited access. An important point here is the reasonable maintenance of the balance between the efficiency and the cost of the means and resources used in providing the HMP [18, 20].

The introduction of the state order for the provision of HPC in the state medical institutions allowed to increase the volume of HPC, their financing and improve a number of organizational measures, at the same time the system of HPC provision needs to be improved [2,7]. Currently its main problems remain: low provision of universal, equal and unrestricted access for many who need HMC; shortcomings in planning, organization and financing. The reasons for the problems and unrealized opportunities in the provision of HMP are not only financial, material and technical and personnel support, but also shortcomings in management, organizational and methodological support and imperfection of the regulatory and legal framework [19, 39, 40]. Due to the measures taken by our government to increase the funding of public medical institutions, it was possible to ensure the priority development in the sphere of HPC [2, 8]. When analyzing during 2020 the world ranking of countries by the level of HIE (NUMBEO), it was found that the health security index was the highest in Taiwan (86.42), Great Britain (74.88), Germany (73.35), Singapore (70.97), USA (69.20), China (66.62) and Russia (58.01) respectively [4, 17].

In the last 10 years our state has implemented substantial investments in health care. But even this did not help to improve the situation to the end, as they were not large-scale, not carried out by highly effective organizational, financial and economic measures [2,9]. While the level of development of health care in the Republic of Uzbekistan lags behind that of developed countries, it is much stronger than in other key sectors of the economy [3, 5].

The age of high technology is characterized by significant success in the creation of modern high-tech medical equipment, which has helped to carry out the provision of the IAP. All types of VMM, in accordance with the standards of medical care approved by the orders of the Ministry of Health of the Republic of Uzbekistan, will allow to determine the guaranteed volume of VMM provided to the population free of charge at the expense of the state budget and to carry



out effective control over its quality [1]. However, to date, these standards do not make it possible to determine the projected and real costs, although initially it was assumed that they would serve as a basis for determining the cost of one case of high-tech treatment [12].

In our republic in recent years there has been a steady increase in the amount of funding and the volume of HCT provision from the state budget and to achieve this goal in 2016 it was allocated 9.98 billion soums (56.4% higher than in 2015), in 2020 - 17.48 billion soums [3]. In 2022, it was 832.1 million soums, which is 591.8 million soums or 3.4 times more than in 2020 (240.3 million soums). At that, more than 3,679 patients were treated under VMM, which is 2.5 times more as compared to 2020. Performed aorta-coronary bypass surgeries were 4.3 times higher, the total number of operations performed on the cardiac surgery profile in 2022 increased from 613 to 5106. And the number of high-tech complex operations performed increased from 15 to 35 [3]. Every year the number of quotas for IST provided by the state budget, which are received by the subjects of the Republic of Uzbekistan, is increasing. Over the past ten years there has been a continuous increase in the volume of the provided IVM to the citizens of the Republic of Uzbekistan, but at the same time there is a low level of satisfaction of the population's need for it (in 2013 this indicator was only 24.0%, in 2015 - 29.0%, in 2019 - 32% and in 2020 - 33%) [3]. By 2022 it was planned to provide IAP to 50.0% of patients in need [3, 7]. In practice, this figure turned out to be much higher - 57%. In 2023, it is planned to quadruple the number of patients in need of IAP. According to the forecast calculation, this will lead to an increase in the satisfaction of the need for IAP from 20% to 80% [28]. According to R.D. Kurbanov (2020), in our country only 6 clinics perform operations with artificial blood circulation, about 8.5 thousand operations are performed per year, while the need for them is estimated at 142 thousand. In general, to reduce significantly the mortality rate of able-bodied population from CVDs it is necessary to perform not less than 400 thousand operations of this profile, in the Republic of Uzbekistan they are performed not more than 35 thousand [3, 4].

Taking into account the increase in the number of patients who need HMC and the volume of financial resources that are allocated for the provision of HMC, it is particularly important to ensure a quality selection and referral of patients to HMC, while respecting their rights in the provision of this care. In accordance with the current regulatory framework, the selection and referral of patients for the provision of HMP is carried

out by the territorial health authorities of the subjects of the RU [3,11]. According to domestic experts in our republic, despite the conducted VMM to the population, there is still a gap between the needs of the population in VMM and their provision by the health care system and there is an imbalance in the provision of VMM to the citizens of Uzbekistan depending on the region of their residence [7]. The analysis of the interaction between the Samarkand branch of the Republican Specialized Scientific-Practical Medical Center of Cardiology (SF RSPMC) and the regional health authorities has shown that to date there are no clear criteria for the selection of patients for the provision of IAP. Some patients who arrived at the SF RCCMIC with a medical coupon or a referral have no medical indications for receiving a particular type of IAP [18].

At the same time, there are positive trends in the organization of VMMC for the citizens of the subjects of the Republic of Uzbekistan. In the implementation of the state order for the provision of the HMP significantly increased the availability and financial security for all types of HMP, improved indicators of the SF SRCF hospital: with a slight reduction in bed capacity from 160 to 250 beds, the number of treated patients increased from 5687 in 2015 to 10092 in 2020, the average bed occupancy rates increased from 309.1 to 349.0 days, the average length of stay in a bed decreased from 9.9 to 8.3 days, bed turnover increased from 35.5 to 41.8 times, the average length of stay before surgery decreased from 4.6 to 1.8 days, the proportion of patients operated on for VMP increased from 19.6% to 32.9% Surgical activity rates increased to 104.2%, with no worsening of mortality rates in the hospital period from 1.0% to 1.1% and in the postoperative period from 0.7% to 0.4%. With the growth of the volume of VMM, the funding also increased (from 240.3 million soums in 2015 to 832.1 million soums in 2020 or 3.4 times). The volume of funding for VMM is on average 30% [3]. Despite the rapid development and implementation in cardiology practice of new HMP, the mechanisms of patients' access to all types of HMP and organizational processes in this area are insufficiently studied. There are practically no studies evaluating the group of patients in need of VMM [2,10]. However, at the moment there are practically no studies devoted to this activity in the field of VMP provision, which determines the relevance, purpose and subject of the study.

LIST OF REFERENCES:

1. Analytical materials of the State Committee of the Republic of Uzbekistan on Statistics. - 2022 г.



2. Abramov A.Y. et al. Organizational and technological algorithm of primary specialized medical and sanitary care for cardiovascular diseases. Social Hygiene and Health Care Organization. Kazan Medical Journal 2020. Vol. 101 No. 3. Pp. 394-402.
3. Agababyan, I. R., Saidov, M. A., & Zhoniev, S. Sh. (2022). YURAK ISHEMIK KASALLIGI BO'LGAN KEKSA YOSHDAGI BEMORLARNI YUQORI TEXNOLOGIK USULLAR BILAN DAVOLASH. Journal of Cardiorespiratory Research, 3(4).
4. Alexandrovsky A.A., Usanova A.A., Kolpakov E.V. et al. Prevalence of variants of coronary heart disease in Mordovia // Russian Journal of Cardiology. - 2017. - №3(89). - С. 66-72.
5. Alekseev Yu.A. et al. Organizational and technological algorithm of primary specialized medical and sanitary care for cardiovascular diseases. Kazan Medical Journal. 2020 г. Vol. 101, No. 3. Pp. 394-402.
6. Alimov R.R. Scientific rationale for improving the provision of medical care in a multidisciplinary hospital. Author's abstract of doctoral dissertation.
7. Andreeva V.E. Substantiation of the model of complex information support for the provision of high-tech medical care to patients of traumatological and orthopedic profile. Dissertation. Author's abstract of doctoral dissertation. Moscow 2019 pp. 32-41.
8. Akhmedov M.E. Organizational aspects of improving high-tech cardiac care taking into account regional characteristics (on the example of Navoi region). Dissertation. Tashkent 2023 pp. 31-35.
9. Basinkevich A.B. Possibilities of optimization of endovascular diagnostics and treatment of patients with coronary heart disease in outpatient and inpatient conditions. Dissertation. Moscow 2022 pp. 9-14.
10. Begicheva S.V. Models of accessibility and quality of emergency medical care in Megapolis. Dissertation. Yekaterinburg 2020. Pp. 3-7.
11. Boichenko Y.Y. Scientific substantiation of the need for high-tech types of medical care in the subjects of the Russian Federation. Dissertation. Moscow 2005.
12. Bolostotsky A.V. Legal basis for providing high-tech medical care. Health Care Manager 2010. Pp. 43-46.
13. Burykin I.M. Optimization of quality management system of pharmacotherapy and medical care for patients with cardiovascular diseases: pharmacoepidemiological and pharmaco-economic determinants. Author's abstract of doctoral dissertation. Kazan 2018. Pages. 7-10.
14. Vasilieva J.A. Formation of the management system of the center of high-tech medical services. Dissertation. St. Petersburg 2006. 47-53.
15. Villvalde S.V. et al. Principles of organizing medical care for patients with heart failure in the system of cardiovascular risk management: focus on continuity and routing of patients. Practical Materials. Russian Journal of Cardiology 2021;26(S3). Pages. 102-141. Глухова Г.А. Комплексная оценка высокотехнологичной медицинской помощи и пути ее совершенствования. Диссертация. Москва 2011 г.
16. Голощапов-Аксенов Р.С. Научно-методическое обоснование современной организации рентгеноваскулярной помощи при сердечно-сосудистых заболеваниях на региональном уровне. Диссертация. Москва 2019 г. Стр. 44-49.
17. Данилов А.В. Научное обоснование использования инновационных организационных технологий для повышения эффективности управления медицинскими организациями на региональном уровне. Диссертация. Воронеж 2021 г. Стр. 69-74.
18. Джиоева О.Н. Оптимизация подходов к коррекции сердечно-сосудистых осложнений при плановых больших хирургических вмешательствах у больных с низким периоперационным риском. Диссертация 2020 г. Стр. 5-13.
19. Ермошина Т.В. Научное обоснование совершенствования оказания высокотехнологичной медицинской помощи. Автореферат докторской диссертации. Москва 2009 г. Стр. 11-15.