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## STRUCTURING ORGANIZATIONAL PROBLEMS AND TASKS IN TRANSPLANTOLOGY IN THE REGIONS OF UKRAINE

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**Purpose:** to structure the organizational problems of regional organ donation and transplantation systems and identify key tasks for their optimization.

**Materials and Methods.** To achieve the stated objective, this study employed general scientific methods such as analysis, synthesis, generalization, interpretation of scientific data, as well as systemic and structural-functional approaches.

**Results.** Transplantation is a critically important part of treating individuals with damaged or dysfunctional organs or tissues. It holds global medical and social significance. The primary challenge in transplantation is the shortage of donor organs. The main issue in organ transplantation, the problem of an adequate supply of optimal donor organs, can be addressed through effective organization of the donation process.

The progress of transplantology is directly dependent on the level of organization of the transplantation process, and therefore, the best results in transplant activity are achieved by countries that have managed to establish an efficient transplant coordination system. Transplantology serves as a growth point for the entire healthcare system.

The conducted research has shown that the key problems defining the directions for optimizing the regional organ donation and transplantation system include the following. In the systemic regional model of organ donation and transplantation, it is important to establish a mechanism for patient transfer from donor bases of regional transplantation centers, control organ allocation, and introduce modern medical technology standards at all stages of the donation process to optimize the diagnostic and therapeutic process.

**Conclusions.** The article presents the structured key problems of optimizing the organ donation and transplantation system in the regions of Ukraine and defines optimization tasks as a framework for building a modern regional system. The identified problems confirmed that the conditions in which health care providers conduct transplants work, increasing the volume of transplants that contribute to the preservation of public health, and often life, is problematic. The study contributed to the formation of priority areas as for the development of regional health care providers conducting organ transplantation.

KEY WORDS: organ donation; transplantation; transplantation centers.

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Transplantation is a critically important part of treating individuals with damaged or dysfunctional organs or tissues. It holds global medical and social significance. The primary challenge in transplantation is the shortage of donor organs [1–3]. The main issue in organ transplantation, the problem of an adequate supply of optimal donor organs, can be addressed through effective organization of the donation process [8].

In Ukraine, a comprehensive transplant coordination system has not been implemented yet, despite the fact that such a system significantly increases the number of potential donors in countries where it is in place [4]. The level of development of transplantology in countries has long served as an indicator reflecting the quality of medical care and the overall development of a nation [5]. The progress of transplantology is directly dependent on the level of organization of the transplantation process, and therefore, the best results in transplant activity

are achieved by countries that have managed to establish an efficient transplant coordination system [6, 7, 9]. Transplantology serves as a growth point for the entire healthcare system.

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**Results.** The conducted research has shown that the key problems defining the directions for optimizing the regional organ donation and transplantation system include the following:

**Donor Resource.**

One of the key problems limiting the number of transplantations in Ukraine, as well as worldwide, is the donor resource. The results of our medical-

sociological research, conducted through questionnaire surveys of patients, anesthesiologists, and neurologists, allowed us to identify the attitudes of these social groups - the subjects of the study - towards organ donation and transplantation. It was found that the reluctance to become a donor is due to low public awareness of organ donation issues and its legal aspects. The study revealed that both anesthesiologists and neurologists have limited knowledge about the problem of human organ transplantation and organ donation.

In summary, the current social attitude negatively affects the optimization of the donor resource and the development of transplantation programs in the region. It represents a significant obstacle to the development of transplantology in the region. It is not possible to demand societal responsiveness when its members are not informed about transplantation practices. Therefore, there is a need to "communicate" with society and share knowledge. A wide, open dialogue with all representatives of society is necessary to create an atmosphere of trust and altruism in the context of donation and transplantation. It requires the development of methodological recommendations for communicating with the relatives of potential donors and the general public.

Furthermore, social-psychological activities need to be conducted with medical personnel, including incorporating organ donation topics into conferences held annually for regional chief physicians. For the members of donor teams, annual seminars on brain death determination and organ transplantation should be organized.

The main task of higher medical education in the field of transplantation is to integrate essential medical and humanitarian knowledge about human beings, create programs that immerse the medical community in this knowledge, and conduct professional development cycles based on these programs.

#### ***-Imperfectness of Donation and Transplantation Services in the Regions.***

Our analysis of the existing regional model of organ donation and transplantation has revealed that regional donation and transplantation centers, donor bases, forensic medicine bureaus, and cardio centers are not integrated into a single system. There is a lack of a systematic approach to the problem, which hinders coordination, relationship integrity, and connections between these entities, as well as the development of an effective strategy for the regional organ donation and transplantation system. In practice, there is no mechanism for implementing laws on organ and tissue transplantation in the regions. Based on a systemic approach, we propose a regional two-tier system for organizing organ donation and transplantation.

The first tier comprises district hospitals included in the list of donor bases that provide emergency neurological and neurosurgical care to the population. Their main function as donor bases is to provide postmortem donors to regional

centers. To actively involve donor bases in the process, administrative resources can be utilized. Regional administrations should work with the chief physicians of healthcare facilities and require them to monitor fatal outcomes in intensive care units and the number of potential and effective donors.

The second tier of the model consists of regional transplantation centers (RTCs). The main function of RTCs is centralized management of the regional organ donation and transplantation system, development of an organizational strategy for organ donation in the region, algorithmization of the technology stages, and coordination of the regional donor process. RTCs comprise operating rooms, anesthesia and intensive care departments, and wards. The primary function of the anesthesia and intensive care departments in RTCs is the direct transplantation of organs, ensuring technically competent performance of explantation and implantation procedures.

In the systemic regional model of organ donation and transplantation, it is important to establish a mechanism for patient transfer from donor bases to RTCs, control organ allocation, and introduce modern medical technology standards at all stages of the donation process to optimize the diagnostic and therapeutic process.

To provide methodological guidance to the regional system, RTCs should have an organizational and methodological department. Its task is to supervise healthcare facilities included in the list of donor bases, provide consulting assistance and informational support to anesthesiologists-reanimatologists at donor bases participating in the organ donation process, and conduct seminars on brain death determination, postmortem donor conditioning procedures, and so on.

RTCs are also responsible for resource provision in the regional system, including determining resource needs, establishing logistics for managing inventory of consumables and medications, defining adequate financing for medical services considering their cost and required quality level. They monitor the professional development of specialists at donor bases to enhance the effectiveness of field visits and regional center donor teams.

In turn, scientific centers in Kyiv specializing in organ transplantation should provide methodological support to RTCs. Thus, RTCs, represented by their chief physicians, assume responsibility for implementing laws on organ donation and transplantation in the regional system, while healthcare departments of regional administrations are obligated to oversee these activities.

Systemic optimization of regional organ donation and transplantation, along with an interdisciplinary approach and collaboration with specialists from related fields (cardiologists, nephrologists, etc.), as well as cross-sectoral collaboration with a range of regional organizations (regional administrations, medical universities, representatives of traditional religions, media, regional air ambulance and medical transportation services, forensic medicine

institutions, prosecutor's offices, investigative bodies, traffic police, air ambulance services), will ensure the progressive development of organ donation and transplantation in Ukraine's regions.

As regional donation and transplantation programs develop, administration, technical equipment of healthcare facilities, financing, and training of transplantation professionals will be improved.

The development of transplantation programs in the regions will contribute to the overall development of Ukraine's healthcare system and prevent the outflow of highly skilled personnel. Moreover, the development of advanced medical methods in the region serves as an incentive.

**-Training personnel for the regional organ donation and transplantation system.**

To prepare personnel for the organ donation and transplantation system, it is necessary to plan diploma and postgraduate training, taking into account the potential positions of future physicians. Transplantation education, both general and specialized, includes diploma training for all categories of students. During the diploma training stage, students should be taught the basic concepts of brain death diagnosis and donor management principles as part of the training for neurology and anesthesiology-intensive care professionals. Postgraduate training should involve further knowledge enhancement through participation in workshops, possibly leading to certification.

Additionally, special programs for transplant coordinators need to be developed, considering that the functions of transplant coordinators consist of several components - medical, educational, scientific and managerial.

**-Improving medical and social assistance to organ recipients.**

The pinnacle of transplantation medicine is the organ transplant performed in the operating room and the sustained health of the recipient after such a procedure. In order to ensure that the efforts of dozens of specialists from various institutions, including transplantologists, anesthesiologists, cardiologists, etc., do not go to waste, the postoperative stage is crucial. Overcoming difficulties in the postoperative period depends on the interaction achieved through the active collaboration between the transplant center physicians and primary care therapists. Primary care therapists, who are physicians in family outpatient clinics, should be aware and understand that lifelong monitoring of patients with transplanted organs requires a deep understanding of the clinical peculiarities (compared to "classical" patients) of clinical-pathophysiological and other processes occurring in the recipients' bodies.

**-Legislative support.**

Practically no country's legislation in the field of transplantation can be considered universal and comprehensive. Ukrainian legislation does not fully protect the interests of transplant recipients awaiting transplantation and medical professionals who are constantly at risk of criminal punishment

due to organ procurement, as the legal framework is imperfect. Continuous legal analysis of organ transplantation procedures is extremely necessary, and only through a continuous and purposeful state policy to improve legislation on organ donation and transplantation can success be achieved in this field.

**Targeted orientation in managing the regional organ donation and transplantation system:**

A rational approach to managing the regional organ donation and transplantation system can be considered as a processor-based approach, which views the management process as a set of interconnected processes rather than individual functions.

It combines the following elements:

**Systematic management:** A systemic approach to analyzing the system's activities allows for considering all interrelationships and interactions among its structures. It involves well-founded goal setting, ensuring coordination among management bodies and participants in the production processes.

**Medicosocial orientation:** Objective assessment of the need for organ transplantation, donor resources, and effective planning of transplant centers' work.

**Legal regulation of management:** The presence of legal regulations governing the system's activities reduces subjectivity in management.

**-Scientific justification of managerial decisions.**

The application of modern scientific approaches such as marketing, situational analysis, process analysis, etc., to the management model ensures its compliance with contemporary principles of operation.

**Unity of theory and practice in management.** Every managerial decision should align with the logic of the model's development processes and correspond to the population's needs and practical healthcare requirements.

**Organization of managerial processes.** High organizational efficiency in management, coordination of production processes in transplantation, contributes to the qualitative implementation of managerial decisions.

**Orientation towards innovative development.** Advancement in organizational, medical-production, and information technologies is a crucial factor in ensuring the competitiveness of the system.

Based on the presented structured problems of the regional organ donation and transplantation system, the key optimization tasks can be identified.

The key optimization tasks of the regional organ donation and transplantation system include:

- Modernizing the organizational structure of regional organ donation and transplantation: This involves adopting a systemic approach to its organization, implementing centralized management of transplantation coordination within the region, expanding the number of donor databases, and ensuring accessibility of organ transplantation for patients in need.

- Continuous improvement of the normative legal framework: There is a need to continuously

enhance the components and structure of the state's legal basis to ensure effective regulation of organ donation and transplantation.

- Targeted government funding for regional healthcare institutions participating in organ transplantation: Providing specific financial support to these institutions will contribute to the development and improvement of transplantation services.

- Organizing continuous education for medical personnel involved in organ transplantation: This aims to train highly qualified specialists in the field and keep them updated with the latest advancements and techniques.

- Expansion of the network of transplant coordinators and continuous training: Increasing the number of transplant coordinators and providing them with regular training will facilitate efficient coordination and management of organ transplantation processes.

- Stringent legal regulation of organ donation and transplantation issues: Establishing robust legal frameworks will protect the rights and legitimate interests of both citizens after their death and medical professionals involved in various stages of the organ transplantation process.

- Shifting societal attitudes towards positive support for organ donation: This requires collective efforts from healthcare professionals, scientists, lawyers, representatives of religious denominations, the general public, and mass media to promote a positive perception of organ donation and encourage active participation in this life-saving practice.

### Conclusions

It has been proven that there are organizational problems within the organ donation and transplantation system in the regions of Ukraine, which have been structured for the convenient resolution of tasks. In order to optimize the regional system of organ donation and transplantation, key tasks have been identified.

The identified problems confirmed that the conditions in which health care providers conduct transplants work, increasing the volume of transplants that contribute to the preservation of public health, and often life, is problematic. The study contributed to the formation of priority areas for the development of regional health care providers conducting organ transplantation.

**Prospects for further research** are the use of the obtained results to justify conceptual approaches to improving the organization of cardiac surgical care for the population at the state and regional levels.

### Список літератури

1. Бабляк А. Трансплантација. Що вам потрібно про це знати / А. Бабляк. – 2020. – Режим доступу : <https://nv.ua/opinion/transplantaciya-chto-proishodit-v-ukraine-poslednie-novosti-50101343.htm>.
2. Кушнір Б. В комунальній лікарні створили центр трансплантології / Б. Кушнір // *Голос України*. – 2020. – 31 груд.
3. Полякова О. Пересадка органів – проблеми і перспективи / О. Полякова // *Радіо Свобода*. – 2011. – 28 квіт. – Режим доступу : <https://www.svoboda.org/a/16796316.html>.
4. Проблемы украинской трансплантологии: имеет ли значение вид презумпции – экспертное мнение // *Аптека*. – 2016. – № 35 (1056). – Режим доступа : <https://www.apteka.ua/article/383196>.
5. Aringazina A. Current Approaches to the Implementation of Donor Programs in Transplantation / A. Aringazina, M. Kurmanguzhina // *Journal of clinical medicine of Kazakhstan*. – 2014. – Vol. 2 (32). – P. 14–20.
6. How Should Social Media Be Used in Transplantation? A Survey of the American Society of Transplant Surgeons / M. L. Henderson, J. T. Adler, S. E. Van Pilsum Rasmussen [et al.] // *Transplantation*. – 2019. – Vol. 103 (3). – P. 573–580.
7. *International registry in organ donation and transplantation. USA 2019 statistics*. – Access mode : <https://www.irodat.org/?p=database&c=US&year=2019#data>.
8. Manyalich M. The need and opportunity for donation after circulatory death worldwide / M. Manyalich, H. Nelson, F. L. Delmonico // *Current opinion in organ transplantation*. – 2018. – Vol. 23 (1). – P. 136–141.
9. Organ donation after circulatory death: current status and future potential / M. Smith, B. Dominguez-Gil, D. M. Greer [et al.] // *Intensive care medicine*. – 2019. – Vol. 45 (3). – P. 310–321.

### References

1. Bablyak, A. (2020). Transplantatsiya. Shcho vam potribno pro tse znaty [Transplantation. What you need to know about it]. Retrieved from: <https://nv.ua/opinion/transplantaciya-chto-proishodit-v-ukraine-poslednie-novosti-50101343.htm> [in Ukrainian].
2. Kushnir, B. [2020]. V komunalnyi likarni stvoryly tseentr transplantolohiyi [A transplant center was created in the communal hospital]. *Holos Ukrainy – Voice of Ukraine* [in Ukrainian].
3. Polyakova, O. (2011). Peresadka orhaniv – problemy i perspektyvy [Transplantation of organs – problems and prospects]. *Radio Svoboda*. – *Radio Liberty*. Retrieved from: <https://www.svoboda.org/a/16796316.html> [in Ukrainian].
4. (2016). Problemy ukrainskoi transplantologii: imeet li znachenie vid prezumptsii – ekspertnoe mnenie [Problems of Ukrainian transplantology: does the type of presumption matter – expert opinion]. *Apteka – Apteka*, 35(1056). Retrieved from: <https://www.apteka.ua/article/383196> [in Russian].
5. Aringazina, A., & Kurmanguzhina, M. (2014). Current Approaches to the Implementation of Donor Programs in Transplantation. *Journal of clinical medicine of Kazakhstan*, 2(32), 14-20.

6. Henderson, M.L., Adler, J.T., Van Pilsum Rasmussen, S.E., Thomas, A.G., Herron, P.D., Waldram, M.M., ... Segev, D.L. (2019). How Should Social Media Be Used in Transplantation? A Survey of the American Society of Transplant Surgeons. *Transplantation*, 103(3), 573-580.
7. (2020). International registry in organ donation and transplantation. USA 2019 statistics. Retrieved from: <https://www.irodat.org/?p=database&c=US&year=2019#data>.
8. Manyalich, M., Nelson, H., & Delmonico, F.L. (2018). The need and opportunity for donation after circulatory death worldwide. *Current opinion in organ transplantation*, 23(1), 136-141.
9. Smith, M., Dominguez-Gil, B., Greer, D.M., Manara, A.R., & Souter, M.J. (2019). Organ donation after circulatory death: current status and future potential. *Intensive care medicine*, 45(3), 310-321.

## СТРУКТУРИЗАЦІЯ ОРГАНІЗАЦІЙНИХ ПРОБЛЕМ І ЗАВДАННЯ ТРАНСПЛАНТОЛОГІЇ В РЕГІОНАХ УКРАЇНИ

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**Мета:** структурувати організаційні проблеми регіональних систем донорства та трансплантації органів й ідентифікувати ключові завдання їх оптимізації.

**Матеріали і методи.** Для досягнення поставленої мети у роботі використані загальнонаукові методи аналізу, синтезу, узагальнення, інтерпретації наукових даних, а також системний і структурно-функціональний підходи.

**Результати.** Трансплантація є критично важливою частиною лікування людей із термінальними стадіями захворювання органів та тканин. Вона має глобальне медичне та соціальне значення. На сьогоднішню основну проблему трансплантології є дефіцит донорських органів. Головну проблему трансплантації органів, проблему адекватного забезпечення оптимальними донорськими органами, можна вирішити шляхом ефективної організації процесу донорства.

Розвиток трансплантології безпосередньо залежить від рівня організації процесу трансплантації, тому найкращих результатів у трансплантаційній діяльності досягають країни, які зуміли створити ефективну систему координації трансплантації. Трансплантологія є точкою зростання всієї системи охорони здоров'я.

У результаті проведеного дослідження структуровані ключові організаційні проблеми донорства та трансплантації органів у регіонах й ідентифіковані ключові завдання оптимізації регіональної системи донорства та трансплантації органів.

**Висновки.** Доведено наявність організаційних проблем у системі органного донорства та трансплантації у регіонах України, які структуровані для зручного вирішення завдань. З метою оптимізації регіональної системи органного донорства та трансплантації визначено ключові завдання.

**КЛЮЧОВІ СЛОВА:** донорство органів; трансплантація; трансплантаційні центри.

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