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On the 100th anniversary of the Saint Petersburg State Pediatric Medical University

The Role of Mikhail Stepanovich Maslov in the establishment and development of the Leningrad Pediatric Medical Institute — Saint Petersburg State Pediatric Medical University. On the 140th anniversary of M.S. Maslov's birth

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ABSTRACT. In 2025, the Saint Petersburg State Pediatric Medical University (SPbSPMU) celebrates its 100th anniversary, and this year marks the 140th anniversary of the birth of the outstanding Russian pediatrician Mikhail Stepanovich Maslov (1865–1961). These two anniversaries are closely related: M.S. Maslov was one of the organizers of the Institute for the Protection of Motherhood and Infancy (IMCI, now SPbSPMU), opened in 1925. Its development, transformation into a university, and reorganization into the Leningrad Pediatric Medical Institute (LPMI) are largely due to M.S. Maslov. In the Institute, where all types of institutions for mother and child were represented, including clinical ones, he saw great prospects for a comprehensive scientific study of a healthy and sick child, the patterns of his growth and development. He was one of the first to propose the possibility of creating on its basis a higher educational institution for training pediatricians from the student bench, and implementing the idea of the earliest possible formation of professional competencies of a pediatrician. He was the author of documents justifying the implementation of this plan, and promoted these plans in government bodies. From 1924, M.S. Maslov served as scientific director of the Institute's physiological departments. From 1928, he headed one of the first scientific departments devoted to the study of healthy children, the Department of Physiology, Hygiene, and Dietetics of Early Childhood. In 1930, it was reorganized into the Department of Childhood Pathology, and then the Department of Faculty Pediatrics, which he headed until 1960. From 1924, M.S. Maslov served as scientific director of the Institute's physiological departments. From 1928, he headed one of the first scientific departments devoted to the study of healthy children, the Department of Physiology, Hygiene, and Dietetics of Early Childhood. In 1930, it was reorganized into the Department of Childhood Pathology, and then the Department of Faculty Pediatrics, which he headed until 1960. The employees of these departments, as well as the department of children's diseases of the Military Medical Academy, which he headed from 1923 to 1961, formed the basis of the largest scientific pediatric school of M.S. Maslov, who is the founder of an original direction in pediatrics of the twentieth century. Research conducted by M.S. Maslov and his students enriched scientific pediatrics, contributed to its further progress. The problems he studied were always relevant, closely related to the needs of children's health care. The article also briefly describes M.S. Maslov as a teacher, public figure, organizer of health care, and shows his achievements in the field of international cooperation.

KEYWORDS: Mikhail Stepanovich Maslov, Leningrad Pediatric Medical Institute, Military Medical Academy, pediatrics, scientific school, organizational, pedagogical and international activities

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К 100-летию Санкт-Петербургского государственного педиатрического медицинского университета

Роль Михаила Степановича Маслова в становлении и развитии Ленинградского педиатрического медицинского института — Санкт-Петербургского государственного педиатрического медицинского университета. К 140-летию со дня рождения М.С. Маслова

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РЕЗЮМЕ. В 2025 г. встретил 100-летний юбилей Санкт-Петербургский государственный педиатрический медицинский университет (СПбГПМУ), в этом же году исполняется 140 лет со дня рождения выдающегося российского педиатра Михаила Степановича Маслова (1865–1961). Эти два юбилея тесно связаны между собой: М.С. Маслов был одним из организаторов открытого в 1925 г. Института охраны материнства и младенчества (ИОММ, ныне СПбГПМУ). Его развитие, преобразование в вуз, реорганизация в Ленинградский педиатрический медицинский институт (ЛПМИ) — во многом заслуга М.С. Маслова. В Институте, где были представлены все типы учреждений для матери и ребенка, в том числе клинического характера, он видел огромные перспективы для всестороннего научного изучения здорового и больного ребенка, закономерностей его роста и развития. Одним из первых он представил возможность создания на его основе высшего учебного заведения для подготовки детских врачей со студенческой скамьи и осуществления идеи как можно более раннего формирования профессиональных компетенций врача-педиатра. Он был автором документов, обосновывающих воплощение этого замысла в жизнь, продвигал эти планы в органах власти. С 1924 г. М.С. Маслов осуществлял научное руководство физиологическими отделениями Института, с 1928 г. — заведовал одной из первых научных кафедр, изучавшей здорового ребенка, которая называлась кафедрой физиологии, гигиены и диететики раннего детского возраста. В 1930 г. она была реорганизована в кафедру патологии детского возраста, а затем — в кафедру факультетской педиатрии, которой М.С. Маслов заведовал до 1960 г. Сотрудники этих кафедр, а также возглавляемой им с 1923 по 1961 гг. кафедры детских болезней Военно-медицинской академии, составили ядро крупнейшей научной педиатрической школы М.С. Маслова, являющегося основателем оригинального направления в педиатрии XX в. Исследования, проведенные М.С. Масловым и его учениками, обогатили научную педиатрию, способствовали

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ее дальнейшему прогрессу. Изучаемые им проблемы были всегда актуальны, тесно связаны с потребностями детского здравоохранения. В статье также кратко рассказывается о М.С. Маслове как педагоге, общественном деятеле, организаторе здравоохранения, показаны его достижения в области международного сотрудничества.

КЛЮЧЕВЫЕ СЛОВА: Михаил Степанович Маслов, Ленинградский педиатрический медицинский институт, Военно-медицинская академия, педиатрия, научная школа, организационная, педагогическая и международная деятельность

Pediatrics is the most wonderful,
the most noble speciality.
If I were asked which profession I would choose
if I were young,
I would say with full responsibility that I would
choose the pediatric faculty
M.S. Maslov

In 2025, the year of the 100th anniversary of Saint Petersburg State Pediatric Medical University (SPSPMU), we are also celebrating another anniversary — May 31st marked the 140th anniversary of the birth of Mikhail Stepanovich Maslov (1885–1961), an outstanding Soviet pediatrician, a remarkable clinician, the founder of the largest scientific pediatric school, a full member of the USSR Academy of Medical Sciences, and an Honored Scientist of the RSFSR.

This anniversary is especially important to us because M.S.Maslov was one of the founders of our university. In 1924, he was among the first organizers of the Institute for the Protection of Motherhood and Infancy (now SPSPMU), along with V.O. Mochan (Director of the Institute from January 1924 to April 1925), A.N. Antonov, Z.O. Minchik, A.Ya. Goldfeld, and others. M.S. Maslov (Fig. 1) participated in the first meeting of the Council of the Leningrad Institute for the Protection of Motherhood and Infancy on January 7, 1925, at which the opening of the Institute was announced[1].

Fig. 1. M.S. Maslov — one of the organizers of LPMI. 1920s

Рис. 1. М.С. Маслов — один из организаторов ЛПМИ. 1920-е годы

All stages of the formation and development of the Institute, reorganization into the Leningrad Pediatric Medical University (LPMI) — the first pediatric university in the world — took place with the participation of M.S. Maslov and were largely his achievement.

From 1924, he served as the scientific coordinator of the Institute's physiological departments, which included only three Mother and Child Homes, three Infant Homes, and a newborn department that had just begun its work[2]. He formed the general direction of work of these institutions and organized the first scientific studies of healthy and sick children. These studies were conducted in cooperation with bacteriological and pathological anatomy laboratories, as well as with the biochemical laboratory established in 1925. To manage this laboratory, M.S. Maslov invited A.F. Tur, a staff member of his children's diseases clinic at the Military Medical Academy (VMedA).

As a member of the Council of the Institute for the Protection of Motherhood and Infancy (IPMI), M. S. Maslov, despite his busy workload as head of the Department of Children's Diseases at VMedA, attended all its meetings and actively participated in discussions on various issues, sharing his ideas and experience. The Council of the Institute had meetings quite often. On these meetings, they solved the most critical issues faced by staff in the very difficult period of organization, when it was nessesary to make operational decisions in rapidly changing circumstances.

As an already established scientist, M.S. Maslov paid great attention to developing research work at the young Institute. At the meetings of the Institute's Council, he emphasized creating the necessary conditions for conducting scientific and educational work, including the advisability of introducing a certain number of research staff, equipping laboratories with special equipment and apparatus, increasing the volume and types of research conducted, and so on. These proposals were supported by the members of the Council and led to the report by M.S. Maslov, "On the Organization of Scientific Work at the Institute", which was presented on March 17, 1925, at the sixth meeting of the Council of

[1] Central State Archive of Saint Petersburg, fund 4337, inventory 1, File 13. Meeting of the Institute Council, Sheet 2.

[2] Ibid., sheet 3

IPMI. After the discussion, resolutions based on the main points of the report were adopted. These concerned streamlining the work of children's institutions within the Institute's structure and increasing the staff of research associates, which was seen as one of the essential prerequisites without which it would be difficult to initiate scientific work[1]. It should be noted that among the difficulties of normal work, M.S. Maslov pointed to the psychological condition of physicians, who were in an uncertain position at the Institute, some of them wanted to quit. This was associated with the still unstable general staffing schedule and insufficient funding for the Institute's activities from central and local health authorities. Gradually, these issues were resolved, and the situation of all employees improved.

In 1925, a Commission for Developing Nutritional Standards for Pregnant and Breastfeeding Women, as well as for Infants and Children from 1 to 3 Years Old, was established at the Institute. M.S. Maslov, V.O. Mochan, A.V. Popova, and L.I. Chulitskaya were elected as its members. The work of this commission marked the beginning of a detailed study of one of the leading problems in pediatrics — child nutrition (dietetics).

In April 1925, Yu.A.Mendeleva was elected the Director of the IPIM. She began to devote even greater attention to scientific work, expanding extensive research in the field of child physiology and pathology. In this, Yulia Aronovna relied on the knowledge and experience of M.S. Maslov, who by that time was already a well-known scientific researcher and clinician in the country.

As a scientist M.S.Maslov was brought up in the traditions of scientific paediatrics that were formed at the oldest medical institution of our country, Military Medical Academy (VMedA), where S.F.Khotovitsky, N.I. Bystrova, N.P. Gundobina, A.N.Shkarina worked. A constant issue of the Department of Childhood Diseases of VMedA was the study of age-related characteristics in children [1]. During the education at the VMedA, M.S. Maslov chose not only profession of a pediatrician but also the way of a scientist devoted to studying the deep mechanisms of childhood pathology. Lectures and practical classes of the Head of the Department of Pathological Anatomy, A.I. Moiseev, aroused M.S. Maslov's interest in scientific research. As a third-year student, working at the laboratory of this department, he studied pathohystological methods and conducted research on the development of major vessels (the aorta and pulmonary artery) in the human embryo. In this work, he determined the timing of differentiation of individual layers and elements of the vascular wall and established earlier developmental timelines than those proposed by researchers such as A. Thoma and L. Aschoff [2]. He diligently attended all mandatory and optional Privatdozent courses and lectures on childhood diseases. He regarded E.E. Gartier (1872–1959), a Privatdozent at the Department of Childhood Diseases of the VMedA, and Professor A.N. Shkarin (1876–1920), the Head of that department, as his teachers in paediatrics. He was also greatly influenced by the outstanding pediatrician K.A. Rauchfus and Russia's first female professor of biochemistry, N.O. Ziber-Shumova, in whose laboratory at the Institute of Experimental Medicine he conducted the experimental part of his dissertation.

On May 28, 1921, M.S. Maslov was elected head of the Department of Children's Diseases at the VMedA and led it for 40 years until his death in 1961. An analysis of M.S. Maslov's subsequent scientific work shows that, at the moment of his election, he clearly understood which issues in pediatrics should be solved at first. He had his own vision on the educational process and organization of clinical work. As early as 1923, at the Second All-Russian Congress of Pediatricians, the scientific team headed by M.S. Maslov presented 10 reports. These studies employed unified methodological approaches to consolidate new research data on enzymatic functions in children under various physiological and pathological conditions, with special attention given to constitutional anomalies and feeding/digestive disorders in infants. Scientists were distinguished from everyone else by their originality, unity of theme, novelty, and relevance. It was at this congress that they first began to speak about a new school in pediatrics, a new academic research direction[2]. Within just two years, M.S. Maslov managed to organize a team of like-minded people. The first scientific group, which was formed at the Department of Children's Diseases of the VMedA, included M.F.Rudnev, V.F. Znamenskiy,

[1] Ibid., sheet 32.

[2] The concept of "academic" here is associated with the name of the institution where M.S. Maslov worked — the Military Medical Academy.

V.N. Morev, A.F. Tur, and Yu.A. Kotikov. The department also attracted doctors who could work as externals, actively participating in both clinical practice and scientific research.

Thanks to the creative energy of M.S. Maslov, his second scientific team began to take shape at the IPMI. Among its first members were Yu.N. Sadykova, E.I.Friedman, O.P. Timofeeva, R.M. Muravina and many others. They were joined by M.S. Maslov's colleagues who had completed externship or clinical training at the Academy's children's clinic, including A.F. Tur, Yu.A. Kotikov, and others. The wealth of clinical material concentrated in the IPMI's clinics provided M.S. Maslov with the opportunity M.S. Maslov to focus more deeply on the most pressing problems in pediatrics.

Within just a few years, scientific research activities and the specialization and advanced training of doctors and nurses expanded quite extensively at the IPMI. By a decree of the People's Commissariat of Health of the RSFSR in 1928, the Institute was reorganized into the Scientific Research Institute for the Protection of Motherhood and Infancy (SRIPMI) and received permission to establish professorial chairs and associate professorships, which provided scientific work a more structured framework.

In 1928, one of the first units one of the first units to be established was the Department of Physiology, Hygiene, and Dietetics of Infants, headed by M.S. Maslov. In 1930, he assumed leadership of the newly created Department of Childhood Pathology (Fig. 2).

Changes also occurred in the Institute's management structure. Along with the Director, responsibility for scientific work was assigned to a specially appointed Deputy Director for Research. Professor M.S. Maslov was invited to holt this position. In this role, he supervised the planning of complex research projects and led organizational efforts related to teaching activities.

During his many years at the Department of Children's Diseases, M.S. Maslov identified a significant gap in the training of pediatricians in the country. It became increasingly clear to him that pediatricians needed to be trained from their student years. There was an insufficient number of doctors who had undergone retraining in maternal and infant health through advanced training courses. However, their numbers alone were insufficient to meet the country's needs.

Fig. 2. M.S. Maslov and Yu.A. Mendeleva on a round in the physiological departments of the Institute of OMM

Рис. 2. М.С. Маслов и Ю.А. Менделева на обходе в физиологических отделениях Института ОММ

The limited duration of the training courses did not allow for the establishment of a solid foundation in child development or the adequate transmission of the body of knowledge accumulated by that time. Perhaps most importantly, the courses could not provide what was instilled through university education: the formation of specific socio-professional qualities of a pediatrician, which are essential for effective professional practice. M.S. Maslov can rightly be called the foremost initiator in our country of pediatrician training beginning from the first year of university education.

In the early 1930s, the system for training medical personnel in the USSR underwent reform. In accordance with the decree of the Council of People's Commissars (CPC) of the RSFSR dated June 19, 1930, "On the Reorganization of the System for Training Medical Personnel", medical faculties were separated from universities and established as independent higher education institutions subordinated to the People's Commissariat of Health of the RSFSR [3]. The most important aspect of the decree was its resolution regarding specialization in education. It introduced the training of physicians in the following specialties: therapeutic and preventive care, maternal and infant health, and sanitary and preventive care.

In 1932, on the basis of SRIPMI, a hospital-medical school was formed, with both day and evening faculties. The first students were admitted to the Institute. In 1935, all the necessary conditions for high-quality training of pediatricians from the earliest stages of university education had been created.

The successful organization of the educational process, the prompt establishment of the theoretical and clinical departments, which were necessary for physician training, and the involvement of outstanding scientists in these departments allowed the Institute's leadership to propose the reorganization of the hospital-medical school into a full-fledged higher education institution. By a decree of the People's Commissariat of Health of the RSFSR on February 15, 1935, the world's first specialized institute for training pediatricians — the Leningrad Pediatric Medical Institute — was established. In 1936, the first graduating class of 51 pediatricians completed their studies.

It should be noted that M.S. Maslov took an active part in all the transformations of the institute. He was, as a rule, the author of memoranda and spoke at meetings of the People's Commissariat of Health and other authorities dealing with the institute's reorganization. His authoritative opinion and recognition as a leading scientist, known not only in the USSR but also abroad, contributed to the favorable resolution of issues [4].

In 1935, M.S. Maslov published an article in Sovetskaya Vrachebnaya Gazeta (Soviet Medical Newspaper), a periodical intended for a broad audience of physicians and the medical community, in which he summarized the results of ten years of work at the Leningrad Institute of PMI and outlined its future prospects: "Now, with the establishment of an independent pediatric institute on its basis, new and even greater opportunities are opening up before it. Theoretical departments have joined in the development of knowledge about the child. In a short time, we will have newly established age-specific anatomy (normal and topographic), age-specific physiology, biochemistry, and pharmacology. The results of this work will quickly be reflected in the progress of clinical pediatrics" [5].

In teaching pediatrics, the LPMI had to act largely as a pioneer. It was a powerful institution that differed from pediatric departments or faculties at other medical institutes in having a specific objective: to begin the study of age-related characteristics of children from the very first years of medical education, during students' coursework in theoretical disciplines. The presence of specialized "pediatric" departments and clinics allowed the Institute to train specialists in pediatric surgery, childhood tuberculosis, pediatric neuropathology, pediatric psychiatry, pediatric otolaryngology, etc.

Under the guidance of M.S.Maslov, practically the entire methodology of the educational process was developed, and programs for teaching pediatric disciplines were revised and approved. At that time, the provision of students with appropriate pediatric textbooks required an urgent solution. M.S. Maslov was among the first to address this need. In 1933, a "Short Course on Children's Diseases" was published — the first textbook written in language accessible to students and corresponding to the level of pediatric knowledge of that time. The textbook went through five editions over the years.

In 1935, M.S. Maslov was awarded the honorary title of "Honored Scientist of the RSFSR".

With the establishment of the Hospital-Medical School and later the Leningrad State Pediatric Medical Institute, and with the commencement of student education, the further expansion

of its material base took place. This expansion aimed to create the conditions necessary for the functioning of a higher educational institution, including the organization of new departments and clinics, as well as various laboratories. In 1935, the Department of Childhood Pathology was reorganized into the Department of Faculty Pediatrics, headed by Professor M.S. Maslov until 1960. The clinic soon became a model institution, well-equipped, with a powerful biochemical and clinical laboratory operating within it.

On the initiative of Yu.A. Mendeleva and the head of the institute's research department, M.S. Maslov, the scientific work of all LPMI departments was systematized and became planned, with departmental teams defining research topics and specific timelines for conducting studies.

M.S. Maslov's work at LPMI—a major scientific and educational institution with established laboratories, clinics, and departments necessary for the comprehensive study of children — and at VMedA, the oldest military medical educational and research institution, contributed to the final formation of Mikhail Stepanovich Maslov's scientific school. The fact that these were higher educational institutions was a significant advantage, facilitating the implementation and integration of the two leading functions of a scientific school: research and education.

M.S. Maslov formed a cohesive research team united by common scientific issues. The large number of staff members and the availability of diverse clinical facilities enabled significant progress in addressing current issues in pediatrics and, crucially, facilitated the rapid implementation of new diagnostic, treatment, and preventive methods into practical healthcare. The name of M.S. Maslov became widely known, and many young doctors aspired to train in his clinics for both clinical and scientific advancement.

Since the Department of Faculty Pediatrics at LPMI was larger, the staff members who begun working with M.S. Maslov in the late 1920s and early 1930s at VMedA continued their work on the staff of LPMI. Among them were R.M. Muravina, O.P. Timofeeva, E.I. Kazanskaya, Yu.E. Vitkind, K.P. Ivanova-Glukhova, B.D. Tvar'yanovich, and others. In the late 1940s and early 1950s, the Department of Faculty Pediatrics employed G.I. Zaitseva, N.I. Tarasov, V.P. Varlamova, E.A. Antipina, L.L. Plyaskova, N.V. Anan'ina, A.P. Makarova, A.A. Valentinovich, I.P. Khlystova, and others.

Many scientific works, including dissertations, were carried out in collaboration with other departments. The collaboration between M.S. Maslov and Professor L.T. Solovyov, head of the Department of Biochemistry at LPMI, was particularly fruitful. Their joint research led to new knowledge on the pathogenesis of childhood diseases, which was presented in the works of R.M. Muravina, E.I. Fridman, I.A. Levinson, L.G. Leyvikov, A.F. Faddeeva, B.D. Tvar'yanovich, E.E. Shestovskaya, D.Ya. Podgaetskaya, and others. Furthermore, some studies were conducted jointly with the Department of Pathological Anatomy at LPMI, headed by Professor D.D. Lokhov (works by Yu.N. Sadykova, P.G. Kats, D.M. Vinokurov, etc.), and with the Department of Topographic Anatomy and Operative Surgery, led by Professor F.I. Valker (works by R.S. Novoselova, S.A. Arutyunyan, Yu.E. Vitkind, and others).

From the very first days of the Great Patriotic War, the Department of Children's Diseases at VMedA, under the leadership of M.S. Maslov, addressed issues related to air raid and chemical defense for children. In the autumn of 1941, M.S. Maslov traveled on a business trip to inspect rear-area hospitals. In late November 1941, VMedA was evacuated from Leningrad to Samarkand, and M.S. Maslov departed as part of its teaching staff along with his associates V.F. Znamensky, P.I. Ilyinsky, N.A. Shalkov, M.S. Osetrinkina, and V.S. Vayl'. In addition to teaching, during this period the department's team focused on improving therapeutic and preventive care for children and enhancing the qualifications of physicians, both within the clinic and across Samarkand and the surrounding region.

The children's clinic in Samarkand had no auxiliary departments, so to organize comprehensive examination and treatment for children, M.S. Maslov established connections with other units of the institute: X-ray examinations were conducted at the therapeutic clinic, physiotherapy treatment at the nervous diseases clinic, and laboratory tests at the central laboratory of the clinical hospital. The work of the milk kitchen was improved, and the range of nutritional formulas was expanded. Significant effort was devoted to enhancing the nutrition of older children, ensuring it was appropriate in terms of calories and ingredients for their age and health status. Foods used by the local population were incorporated into dietary therapy practices, including jida (Russian olive), nut milk, and fermented milk.

Between 1942 and 1943, 1,470 sick children were treated at the clinic.

M.S. Maslov and his colleagues established close ties with the Samarkand Public Health Department. Since the main cause of child morbidity and mortality was gastrointestinal diseases, M.S. Maslov and his colleagues organized a special commission, which developed a plan of measures to help reduce this pathology. Attention was also given to combating infectious diseases.

M.S. Maslov repeatedly spoke at meetings of the Samarkand Regional Party Committee and the City Executive Committee on issues related to improving child nutrition and organizing medical care for children. For their work in Samarkand, the department's team received a letter of commendation from both the city and republican health departments. In an editorial in the Samarkand newspaper "Leninsky Put" (Lenin's Path), the department's work in organizing support for practical healthcare was highly praised by local party authorities.

After the siege of Leningrad was lifted, the staff of the Department of Children's Diseases at VMedA returned in June 1944 to the city, ravaged by war and blockade. Simultaneously, M.S. Maslov continued to head the Department of Faculty Pediatrics at LPMI. The department's staff who had remained in Leningrad — E.I. Fridman, G.A. Nikolaev, R.M. Muravina, O.P. Timofeeva, and others — strived during the harsh blockade years to preserve the working principles established by M.S. Maslov and carried out the critical task of treating and saving children's lives. They maintained correspondence with Mikhail Stepanovich, consulting him on scientific matters.

In 1944, Mikhail Stepanovich Maslov was elected a full member of the USSR Academy of Medical Sciences, joining its founding cohort [6]. His election to the newly established Academy recognized M.S. Maslov's contributions to Soviet pediatrics and the protection of maternal and child health. Over the years, M.S. Maslov's academic group included N.A. Shalkov, E.S. Malyzheva, E.I. Kazanskaya, K.F. Shiryaeva, T.G. Nikolaeva, M.G. Chukhlovina, and others. The group engaged in developing the core problems addressed by the Maslov school: studying the external respiratory apparatus in children, the pathology of the respiratory and cardiovascular systems, functional characteristics and pathogenesis of gastrointestinal diseases, septic and allergic conditions, the issue of reactivity in childhood, and other related topics.

In the post-war years, the departments and clinics headed by M.S. Maslov at both VMedA and LPMI were equipped with new instruments and apparatus. Cooperation was established with children's medical and preventive institutions in Leningrad, which were used not only for conducting classes with trainees and students but also for improving the organization of pediatric care. In 1948, one of the most brilliant and original books in Soviet pediatrics, Diagnosis and Prognosis of Childhood Diseases, was published, representing exceptional interest for any practicing physician. M.S. Maslov began writing it as early as 1943 in Samarkand. He considered this book his contribution to the Victory. In the preface, he wrote: "In light of the severe population losses our country suffered during the Great Patriotic War and the enormous destruction of cities, villages, collective farms, and cultural institutions, we are obliged to take all measures for the swift revival of the country's strength, the increase of its population, and the reduction of childhood morbidity and mortality. The best path to this is improving the quality of care for the children of our country. This book is a contribution to this great cause" [7]. The book played a significant role in shaping the clinical thinking of students and physicians.

M.S.Maslov also paid great attention to the improvement of educational process. The work at LPMI, where specialized training for students was conducted, allowed M.S. Maslov to develop and implement many new rational principles in teaching. He headed the Central Methodological Committee of the Institute. He developed methodological guidelines on teaching pediatrics across different courses, enhancing the scientific qualifications of medical institute teachers, distributing functions within departments, and addressing other related topics. The issues of teaching methodology were frequently discussed at departmental meetings both at LPMI and VMedA.

M.S.Maslov initiated the introduction of the active teaching method. He believed that students should be as active and independent as possible at the patient's bedside and in the laboratory, while the teacher should only guide and correct them, without suppressing their initiative. The main aim of assistant professors was to engage students, assist in the development of clinical thinking, and help them find additional literary sources. He attached great importance to the use of visual and didactic aids in teaching students, and he took care to provide them in the classrooms of clinics.

The lectures of M.S. Maslov were characterized by their richness of factual material, novelty of thought, conciseness of presentation, clarity, and simplicity.

One of his great achievements was the creation of textbooks, manuals and monographs, which for many years served as handbooks for both doctors and students. These included "The Study of Constitutions and Constitutional Anomalies (Diatheses) in Childhood and Their Biological and Pathological Significance" (1924, 1925, 1926); "Fundamentals of the Study of the Child and the Specifics of Childhood Diseases" in two volumes was published in 1926–1927, 1928–1929, 1930–1932. As previously mentioned, in 1933, the textbook "Childhood Diseases. Short Course for Medical Students" was published. According to M.S. Maslov, it contained "that minimum of knowledge in pediatrics that is necessary for every doctor to be an active and conscious participant in the fight to reduce child mortality and improve the health of the offspring, to provide rational help to a child in the absence of qualified specialists, to understand some problems more correctly and to broaden their horizons" [8]. The second edition was published in 1935, and starting from the third edition it was called "Textbook on Childhood Diseases" (in 1939, and the fourth edition — in 1942). This textbook was intended for higher medical educational institutions. The fifth edition was published in 1952, the sixth – in 1953 (for students of General Medicine faculties at medical institutes).

In 1940, the textbook "Childhood Diseases" (the second edition in 1946) for students of pediatric faculties was published. This textbook was based on the teaching experience at LPMI. M.S. Maslov noted in the preface that "this book is a course of clinical pediatrics for students of pediatric faculties and the Pediatric Institute". He noted that: "A Textbook of Clinical Pediatrics should provide the student with answers to all questions arising at the bedside of a sick child, introduce them to the main directions of modern pediatrics, and at the same time have its own guiding direction. In this book, the achievements and results of the scientific work of Soviet pediatricians are widely used, all the achievements of foreign pediatrics are taken into account, but it is based on the author's own experience, stemming from many years of work at the Leningrad Pediatric Institute. Our main task was to provide an original Soviet textbook, corresponding to the modern programs of our higher medical school while simultaneously outlining the organizational structure of Soviet healthcare" [9].

Another educational aid for students was "Lectures on Faculty (Hospital) Pediatrics" in two volumes (two editions, 1957–1960). The format of the material's presentation allowed M.S. Maslov to combine a description of detailed clinical analysis of specific patients with an exposition of the fundamental patterns of disease course and treatment. Forty-two lectures covered the main diseases of early and later childhood.

The textbooks and manuals by M.S. Maslov are characterized by clarity and accessibility of presentation, reflection of the latest scientific achievements by both Soviet and foreign authors, use of statistical and demographic data, reflection of the preventive focus of Soviet healthcare, inclusion of an outline on the history of pediatrics, organization of children's healthcare, and the system of maternal and child health protection in the manuals.

Each subsequent edition of a textbook or manual is not simply a reprint, but involved a thorough editing process, with content updated to reflect new scientific advances and improvements in the educational process. M.S. Maslov's textbooks and monographs have been translated into Bulgarian, Serbian, Korean, Chinese, Romanian, and Albanian.

M.S. Maslov's lectures were always full of new information, distinguished by rigorous logic, taught students to think, and encouraged them to grasp the depths of the profession. At the same time, they were accessible, clear, and simple. He did not resort to rhetorical effects, speaking calmly without raising his voice. M.S. Maslov believed that lectures on Faculty Pediatrics should be in the form of illustrative clinical analyses of the most common diseases in children of different ages, presented in the most vivid and typical form (Fig. 3). Practicing pediatricians often attended M.S. Maslov's lectures to students.

The number of M.S. Maslov's students grew every year. His scientific school, which had been formed in the pre-war years, reached its peak in the 1940s and 1950s. M.S. Maslov combined his intense interest in science with a desire for collective creativity. As the head of a scientific school, he was one of those scientists who constantly needed students and followers, while at the same time being a center of attraction for researchers. He was firmly convinced that a comprehensive understanding of a particular issue could only be achieved through collective study. "Only scientific teams that work well together",

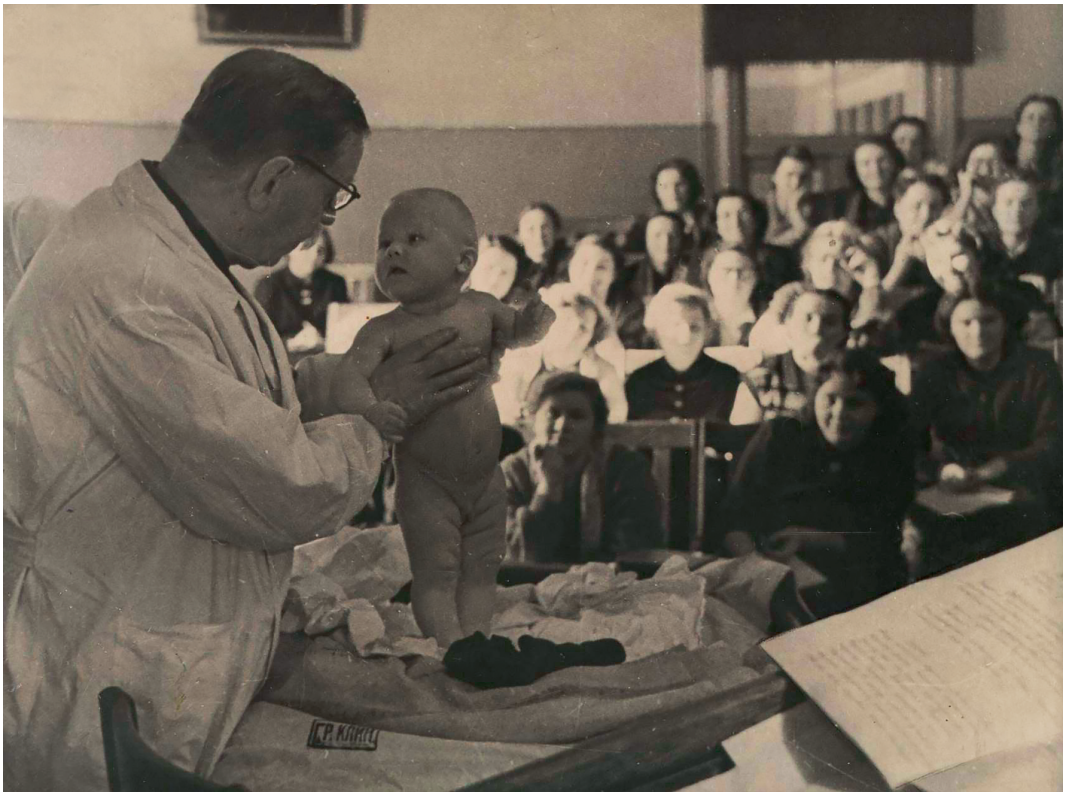

Fig. 3. Lecture by Professor M.S. Maslov on faculty pediatrics, 1950s

Рис. 3. Лекция профессора М.С. Маслова по факультетской педиатрии, 1950-е гг.

wrote M.S. Maslov, “united by a single scientific leadership, trained in methodology, tested in their work, and capable of critical thinking, can and do produce valuable results for science. When work comes from such a large scientific team, it can be trusted, because behind it lies the scientific and clinical experience and critical attitude of the institution itself” [10].

The key to the success of M.S. Maslov’s school, one of the largest scientific schools in Soviet pediatrics, was undoubtedly the presence of an original and innovative research program, the careful organization of scientific work, the creation of optimal conditions for conducting research, and the collective nature and complexity of the work performed [11]. The pediatric school of M.S. Maslov established a functional-biochemical approach to studying the characteristics of the child’s body in both normal and pathological conditions. Biochemical markers were introduced to assess health and disease, and the concept of individual reactivity in children, linked to their constitution, was developed, enabling a personalized approach to studying pathogenesis and designing individual pathogenetic therapies.

A team headed by M.S. Maslov thoroughly studied the characteristics of childhood, mainly the functional and biochemical characteristics of organs and tissues; constitutions and constitutional abnormalities (diathesis) in childhood; the reactivity of the child’s body; the etiology, pathogenesis, and individual pathogenetic treatment of acute and chronic digestive and nutritional disorders in children; septic conditions in infants; hepatitis and hepatolienal diseases; nephropathies; pneumonia and cardiovascular diseases in children. The introduction of new treatment methods developed by M.S. Maslov and his students into pediatric healthcare practice contributed to a reduction in overall and infant mortality rates.

In the early 1950s, M.S. Maslov, together with academician of the USSR Academy of Medical Sciences, P.A. Kupriyanov, began developing methods for the diagnosis and surgical treatment of congenital heart defects and purulent-inflammatory diseases of the lungs in children. For the first time in the USSR, new diagnostic methods for congenital heart defects (angiocardiography, aortography, cardiac catheterization, etc.) were mastered and

introduced into practice in children's clinics, which made it possible to bring the accuracy of topical diagnosis of individual heart defects to 93%. Indications and contraindications for surgical intervention in heart defects in children were formulated (K.F. Shiryayeva, S.L. Libov, F.Kh. Kutushov, and others).

M.S. Maslov was the author of about 250 scientific works, including 16 monographs.

When studying the scientific legacy of M.S. Maslov, one is struck both by the breadth of his interests and by their unity and close interconnection. His subsequent work often flowed from the previous one; the completion of one work determined the beginning of another. Maslov's student, Professor A.F. Tur, described his scientific style as follows: "This diversity of problems... was not simply a shift from one topic to another, but a well-founded switch to questions that arose during the study of previous problems and required clarification, or were answers to questions that arose before health authorities" [12].

The M.S. Maslov school, as a special form of organizing scientific activity and disseminating scientific knowledge, successfully combined tradition and innovation. It was formed when pediatrics had achieved significant success, and at the same time, the results of its activities enriched the scientific foundation of pediatrics, reproduced new knowledge, determined its development for many years, and offered fundamentally new and fruitful research methods.

Under the guidance of M.S. Maslova, 10 doctoral and 46 candidate dissertations were prepared. Among M.S. Maslova's colleagues and students, 21 became professors and headed departments or became professors in various cities across the country: A.F. Tur, V.F. Znamensky, V.L. Styrykovich, E.I. Friedman, N.A. Shalkov, V.S. Vail, K.F. Shiryayeva, N.G. Zernov, A.I. Kliorin, M.G. Chukhlovina, and many others. Professor A.A. Valentinovich, a student of M.S. Maslov, noted an important trait of Mikhail Stepanovich: "His ability to instill an interest in scientific research... It is no coincidence that 18 of his colleagues and students hold the title of professor and 19 hold the title of associate professor. But we can say even more: almost every pediatrician can, to some extent, be called a student of Prof. Maslov, such is the broad influence of his textbooks, monographs, articles, and reports on the formation of all Soviet pediatricians" [13]. The activities of the "subsidiary" school created by M.S. Maslov's student, full member of the USSR Academy of Medical Sciences, Professor A.F. Tur at LPMI, were of great importance for the development of Soviet pediatrics.

M.S. Maslov's personal qualities contributed to his role as leader of the scientific team. From his youth, he was distinguished by his perseverance in achieving his goals and his diligence. Mikhail Stepanovich was characterized by his understanding of new ideas based on his exceptional knowledge of the fundamentals, his diverse scientific interests, and his awareness of the achievements of modern science. At the same time, he focused on problems that interested him throughout his creative life and paid attention to methodological issues in science. M.S. Maslov's scientific successes were linked to his broad erudition and outlook, solid theoretical training, knowledge of morphology, physiology, biochemistry, and microbiology, and his respect for the history of medicine. He was distinguished by his multifaceted talent, brilliant mastery of methods for examining children, ability to solve pressing clinical problems, and exceptional organizational skills [14].

The scientific achievements of M.S. Maslov, his colleagues, and students received not only all-Union but also worldwide recognition. Postgraduate students from Bulgaria, Poland, Yugoslavia, and China came to study at M.S. Maslov's clinics. Numerous delegations, as well as individual doctors, visited the departments he headed to familiarize themselves with their work. M.S. Maslov's archives contain letters from some of the world's most famous pediatricians with whom he corresponded, including G. Fanconi from Switzerland, A. Ylppo from Finland, P.G. Kiss from Hungary, K. Kubát from Czechoslovakia, St. Kolarov and Y. Todorov from Bulgaria, A. Ross from Canada, M. Lelong from France, and others.

M.S. Maslov actively participated in international pediatric forums. He repeatedly headed delegations of Soviet pediatricians to international scientific congresses, contributing to the strengthening of friendship between nations.

M.S. Maslov maintained close ties with the Institute of Pediatrics of the USSR Academy of Medical Sciences. He participated in the institute's scientific sessions and provided advisory assistance to the institute's management on regulating the scientific activities of peripheral institutes and departments. On behalf of the clinical department of the USSR Academy of Medical Sciences,

M.S. Maslov reviewed the plans for scientific work of the Institute of Pediatrics of the USSR Academy of Medical Sciences as a whole and on specific issues, advised the institute's staff on the diagnosis of heart defects, biochemical blood indicators, etc.

In collaboration with the Institute of Obstetrics and Gynecology of the USSR Academy of Medical Sciences, he conducted studies on congenital heart defects in newborns and premature infants.

M.S. Maslov enjoyed high authority as chairman of the Leningrad Scientific Society of Pediatricians. In 1925, he was elected chairman of the Society of Pediatricians for the first time. He also headed the Society in 1929–1930, and from 1933 until the end of his life (with the exception of 1942–1944). He actively participated in the work of the All-Russian and All-Union Congresses of Pediatricians from 1912 to 1957.

As chairman of the Society of Pediatricians, M.S. Maslov tried to bring up issues at meetings that were relevant to the times. Since the early years of Soviet power, pediatricians had begun to focus not only on treating sick children, but also on protecting their health, and thconsept of prevention permeated the topics discussed at meetings. M.S. Maslov wrote: "Modern protection of motherhood, infancy, and childhood is the highest form of prevention. It is flesh of the flesh and blood of the blood of pediatrics and could only have arisen thanks to the powerful progress of pediatrics in general and in the study of the physiology of healthy children in particular" [15].

M.S. Maslov viewed the main task of the Society of Pediatricians as improving the qualifications of doctors, especially young ones. To attract doctors to become members of the society and increase interest in its meetings, it was decided to hold off-site meetings in large children's hospitals and other medical and preventive institutions. The topics of the scientific meetings covered issues of concern to the pediatric community, and questions of considerable interest from a practical and organizational points of view were discussed. The number of clinical demonstrations was increased.

Providing scientific, methodological, and practical assistance to health authorities became one of the most important areas of activity for the Society of Pediatricians, headed by M.S. Maslov. Close contact was established with the Leningrad City Health Department. At joint meetings, specific proposals were developed to improve medical and preventive care for children. Thanks to these measures, many new forms and methods of work were developed and implemented in Leningrad for the first time. In the post-war period, there was not a single area of pediatrics and the organization of children's health care that was not discussed at the society's meetings. All these measures activated the society's activities and attracted young people to its ranks. While at the beginning of the XX century it had about 100 members, by 1940 there were already 500.

M.S. Maslov was a member of the All-Union Society of Pediatricians and deputy chairman of the All-Union Society of Pediatricians, as well as curator of the Ukrainian Scientific Society of Pediatricians. He participated in the work of other scientific societies and was elected an honorary member of the Society of Microbiologists and Infectious Disease Specialists.

M.S. Maslov paid great attention to the organization of medical care for young children at home and in hospitals, and is also contributed to the development of specialized care for children. In 1958, a sanatorium for patients with bronchial asthma and chronic pneumonia was opened in the Sestroretsk resort, initiated and scientifically supervised by M.S. Maslov. New methods of treatment (aerosol therapy, intratracheal administration of drugs, etc.) were introdused at the sanatorium, and leisure activities for children were well organized. In 1963, the sanatorium was named after M.S. Maslov.

M.S. Maslov repeatedly traveled to Armenia, Azerbaijan, Karelia, and Ukraine to provide consulting assistance on child welfare issues.

Even during the Great Patriotic War, in order to provide advisory assistance to health authorities and improve medical care for children, councils for medical and preventive care for children were created under the People's Commissariats of Health of the USSR and the RSFSR. These councils included qualified pediatricians, among them M.S. Maslov. He participated in plenary sessions of the council for medical and preventive care for children, where topical issues of children's health care during the war and in the post-war period were discussed. In 1959, on behalf of the USSR Ministry of Health, he prepared proposals for the World Health Organization on combating gastrointestinal diseases in infants.

The Council for Medical and Preventive Care for Children, established under the

Leningrad City Health Department, was headed by M.S. Maslov. The positions he held (chairman of the Council for Medical and Preventive Care for Children, chairman of the Society of Pediatricians, and head of leading scientific teams) reflected the close integration of science and practice, which was essential for the fruitful development of pediatrics.

In the 1930s and 1940s, M.S. Maslov was a member of the qualification, expert, and methodological commissions of the People's Commissariat of Health of the USSR and was a permanent reviewer for the Higher Attestation Commission (VAK) of the USSR.

From 1947 to 1952, Maslov was elected a deputy to the Leningrad Council of Workers' Deputies.

M.S. Maslov participated in the work and organization of All-Russian and All-Union Congresses of Pediatricians, where he delivered keynote speeches: II Congress — 1923 (Moscow); III Congress — 1925 (Leningrad); IV — 1927 (Moscow); V — 1935 (Leningrad); VI — 1947 (Moscow); VII — 1957 (Leningrad). He and his colleagues were involved in organizing the congresses held in Leningrad. M.S. Maslov served as chairman of the organizing committee of the VII All-Union Congress of Pediatricians, which was attended by scientists from more than 25 countries. The congress demonstrated our country's great achievements in the field of pediatrics. After the congress, M.S. Maslov received letters from foreign scientists expressing their gratitude for the opportunity to participate in the congress. In his letter, Professor Fan Tzun from the People's Republic of China wrote to Mikhail Stepanovich: "Members of the Chinese delegation, Prof. Sun-Min-Tun and I, accepted your invitation to participate in the VII All-Union Congress of Pediatricians. Thanks to this, we were able to witness firsthand the great successes in children's healthcare and the advanced experience in pediatrics in the USSR. Allow me to once again express my deep respect and heartfelt gratitude to you... We have already provided detailed information about this remarkable congress to the Ministry of Health of the People's Republic of China, as well as a proposal to create a commission for the exchange of experience in the field of pediatric science between socialist and new democratic countries" [1].

M.S. Maslov actively participated in international pediatric forums. He repeatedly headed delegations of Soviet pediatricians at international scientific congresses, contributing to the strengthening of friendship between nations, and participated in the V (1947, New York), VII (1956, Copenhagen), and VIII (1959, Montreal) International Congresses of Pediatricians. At the V International Congress of Pediatricians in 1947 in New York, a temporary committee was elected to develop regulations for the International Association of Pediatricians, and at the VI Congress of Pediatricians in Zurich in 1950, a permanent Executive Committee of the International Association of Pediatricians was approved, of which M.S. Maslov was a member. In the same year, the USSR Academy of Medical Sciences and the All-Union Society of Pediatricians decided to join the International Association of Pediatricians.

As a member of the Executive Committee of the International Association of Pediatricians, M.S. Maslov made significant efforts to organize the IX International Congress, which took place in Canada (Montreal) in July 1959. M.S. Maslov headed the Soviet delegation, which consisted of 16 people. On the first day of the delegation's stay in Montreal, a meeting with journalists was organized, and an interview with Professor M.S. Maslov was published in the newspapers.

M.S. Maslov was elected a full member of the Polish Academy of Sciences, an honorary member of the Czechoslovak Purkyně Scientific Society, and the Bulgarian Pediatric Society, and a corresponding member of the Paris Society of Pediatricians.

In 1951, M.S. Maslov visited Czechoslovakia twice. In February, he was part of a government delegation and gave presentations in Prague and Brno at a meeting of the Society of Pediatricians and Gynecologists. In October of the same year, he headed the Soviet delegation at the Congress of Czechoslovak Pediatricians in Brno. During his last visit, he familiarized himself in detail with the state of children's health care in Czechoslovakia and, at the request of the society's leaders, did serious work on drafting recommendations for improving medical and preventive care for children. In addition, he played an active role in the creation of the first pediatric faculty in the Czechoslovak Socialist Republic at Charles University in Prague, participated in the development of educational programs, and attended its grand opening.

M.S. Maslov took an active part in the International Congress on the Protection of Children, held in Vienna in 1952, where he headed the medical section. The congress revealed that child-

ren in many countries were in a very difficult situation, which "could not fail to cause legitimate concern among all honest people". M.S. Maslov wrote: "The development of child protection must first and foremost be linked to the struggle for peace, to the struggle against the preparation of a new war. The struggle for peace is not only about saving humanity from the destruction of all the treasures of culture and civilization, it is a struggle to increase funding for social and cultural activities. There can be no greater happiness for all fathers and mothers than knowing that their children's future is secure, that all paths are open to them, that the state stands guard over their health and well-being" [16].

M.S. Maslov maintained close ties with Hungarian pediatricians. In October 1958, Soviet-Hungarian Medicine Days were held in Moscow and Leningrad. At the initiative of Hungarian doctors, a joint scientific conference of pediatricians from the USSR and the Hungarian People's Republic was organized. M.S. Maslov played a major role in organizing and conducting all events. Hungarian scientists familiarized themselves with the work of a number of scientific institutions, including the clinics of the LPMI and the VMedA.

Maslov's last trip abroad took place in November 1959, when he participated in a congress of Hungarian pediatricians in Budapest.

It should be noted that Maslov did not simply participate in various congresses, but actively engaged with pediatricians in the host country, thereby promoting the achievements of Soviet pediatrics, peacefulness, and goodwill.

Mikhail Stepanovich enjoyed exceptional authority and respect, and his speeches were always listened to with particular attention. They were invariably constructive; he would identify a problem and propose a solution.

M.S. Maslov carried out extensive editorial work. He participated in editing the Journal of Children's Diseases and the Medical Gazette, was deputy editor of the journal Pediatrics, and co-editor of medical encyclopedias. From 1929, he was a member of the editorial board, and from 1946, he was the editor-in-chief of the journal Issues of Pediatrics, Maternal and Child Health, which was published in Leningrad from 1929 to 1953 (from 1929 to 1936, the journal was called "Issues of Pediatrics, Pedology, and Maternal and Child Health"). The editorial office of the journal was located on the premises of the LPMI. This journal was very popular among pediatricians in the Soviet Union, largely thanks to M.S. Maslov. He treated the authors of articles with great attention and care. The pages of the journal were often given to young, unknown scientists. The journal published not only scientific articles, but also organizational and methodological materials, reports from the Leningrad Society of Pediatricians, and chronicles of life of LPMI

M.S. Maslov was a thoughtful clinician who mastered the art of diagnosis and prognosis, and he was known for his deep insight into the essence of disease. One of his clinical principles was the "individualization" of each patient. In 1924, he wrote: "... In essence, every new patient with the same disease is a completely new variety for the doctor, different from others he has seen before" [17].

M.S. Maslov attached great importance to correctly collecting and interpreting medical history in the diagnosis of disease, emphasizing the ability to critically assess and identify the dynamics of symptom development within the overall course of the illness. In his classes with doctors and students, he emphasized that a doctor must be able to understand the totality of all complaints made by a child and his parents. The inability to explain even a single and minor complaint should alert the doctor and prompt him to search for new data in the medical history.

One of the first in pediatrics, along with A.A. Kisel, M.S. Maslov drew attention of pediatricians to so-called premorbid conditions, in the diagnosis of which he assigned primary importance to the correct analysis of subjective symptoms.

According to the recollections of those who worked with M.S. Maslov, he never relied on external effects and "lightning-fast" diagnoses. A.F. Tur recalled: "On the contrary, it sometimes seemed that M.S. Maslov was in doubt, finding it difficult to make a diagnosis... This impression was false. M.S. Maslov, thinking at the patient's bedside, carefully assessed the patient's medical history and illness, calmly and consistently developed the course of his thoughts, and always tried to approach the patient individually, evaluate the pathogenesis of his illness, and justify individual therapy" [12].

Medicines were widely used in M.S. Maslov's clinics, and many new treatment methods were introduced into practice by M.S. Maslov and his colleagues (enzyme therapy, hormone therapy, antibiotic therapy, "Maslov's solutions", differentiated saline solutions, protein therapy, oxygen

therapy, differentiated diet therapy, stimulating therapy, etc.). In 1922, at the Children's Diseases Clinic of the Medical Academy, M.S. Maslov performed the first blood transfusion in the USSR to children, taking into account the hemagglutination compatibility of the donor's and recipient's blood [18, 19].

Despite his commitment to active therapy, Mikhail Stepanovich urged doctors to approach treatment critically and thoughtfully, warning against an overly simplistic approach to patients and templates in prescribing medications. He advised physicians to consider questions such as: how will the body react to the administration of

Fig. 4. Consultation with Professor M.S. Maslov

Рис. 4. Консультация профессора М.С. Маслова

Fig. 5. M.S. Maslov's rounds in the faculty clinic

Рис. 5. Обход М.С. Маслова в факультетской клинике

a particular drug, what side effects might occur in other organs and tissues, will neurohumoral regulation change, how will the prescriptions affect the overall reactivity of the body (Figs. 3, 4).

According to M.S. Maslov, clinical experience, logical thinking, fundamental knowledge, mastery of laboratory and instrumental techniques, and intuition help to become a good doctor. He always found time to consult with children and talk to their parents. He responded promptly to letters from parents of sick children and never refused to see a patient (Fig. 5). He said: "You have to be able to win a child's trust. To do this, you must first and foremost love children, get involved in the little things in their lives, understand their interests, and find a common language with them" [7]. Continuing the traditions of N.P. Gundobin, M.S. Maslov believed that every medical worker in the field of pediatrics should be an educator, a psychologist, study the child, and take an interest in their behavior and environment. He emphasized the importance of pediatricians thoroughly studying the social and living conditions of the child.

M.S. Maslov provided consultations not only within the USSR. Letters from doctors in Bulgaria, Poland, the German Democratic Republic, and Brazil have been preserved, in which they sought Mikhail Stepanovich's advice on the diagnosis and treatment of various pathological conditions, the evaluation of developed methods of diet therapy, and requested Soviet medicines, etc.

The motherland highly appreciated the work of M.S. Maslov. He was awarded the Order of Lenin, two Orders of the Red Banner, the Order of the Red Banner of Labor, the Order of the Red Star, and many medals, including the medal "For the Defense of Leningrad".

M.S. Maslov was known for being highly demanding of himself and his employees. Possessing inner discipline, he was able to manage his time well and accomplish a great deal. His day was scheduled down to the hour and minute, and his employees always knew where their boss was at any given moment. Mikhail Stepanovich disliked braggarts, those more inclined to talk about their supposed merits than to work, and he could not tolerate gossipers and troublemakers. A.F. Tur recalled that when he first met him, he seemed to be "a gloomy, overly reserved person who was not very attentive to those around him. This impression was completely wrong. Mikhail Stepanovich was very modest, perhaps a little shy, but he was a sensitive, gentle, very kind person who was very attentive to those around him" [12].

Knowing Mikhail Stepanovich's responsiveness, fairness, and attentiveness, his employees consulted with him even on matters unrelated to their work. He knew his employees' family members and remembered their interests.

Fig. 6. The last lecture of Professor M.S. Maslov on faculty pediatrics at LPMI

Рис. 6. Последняя лекция профессора М.С. Маслова по факультетской педиатрии в ЛПМИ

Those who worked with Mikhail Stepanovich noted that he had a wide range of interests: he loved chess, knew and appreciated literature, theater, visual arts, and music — he played the cello, regularly attended the philharmonic, and was very fond of cinema. Mikhail Stepanovich often asked young employees if they had seen a new film or visited an exhibition. Doctors who began working in his clinics initially thought Mikhail Stepanovich asked such questions in order to find out whether they studied literature at home, and accordingly replied that they had no time for entertainment. In such cases, he would say that a doctor must be interested in cultural events. He included topics such as reviews of domestic and foreign literature and films devoted to medicine or reflecting medical themes in the program of departmental meetings.

In 1960 M.S. Maslov left the Department of Faculty Pediatrics at LPMI and handed over the leadership to his student A.A. Valentinovich. M.S. Maslov devoted his last lecture at the institute to the history of pediatrics, briefly highlighting the achievements of the departments of pediatrics at the VMedA and LPMI (Fig. 6). He gave his original assessment of the contribution of leading pediatricians and urged future doctors to follow the glorious traditions of Russian pediatrics. With understandable modesty, he did not mention what can now be stated with certainty: the work of M.S. Maslov and the achievements of his scientific school constitute one of the main and most interesting chapters of Russian pediatrics.

In January 1925, in his speech at the grand opening of the Institute of PIM, M.S. Maslov welcomed the birth of the new institution, using the following comparison: it was “a newborn child with a good constitution” [20]. The diagnosis and prognosis of this luminary of pediatrics proved correct once again. This is confirmed by the achievements and results of the LPMI-SPSPMU, which will celebrate its 100th anniversary in 2025.

Mikhail Stepanovich Maslov’s contributions to the organization and development of LPMI — SPSPMU, where he headed one of the country’s leading Departments of Faculty Pediatrics, his impact on fundamental and clinical pediatrics, which opened opportunities for doctors to improve diagnostic and treatment methods, his dedication to pediatrics, his students, and his patients at our university are not forgotten. This

Fig. 7. M.S. Maslov (1885–1961) is an outstanding Soviet pediatrician, professor, full member of the USSR Academy of Medical Sciences (1945), Honored Scientist of the RSFSR (1935), Major General of the Medical Service

Рис. 7. М.С. Маслов (1885–1961) — выдающийся советский педиатр, профессор, действительный член АМН СССР (1945), заслуженный деятель науки РСФСР (1935), генерал-майор медицинской службы

was greatly facilitated by the students and followers of M.S. Maslov, who worked and headed departments of pediatrics in many cities of our country, and first and foremost by the staff of the department and clinic of Faculty Pediatrics at LPMU-SPSPMU under the leadership of Professor A.A. Valentinovich, Professor A.V. Papayan, and currently Professor N.D. Savenkova. In 2020, a memorial plaque was installed on the building where Mikhail Stepanovich worked from 1924 to 1960. New generations of pediatricians, teachers, and students cherish and will continue to cherish the memory of this remarkable pediatrician who restored health and joy to thousands of sick children (Fig. 7).

M.S. Maslov's student, Mikhail Voroshilovsky, wrote a poem during the farewell to Mikhail Stepanovich. It was not flawless in terms of style, but it accurately reflected his personality:

We loved him, both simple and complex,
The old general with a wonderful soul;
He did everything he could within his power,
This man was truly a man with a capital M.
He never pursued fame in science
And did not meekly follow fashion,
And without dabbling in scientific trends,
He did not change his views for the sake of someone else's laughter.
Principled and firm, he did not become a conservative:
A dialectician at heart until the end of his days,
This modest worker remained an innovator
In fundamental issues of child protection.
In this reserved, seemingly dry man,
The heart of a passionate young man beat.
He set such milestones in science
That they served as a compass for thousands of doctors... [1].

ADDITIONAL INFORMATION

Authors' contribution. All authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

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Activities of the National Medical Research Center of the Saint Petersburg State Pediatric Medical University

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ABSTRACT. The federal project “Development of a network of national medical research centers and introduction of innovative medical technologies” is being implemented within the framework of the national Healthcare project. In 2020, by Order of the Ministry of Health of the Russian Federation No. 30 dated January 20, 2020, National Medical Research Center of the Federal State Budgetary healthcare institution of higher education “St. Petersburg State Pediatric Medical University” of the Ministry of Health of the Russian Federation (hereinafter NMRC SPbGMU) was included in the list of national medical research centers. The purpose of this article is to present the directions and results of the activities of NMIC SPbGMU for 2021–2024. NMRC SPbGMU carries out diverse cooperation with the Northwestern, Siberian and Ural Federal Districts on improving the organization of medical care for children in the field of “pediatrics”.

KEYWORDS: federal project, national medical research center, subjects of the Russian Federation, “pediatrics” profile, children’s population

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РЕЗЮМЕ. В рамках национального проекта «Здравоохранение» реализуется федеральный проект «Развитие сети национальных медицинских исследовательских центров и внедрение инновационных медицинских технологий». В 2020 г. Приказом Министерства здравоохранения Российской Федерации от 20 января 2020 г. № 30 в список национальных медицинских исследовательских центров включено федеральное государственное бюджетное учреждение здравоохранения высшего образования «Санкт-Петербургский государственный педиатрический медицинский университет» Министерства здравоохранения Российской Федерации (далее НМИЦ СПбГПМУ). Цель данной статьи — представить направления и результаты деятельности НМИЦ СПбГПМУ за 2021–2024 гг. НМИЦ СПбГПМУ осуществляет разностороннее взаимодействие с субъектами РФ по вопросам совершенствования организации медицинской помощи детям по профилю «педиатрия».

КЛЮЧЕВЫЕ СЛОВА: федеральный проект, национальный медицинский исследовательский центр, субъекты РФ, профиль «педиатрия», детское население

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INTRODUCTION

Presidential Decree of the Russian Federation No. 204 dated May 7, 2018, established the foundations for developing a network of national medical research centers [1]. To implement this decree, the Ministry of Health of the Russian Federation issued the following orders: Order No. 622 dated September 11, 2017, "On the Network of National Medical Research Centers"; Order No. 30 dated January 20, 2020, "On Amending the Appendix to the Order of the Ministry of Health of the Russian Federation No. 622 dated September 11, 2017, 'On the Network of National Medical Research Centers'"; and Order No. 309 dated April 7, 2021, "On Approval of the Regulations on the Formation of the Network of National Medical Research Centers and on the Organization of the Activities of National Medical Research Centers" [2–4].

To improve the quality of medical care by developing innovations in healthcare, strengthening human resources (including scientific personnel), and creating conditions for sustained demand for innovative products and their implementation into practical healthcare, including early disease diagnosis systems and remote monitoring of patients' health, the federal project "Development of a Network of National Medical Research Centers and Implementation of Innovative Medical Technologies" is being implemented as part of the national project "Healthcare".

The National Medical Research Centers are aimed at to provide organizational and methodological guidance to medical organizations (MOs) of the constituent entities of the Russian Federation.

AIM

The aim of the study is to present the areas of focus and results of the activities of the National Medical Research Center — St. Petersburg State Pediatric Medical University (NMRC SPbGMU) for the period 2021–2024.

MATERIALS AND METHODS

In this article, reporting data of the NMRC of the Federal State Budgetary Institution of Healthcare of Higher Education "St. Petersburg State Pediatric Medical University" of the Ministry of Health of the Russian Federation was used.

RESULTS

By Order No. 30 of the Russian Ministry of Health dated January 20, 2020, "On Amending the Appendix to Order No. 622 of the Russian Ministry of Health dated September 11, 2017, «On the Network of National Medical Research Centers»", the Federal State Budgetary Institution of Healthcare of Higher Education, St. Petersburg State Pediatric Medical University of the Ministry of Health of the Russian Federation, was included in the network of national medical research centers.

To ensure comprehensive and high-quality medical care for the pediatric population under the state guarantee program and as part of the federal project "Development of a Network of National Medical Research Centers and the Implementation of Innovative Medical Technologies", NMRC-SPSPMU provides organizational and methodological guidance to MOs at various levels within the constituent entities of the Russian Federation in the field of pediatrics.

During the period 2021–2024, the staff of NMRC SPbGMU conducted 55 visits to the supervised regions of the Russian Federation. Of these, 31 were scheduled visits to the territories of the North-western, Siberian, and Ural Federal Districts, as well as to the new regions — Kherson and Zaporizhzhia Oblasts. The remaining 24 were unscheduled visits to the Republics of Buryatia, Komi, Crimea, Chuvashia, Dagestan, North Ossetia–Alania, Tuva, and Karelia; the city of Sevastopol; Kostroma, Kaliningrad, Ryazan, Pskov, Novgorod, Orenburg, Orel, Leningrad, and Kherson Oblasts; and Zabaykalsky and Stavropol Krais.

Among the main issues addressed by NMRC SPbGMU were:

- identifying the primary causes of rising mortality and declining quality and accessibility of medical care in the regions;
- providing methodological and organizational assistance aimed at eliminating these causes;
- assisting in the organizing of primary and specialized medical care;
- assembling a team of specialists (resuscitation specialists, neonatologists, pediatricians, epidemiologists, etc.) to ensure a comprehensive approach to improving medical care in the regions.

As part of the methodological work, specialist of NMRC SPbGMU have analyzed and improved over 100 higher education programs in pediatrics (basic programs, residency (ordinatura), advanced training, professional retraining, and postgraduate programs) at universities across the Northwestern, Ural, and Siberian Federal Districts. Annual updates are made to the lists of priority research directions aimed at enhancing pediatric care. More than 20 modern methods of prevention, diagnosis, treatment, and medical rehabilitation have been developed, which are used both in global medical practice and in healthcare organizations within the constituent entities of the Russian Federation. More than 10 modern methods of prevention, diagnosis, treatment, and medical rehabilitation have been implemented in the activities of the NMRC. Furthermore, 50 interactive educational modules were created to support training and professional development.

During organizational and methodological activities in 19 constituent entities of the Russian Federation, orders on the routing of the pediatric population and territorial planning schemes were updated and approved. Routing orders for children and newborns were also developed for the Kherson and Zaporizhzhia regions. Methodological activities were carried out to optimize the functioning of regional advisory centers (RAC) in the fields of neonatology and pediatrics. The results of this work over a four-year period include: a 46.0% decrease in the rate of unjustified rehospitalizations; a 37.0% decrease in the proportion of deaths at levels I and II of medical care; in 14 constituent entities of the Russian Federation, regional regulatory legal acts and regulations governing RAC activities were updated, including the approval of procedures for dynamic patient monitoring, the introduction of charts and logs for dynamic monitoring, and the use of threat assessment scales to evaluate transportation risk.

Anchor medical institutions specializing in pediatrics have been designated in the constituent entities of the Russian Federation. In accordance with Order No. 19n of the Ministry of Health of the Russian Federation dated January 21, 2022, "On Approval of the Model Regulations for a Regional (Republican, Oblast, or District) Hospital," NMRC SPbGMU has organized methodological activities for these pediatric anchor institutions. The supervised anchor institutions perform the functions of analyzing and evaluating the organization of medical care in their respective territories and provide organizational and methodological support to doctors in MOs within the constituent entity. With the assistance of NMRC SPbGMU specialists, authorized officers responsible for the quality and safety of medical activities from the supervised MOs completed workplace internships in this field.

Over the period 2021–2024, NMRC SPbGMU developed and piloted a phased scheme for the implementation, analysis, and adjustment of clinical guidelines within MOs across the constituent entities of the Russian Federation. Subsequently, 93.0% of MOs integrated this methodology into the work of their structural units. To improve the effectiveness of clinical guideline implementation, NMRC SPbGMU staff conducted 18 educational events in the constituent entities on the procedures for applying clinical guidelines during the transition period. The indicator for ensuring healthcare workers' access to clinical guidelines, medical care procedures, standards, and information on their updates or revisions showed significant growth. Thanks to the implemented staff notification system, this rate increased from 25.0 to 98.5% over the four-year period.

Methodological work on the implementation of a medical care quality control system was carried out in supervised MOs of the constituent entities of the Russian Federation. The medical care quality control system (MCQCS) is a set of measures based on clinical guidelines, procedures for the provision of medical care, and criteria for assessing the quality of medical care, implemented in order to ensure the quality, effectiveness, and safety of medical care provided in a medical organization [5]. In the course of this work, methods for improving the effectiveness of internal quality control and safety of medical activities, algorithms for making management decisions to eliminate the consequences and causes of violations identified during control activities were introduced. As part of the organizational and methodological support, the NMRC SPbGMU provides remote consultations to the MOs on the elimination of identified violations. As a result, the average MCQCS score (with a maximum score of 10) in supervised MOs increased from 6 to 8.4 points. The proportion of financial penalties imposed following medical-economic reviews and audits of the quality of medical care in medical

organizations across the constituent entities of the Russian Federation decreased by 40.0%.

Leading specialists of the National Medical Research Center – the St. Petersburg State Pediatric Medical University conducted an expert evaluation of 263 medical records of child mortality cases.

The methodological support provided by the NMRC SPbGMU to improve primary health care (PHC) for children in supervised territories included the development of methodological recommendations and regional orders for the development of primary pediatric healthcare. As a result, antenatal care coverage in the regions increased from 40.0 to 70.0%. Local methodological recommendations for outpatient care of premature infants were implemented in the Novosibirsk, Sverdlovsk, Irkutsk, and Chelyabinsk regions, Krasnoyarsk Krai, the Republic of Khakassia, and other regions. By 2024, target indicators had been achieved in almost all supervised regions, and coverage of the outpatient care system by the quality and safety monitoring mechanisms for medical activities was expznded.

Nevertheless, a number of issues remain related to the accessibility and quality of medical care, as well as compliance with procedures, standards, and clinical guidelines. These include:

- the need to improve the efficiency of medical organizations providing primary health care, including the implementation of new models for organizing physician workflows, streamlining workflows, and optimizing the use of nursing staff (organizing emergency departments or rooms);
- Training of MO personnel amidst an insufficiently high level of management staff qualification; effectiveness can only be ensured through collaboration between medical and educational institutions.
- Continuity between the first and second stages of preventive clinical examination has not been sufficiently implemented.
- the inadequate implementation of information technology as a key factor in the implementation of personalized medicine technologies.

In this regard, key areas for improving primary health care include: transition to a patient-centered system of outpatient care through the implementation of modern management technologies; development of the necessary competencies of healthcare workers in the context of a changing healthcare system; and efficient use of human resources.

To improve inpatient medical care for children in the constituent entities of the Russian Federation, the NMRC SPbGMU has developed a plan to optimize hospital beds in pediatrics. For this purpose, medical and technical specifications were adjusted and analyzed in 16 territories: Kamchatka, Krasnodar, Krasnoyarsk, and Zabaykalsky Krais; the Republics of Tyva and Dagestan; and Tomsk, Irkutsk, Kursk, Murmansk, Sverdlovsk, Tver, Chelyabinsk, Kemerovo, Leningrad, and Kherson Oblasts.

The staff of the NMRC SPbGMU are actively involved in establishing an effective healthcare system in new regions of the Russian Federation. To this end, eight scheduled visits were conducted in the Kherson and Zaporizhzhia regions during the Special Military Operation, and two unscheduled visits were conducted to optimize primary healthcare activities. The results of these activities included:

- coordinating the medical and technical specifications of outpatient clinics in the Henichesk and Skadovsk districts of the Kherson region amid staffing shortages;
- determining the need for district pediatricians and pediatric specialists;
- training healthcare workers in the Kherson region;
- developing a methodology for managing (in the absence of medical information systems) and implementing physician district passports.

The results of the NMRC SPbGMU methodological support in drug provision for children in need have been significant: since 2023, a system for monitoring shortages and substitution possibilities for vital and essential pediatric medicines has been operational; by 2024, a drug formulary system was introduced in 86% of the supervised regions; and a program ensuring continuity of drug supply is now being implemented across 100% of the constituent entities of the Russian Federation.

Specialists of the NMRC SPbGMU and the MO of the constituent entities of the Russian Federation conduct joint scientific activities that promote the professional development of children's healthcare specialists, the dissemination of the best practices of colleagues from different regions of Russia, and the introduction of modern technologies in medicine [6]. As part of

scientific and educational interaction with the regions, the NMRC SPbGMU in 2021–2024 conducted 9 cycles of professional retraining in various specialties, 9 advanced training courses in rational antibacterial therapy in St. Petersburg, the Leningrad, Irkutsk, Pskov, Murmansk regions, the Komi Republic, 4 visiting educational cycles for neonatologists, pediatricians, obstetricians-gynecologists, and surgeons in the Pskov, Leningrad, Kurgan regions, and Stavropol Krai; more than 50 joint scientific articles and textbooks for doctors were prepared and published; 86 scientific and practical seminars were held; participation was taken in the development of clinical guidelines "Infection specific to the perinatal period. P39.7; Other specified congenital infectious and parasitic diseases. P.37.9; Transient neonatal thrombocytopenia. P.61.0".

One of the promising and rapidly developing areas today is telemedicine consultations [7]. From 2020 to 2024, specialists from the NMRC SPbGMU conducted 17,340 consultations for the medical institutions of the constituent entities of the Russian Federation, of which 82.7% were planned, 13.7% were urgent, and 3.6% were emergency. Over the same period, the number of patients hospitalized at SPbGMU following telemedicine consultations increased threefold — from 593 to 1,767 children.

One of the leading problems in the healthcare system of the supervised territories remains the shortage of personnel. In 2024, specialists at the NMRC SPbGMU developed and implemented a new staffing passport system. This system enables the real-time acquisition of comprehensive data on a region's personnel resources, including statistics, current status, existing problems, their causes, as well as associated factors and risks. It supports immediate management decision-making by providing tailored recommendations for each specific region. As a result, staff turnover has decreased by 2% in certain regions: from 10.8 to 8.8% in the Novgorod Region, from 11.3 to 9.3% in the Pskov Region, and from 13.1 to 11.3% in the Kaliningrad Region.

The following measures were implemented in the constituent entities of the Russian Federation to improve the staffing situation in regional healthcare:

- updating the "roadmap" (schedule) for eliminating staffing shortages and imbalances;
- conducting a detailed analysis of medical personnel turnover by medical organization, clarifying the reasons for dismissals, and identifying medical organizations that significantly contribute to the overall outflow of medical personnel from the public healthcare system;
- developing a procedure for onboarding new employees (where such procedures were previously absent) at healthcare organizations "Mentoring Institute";
- organizing a meeting with graduates who studied under targeted training programs.
- assessing the effectiveness of the regional social support programs for medical workers aimed at eliminating staffing shortages and developing proposals for their possible expansion;
- improving the qualifications of physicians and nursing staff to support professional growth and improve the quality of medical care;
- a "Comprehensive Program for Developing Staffing in the Regions" was developed.

The results of the implementation of these measures:

- urgent and medium-term forecasts of the healthcare system's need for medical personnel were compiled;
- a set of measures aimed at eliminating the shortage of medical workers was developed;
- personnel pasportization was completed across the constituent entities of the Russian Federation;
- "Mentoring Institutes" were implemented in seven regions;
- "Job Fairs" for the regions and meetings with target training providers were organized;
- the number of medical personnel increased due to revised social support measures in 2023–2024 in three regions (the Republic of Karelia, Kaliningrad Oblast, and Altai Krai);
- new social support measures were implemented in 2024 in the Republic of Tyva, the Republic of Khakassia, and Altai Krai;
- more than 425 training courses were organized at the departments of the Faculty of Postgraduate and Continuing Professional Education of SPbGMU, as well as visiting master classes were held in seven supervised regions;

- assessment of job satisfaction among university graduates working in the regions, followed by the development of recommendations for regional administrations on supporting young professionals;
- a meeting was held with employers, and mechanisms for resolving staffing issues were identified.

CONCLUSION

The presented data demonstrate the active and comprehensive activities of the NMRC SPbGMU in cooperation with the supervised medical organizations of the constituent entities of the Russian Federation. Specialists of the NMRC SPbGMU carry out organizational, methodological, clinical, expert, scientific, and educational work in the regions, they interact with health authorities, medical organizations at all levels, and educational institutions involved in training medical personnel. Together with regional specialists, and taking into account existing regional challenges, measures are developed to improve the provision of medical care to the pediatric population in the constituent entities of the Russian Federation within the specialty of pediatrics.

ADDITIONAL INFORMATION

Authors' contribution. All authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

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Вклад авторов. Все авторы внесли существенный вклад в разработку концепции, проведение исследования и подготовку статьи, прочли и одобрили финальную версию перед публикацией.

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Original papers

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Clinical and statistical characteristics of patients in the neonatal intensive care unit of the perinatal center

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ABSTRACT. Within the three-tier healthcare system, the neonatal intensive care units (NICUs) of perinatal centers play a key role in providing emergency care to children. To assess the clinical and statistical characteristics of patients hospitalized in the NICUs of the federal perinatal center, data was extracted from the medical records of 102 newborns. It was found that 66.3% of patients admitted to the NICU were residents of the state regions. Internal routing accounted for 58.9% of newborn admissions. Most children were reported being in critical condition at birth (65.7%), while 13.7% were in extremely critical condition. Premature birth occurred in 52.0% cases, born with low birth weight (<2500 g) affecting 52.9%, and short stature occurring in 38.2%. On average, each patient had 5.76±0.55 diagnoses, predominantly consisting of perinatal pathology and congenital malformations. Among primary diagnoses upon admission, congenital malformations led with 43.1%, followed by specific conditions arising during the perinatal period as the most common comorbidity (45.7%). Common complications included perinatal pathology (46.6%), cardiovascular diseases (16.3%), and respiratory disorders (12.2%), which affected most patients (69.9%). The mean duration of treatment in the NICU was 19.29±2.72 days. Most infants (72.5%) were successfully transferred to specialized departments after stabilization. The need of reanimation support increases with decreasing of body mass, height, and gestational age of newborns. Thus, this study demonstrated that the main cohort of NICU patients consists of severely ill premature babies from regional areas suffering from perinatal pathologies and congenital diseases requiring prolonged rehabilitation and active resuscitation measures.

KEYWORDS: neonates, neonatal intensive care unit, perinatal center, body mass at birth, body length at birth, gestational age at birth, duration of hospitalization

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Клинико-статистическая характеристика пациентов отделения реанимации и интенсивной терапии новорожденных перинатального центра

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РЕЗЮМЕ. В рамках трехуровневой системы здравоохранения ключевую роль в оказании неотложной помощи детям играют отделения реанимации и интенсивной терапии новорожденных (ОРИТН) перинатальных центров. С целью оценки клинико-статистической характеристики пациентов, госпитализированных в ОРИТН федерального перинатального центра, проведена выкопировка данных из медицинской документации на 102 новорожденных. Установлено, что 66,3% пациентов, госпитализированных в ОРИТН, были жителями регионов. Поступили в отделение по внутренней маршрутизации 58,9% новорожденных. Бóльшая часть детей при рождении находилась в тяжелом состоянии (65,7%), а 13,7% — в крайне тяжелом. Родились преждевременно 52,0% пациентов, имели низкую массу тела (<2500 г) и низкий рост 52,9 и 38,2% соответственно. Средний показатель количества заболеваний на одного пациента ОРИТН составил 5,76±0,55 случаев, среди которых преобладала перинатальная патология и врожденные пороки развития. В структуре основных диагнозов при поступлении лидирующую позицию занимали врожденные пороки развития (43,1%), а доминирующей сопутствующей патологией были отдельные состояния, возникающие в перинатальном периоде (45,7%). Наиболее распространенными осложнениями, встречающимися у бóльшей части пациентов (69,9%), были перинатальная патология (46,6%), болезни системы кровообращения (16,3%) и органов дыхания (12,2%). Средняя продолжительность лечения в ОРИТН составила 19,29±2,72 дня. Бóльшая часть детей (72,5%) успешно переведены в профильные отделения после стабилизации их состояния. Необходимость реанимационной помощи увеличивается с уменьшением массы тела, роста и гестационного возраста новорожденных. Таким образом, проведенное исследование показало, что основной контингент пациентов ОРИТН составляют тяжелобольные недоношенные дети из регионов, страдающие перинатальной патологией и врожденными заболеваниями, требующие длительной реабилитации и активной реанимационной поддержки.

КЛЮЧЕВЫЕ СЛОВА: новорожденные, отделение реанимации и интенсивной терапии новорожденных, перинатальный центр, масса тела при рождении, длина тела при рождении, гестационный возраст при рождении, продолжительность госпитализации

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INTRODUCTION

In the context of population decline observed in recent years in the Russian Federation, reducing mortality, especially among children, has become a priority task that contributes to strengthening the country's economy and ensuring national security [1]. Modern pediatric healthcare faces new challenges related to changes in morbidity patterns, an increase in perinatal pathology, and an enhanced detection of developmental defects. According to available studies, congenital diseases and developmental abnormalities that are not diagnosed at an early age led to serious health consequences in older age. Accordingly, early diagnosis and timely treatment of these diseases significantly increase the likelihood of preventing serious complications and often ensure a favorable outcome for the health and life of children [2]. It should be noted that investments in newborn health care contribute to reducing costs for adult medical care, increase the life expectancy and working capacity of the population, thereby ensuring the well-being of future generations and strengthening the economic stability of the state [3].

Introduction of a three-tier system of obstetric and perinatal care has significantly improved the level and accessibility of medical care for women during pregnancy, childbirth, and the postpartum period, as well as for newborns [4, 5]. Nevertheless, despite a significant reduction in infant mortality, both overall and in different periods of the first year of life, its rates in different regions of the Russian Federation vary greatly [6–8]. Despite the achievements of modern medicine, 4.5–5.5% of children are born prematurely. In addition, a significant proportion of newborns are diagnosed with severe pathologies immediately after birth, requiring immediate intervention by neonatologists and resuscitators [9].

The provision of resuscitation care to newborns is based on the principle of constant readiness of medical personnel in maternity facilities to provide intensive care [10]. Obstetric medical organizations must be equipped with necessary diagnostic tools, medications, and materials to ensure effective resuscitation care for newborns [11]. Within the three-tier healthcare system, neonatal intensive care units (NICUs) in perinatal centers play a key role in providing emergency care to children [12, 13]. The effectiveness of resuscitation care is determined not only by the level of technical equipment in the departments, the qualifications of the staff, and the routing system, but also by the condition of the patients admitted [14, 15]. Thus, studying clinical and statistical characteristics of newborns in NRICUs is an important topic for scientific research.

AIM

The aim of the study is to evaluate the clinical and statistical characteristics of patients in NICU at the federal perinatal center.

MATERIALS AND METHODS

Based on the perinatal center of the Federal State Budgetary Educational Institution of Higher Education “St. Petersburg State Pediatric Medical University” of the Ministry of Health of the Russian Federation, data was extracted from medical records (form No. 003/u) for 102 NICU patients hospitalized between September 2023 and June 2024. The study was conducted using the main array method, and all mothers of NICU patients signed voluntary informed consent to participate in it.

Descriptive statistics are presented as quantitative values, extensive and intensive indicators, arithmetic mean (M), standard error of the arithmetic mean (m), and mean standard deviation (SD). The Shapiro-Wilk test was used to check normality of distribution. An assessment of the distribution of primary data showed that it did not correspond to a normal distribution, so the Mann–Whitney U test was used.

During the study, Spearman's correlation coefficients (ρ) were calculated between measures of child health status at birth (based on medical records) and measures such as birth weight and length, gestational age, and length of hospital stay. The following scaling was used in the correlation analysis: extremely severe condition — 1 point; severe — 2 points; moderate — 3 points; satisfactory — 4 points. In addition, a correlation analysis was performed to determine the relationship between gestational age and length of hospital stay.

The results were processed and analyzed using MS Office-2019 (Word, Excel) and

STATISTICA 10.0 (StatSoft) software packages. The significance level was set at $p < 0.05$.

RESULTS AND DISCUSSION

The organization of medical care in the NICU of the Perinatal Center of St. Petersburg State Medical University involves a comprehensive combination of diagnostic, therapeutic, and rehabilitation measures that ensure a high level of quality care for newborns. The department is equipped with modern equipment that allows monitoring patients' vital functions (breathing, blood circulation, central nervous system (CNS)), providing respiratory support, infusion therapy, anesthesia and/or analgesia, and sedation.

It was found that the majority of NICU patients were boys (67.6%), while girls accounted for 32.4%. An assessment of the distribution of patients by place of residence revealed that 66.3% of patients came from various regions of the Russian Federation, including 35.9% from the Northwestern Federal District (NWFD). The proportion of children from St. Petersburg was 33.7%.

58.9% of children hospitalized in the NICU were admitted through internal routing from the departments of the perinatal center of SPbSPMU. Accordingly, 41.1% of patients were referred externally, 19.6% of whom were from regions in the NWFD and 21.5% from regions in other federal districts.

An assessment of the NICU patient population showed that most children were assessed as being in severe condition at birth (65.7%), while 13.7% of newborns were assessed as being in extremely severe condition. Another 7.8% of newborns were in a moderate condition, and 12.7% of newborns were considered to be in a satisfactory condition.

Less than half of the newborns hospitalized in the NICU were born as a result of full-term births at 37–42 weeks (48.0%), while 52.0% of children were born prematurely, including extreme preterm (22–27 weeks — 8.8%), very preterm (28–30 weeks — 7.8%), moderate preterm (31–33 weeks — 10.8%), and late preterm (34–36 weeks — 24.5%). The distribution of newborns hospitalized in the NICU by gestational age is shown in Figure 1.

An analysis of the anthropometric indicators of newborns hospitalized in the NICU at birth revealed that about half of them had a normal birth weight (47.1%). Low birth weight (LBW) was observed in 35.3% of newborns, very low birth weight (VLBW) and extremely low birth weight (ELBW) were observed in 7.8% and 9.8% of newborns, respectively. Distribution of children by birth length revealed that 61.8% of NICU patients had an average length (46–56 cm). Accordingly, 38.2% of newborns had low birth length. The distribution of newborns hospitalized in the NICU by birth weight and length is shown in Figures 2 and 3.

Analysis of medical records revealed that, on average, each NICU patient had 5.76±0.55 diseases. The most common were certain conditions arising in the perinatal period (hereinafter referred to as perinatal conditions), with a frequency of 2,500 cases per 1,000 children hospitalized in the NICU (Table 1). Perinatal conditions accounted for 43.4% of the morbidity structure. In second place were diseases belonging to class XVII: congenital anomalies (malformations), deformities, and chromosomal abnormalities (CMA). Their frequency was 1,186.27 cases per 1,000 patients, and their share in the structure of morbidity was 20.6%. Third place was taken by diseases of the circulatory system with a frequency of 401.96‰ and a share of 7.0%. Blood diseases, diseases of the blood-forming organs, and certain disorders involving the immune mechanism followed closely behind, with a frequency of 372.55‰ and a share of 6.5% in the morbidity structure. Thus, on average, there were 2.50±0.76 cases of perinatal pathology and 1.19±0.93 cases of congenital malformations (CM) per one NICU patient.

A detailed analysis of NICU morbidity revealed (Table 2) that in 43.1% of cases, the main diagnosis was CM. In 32.4% of children, the main diagnosis was individual conditions arising in the perinatal period. Among CM, the most common main diagnoses were malformations of the musculoskeletal system (Q79) and the circulatory system (Q28), accounting for 10.8% and 4.9%, respectively. Among perinatal pathologies, the largest contribution to the structure of primary diagnoses was made by respiratory disorders in newborns (distress) (P22), as well as disorders associated with shortened gestation and low birth weight (P07), with a share of 7.8% and 6.9%, respectively.

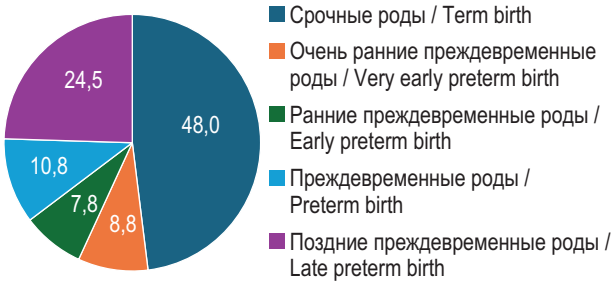

Fig. 1. Distribution of newborns hospitalized in the neonatal intensive care units by gestational age (in % of the total)

Рис. 1. Распределение новорожденных, госпитализированных в отделения реанимации и интенсивной терапии новорожденных, по гестационному возрасту (в % к итогу)

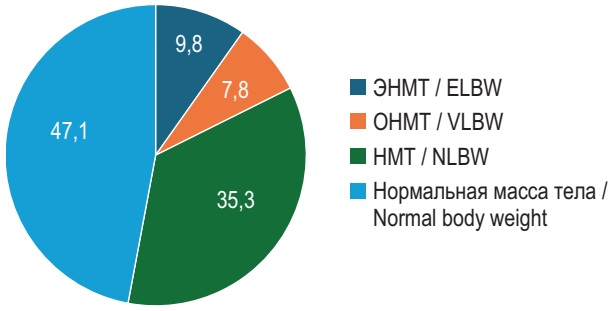

Fig. 2. Distribution of newborns hospitalized in the neonatal intensive care units by birth weight (in % of the total). ELBW — extremely low body weight; VLBW — very low body weight; LBW — low body weight

Рис. 2. Распределение новорожденных, госпитализированных в отделения реанимации и интенсивной терапии новорожденных, по массе тела при рождении (в % к итогу). ЭНМТ — экстремально низкая масса тела; ОНМТ — очень низкая масса тела; НМТ — низкая масса тела

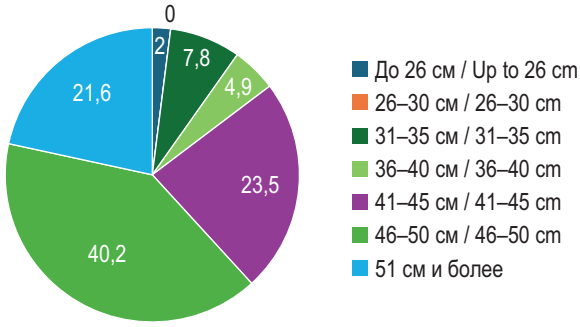

Fig. 3. Distribution of newborns hospitalized in the neonatal intensive care units by body length at birth (in % of the total)

Рис. 3. Распределение новорожденных, госпитализированных в отделения реанимации и интенсивной терапии новорожденных, по длине тела при рождении (в % к итогу)

An analysis of the presence of comorbidities in newborns hospitalized in the NICU showed that 96.1% of patients had comorbidities. The most common comorbidities, apart from the primary diagnosis, were perinatal diseases (45.7%) and CM (20.1%). In addition, there were combinations of different classes and forms of diseases. It was found that among perinatal pathologies, the most significant contribution was made by disorders associated with shortened gestation and low birth weight (P07), which accounted for 4.4%; asphyxia during childbirth (P21) — 3.8%, as well as perinatal hematological disorders (P61) and disorders of cerebral status in newborns (P91) — 3.5% each. Some infectious and parasitic diseases made up 4.1% of the structure of concomitant pathology, of which 3.5% were bacterial infections of unspecified localization (A49).

An assessment of complications of primary and concomitant diseases in NICU patients revealed that they occurred in 69.9% of children. The most common complications were specific conditions arising in the perinatal period (46.6%). Cardiovascular diseases ranked second (16.3%), followed by respiratory diseases (12.2%). Among perinatal conditions, the most common complications were respiratory disorders (P28) — 34.7%. Among diseases of the circulatory system, the most common were pathological processes included in the ICD-10 category “Other forms of pulmonary heart disease” (I27), which accounted for 12.2%.

47.1% of NICU patients had a combination of “Specific conditions arising in the perinatal period” (P00–P96) and “CM” (Q00–Q99) categories, which were found among the primary and secondary diagnoses. 92.2% of children had diseases included in the class “Specific conditions arising in the perinatal period”, and 71.2% had “CM”. Thus, perinatal pathology was not detected in only 7.8% of patients, and CM in 28.8%.

As for the length of hospitalization in NICU, most patients spent 4–14 days (53.0%) in the department (Fig. 4). Another 11.8% of children were in the NICU for 30–59 days. In addition, 10.8% of newborns spent up to three days in the NICU, and the same proportion of patients were hospitalized for 15–19 days. The average length of hospitalization, as determined, was 19.29±2.72 days.Such long

Table 1

Structure and prevalence of diseases in children hospitalized in the intensive care unit
(in % of the total and per 1000 hospitalized children)

Таблица 1

Структура и распространенность заболеваний у детей, госпитализированных в ОРИТН
(в % к итогу и на 1000 госпитализированных детей)

Класс МКБ-10 / ICD-10 class	**Название класса болезней МКБ-10 / Name of the class of diseases ICD-10**	**В % / In %**	**На 1000 детей / Per 1000 children**
(A00–B99)	I Некоторые инфекционные и паразитарные болезни / Certain infectious and parasitic diseases	2,6	147,06
(C00–D48)	II Новообразования / Neoplasms	0,3	19,61
(D50–D89)	III Болезни крови, кроветворных органов и отдельные нарушения, вовлекающие иммунный механизм / Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	6,5	372,55
(E00–E90)	IV Болезни эндокринной системы, расстройства питания и нарушения обмена веществ / Endocrine, nutritional and metabolic diseases	0,9	49,02
(G00–G99)	VI Болезни нервной системы / Diseases of the nervous system	4,6	264,71
(H00–H59)	VII Болезни глаза и его придаточного аппарата / Diseases of the eye and adnexa	1,5	88,24
(I00–I99)	IX Болезни системы кровообращения / Diseases of the circulatory system	7,0	401,96
(J00–J99)	X Болезни органов дыхания / Diseases of the respiratory system	4,3	245,10
(K00–K93)	XI Болезни органов пищеварения / Diseases of the digestive system	3,1	176,47
(M00–M99)	XIII Болезни костно-мышечной системы и соединительной ткани / Diseases of the musculoskeletal system and connective tissue	0,7	39,22
(N00–N99)	XIV Болезни мочеполовой системы / Diseases of the genitourinary system	1,7	98,04
(P00–P96)	XVI Отдельные состояния, возникающие в перинатальном периоде / Certain conditions originating in the perinatal period	43,4	2500,00
(Q00–Q99)	XVII Врожденные аномалии (пороки развития), деформации и хромосомные нарушения / Congenital malformations, deformations and chromosomal abnormalities	20,6	1186,27
(R00–R99)	XVIII Симптомы, признаки и отклонения от нормы, выявленные при клинических и лабораторных исследованиях, не классифицированные в других рубриках / Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	0,5	29,41
(S00–T98)	XIX Травмы, отравления и некоторые другие последствия воздействия внешних причин / Injury, poisoning and certain other consequences of external causes	0,5	29,41
(Z00-Z99)	XXI Факторы, влияющие на состояние здоровья населения и обращения в учреждения здравоохранения / Factors influencing health status and contact with health services	2,0	117,65
	Итого / Total	100,0	5764,71

average treatment times are primarily associated with 6.9% of patients requiring intensive care for more than 60 days due to their extremely severe condition. The reason for prolonged hospitalization was extremely severe condition of newborns.

Minimum hospitalization periods were observed in children born between 31 and 42 weeks of gestation (Fig. 5), and maximum periods were observed in patients with a gestation period of 28–30 weeks. A strong inverse correlation (ρ=–0.64; $p < 0.001$) between

Table 2

Structure of primary, concomitant diagnoses and complications in children hospitalized in the NICU (in % of the total)

Таблица 2

Структура основных, сопутствующих диагнозов и осложнений у детей, госпитализированных в ОРИТН (в % к итогу)

Класс МКБ-10 / ICD-10 class	**Название класса болезней МКБ-10 / Name of the class of diseases ICD-10**	**Основной диагноз / Main diagnosis**	**Сопутствующий диагноз / Associated diagnosis**	**Осложнение / Complication**
(A00–B99)	I Некоторые инфекционные и паразитарные болезни / Certain infectious and parasitic diseases	1,0	4,1	0,0
(C00–D48)	II Новообразования / Neoplasms	0,0	0,6	0,0
(D50–D89)	III Болезни крови, кроветворных органов и отдельные нарушения, вовлекающие иммунный механизм / Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	3,9	8,0	4,8
(E00–E90)	IV Болезни эндокринной системы, расстройства питания и нарушения обмена веществ / Endocrine, nutritional and metabolic diseases	2,0	0,9	0,0
(G00–G99)	VI Болезни нервной системы / Diseases of the nervous system	5,9	4,7	3,4
(H00–H59)	VII Болезни глаза и его придаточного аппарата / Diseases of the eye and adnexa	0,0	2,7	0,0
(I00–I99)	IX Болезни системы кровообращения / Diseases of the circulatory system	4,9	3,5	16,3
(J00–J99)	X Болезни органов дыхания / Diseases of the respiratory system	0,0	2,1	12,2
(K00–K93)	XI Болезни органов пищеварения / Diseases of the digestive system	4,9	2,1	4,1
(M00–M99)	XIII Болезни костно-мышечной системы и соединительной ткани / Diseases of the musculoskeletal system and connective tissue	0,0	0,6	1,4
(N00–N99)	XIV Болезни мочеполовой системы / Diseases of the genitourinary system	0,0	0,6	5,4
(P00–P96)	XVI Отдельные состояния, возникающие в перинатальном периоде / Certain conditions originating in the perinatal period	32,4	45,7	45,6
(Q00–Q99)	XVII Врожденные аномалии (пороки развития), деформации и хромосомные нарушения / Congenital malformations, deformations and chromosomal abnormalities	43,1	20,1	6,1
(R00–R99)	XVIII Симптомы, признаки и отклонения от нормы, выявленные при клинических и лабораторных исследованиях, не классифицированные в других рубриках / Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	1,0	0,3	0,7
(S00–T98)	XIX Травмы, отравления и некоторые другие последствия воздействия внешних причин / Injury, poisoning and certain other consequences of external causes	0,0	0,9	0,0
(Z00–Z99)	XXI Факторы, влияющие на состояние здоровья населения и обращения в учреждения здравоохранения / Factors influencing health status and contact with health services	1,0	3,2	0,0
	Итого / Total	100,0	100,0	100,0

gestational age and the duration of treatment in the NICU was found. Accordingly, there is a marked tendency for decrease in hospitalization duration while gestational age increases. Nevertheless, the influence of other factors, such as the severity of the condition, the presence of concomitant pathology, etc., should be taken into account.

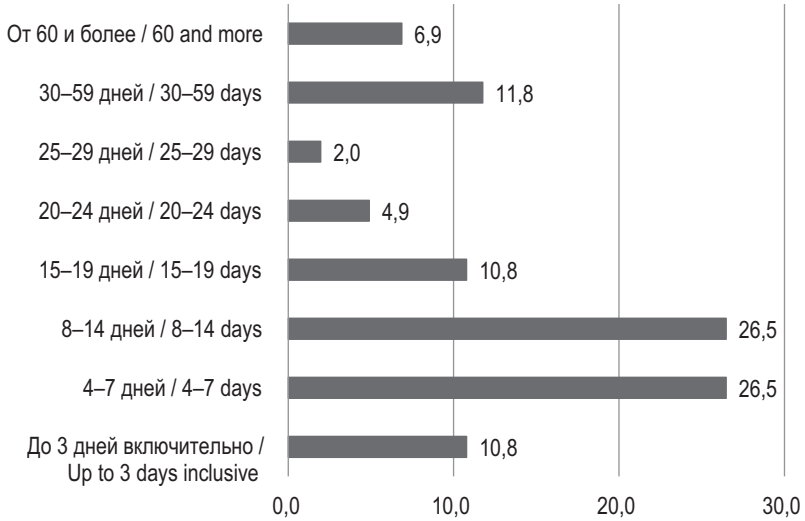

Fig. 4. Distribution of newborns hospitalized in the neonatal intensive care units by duration of hospitalization in the neonatal intensive care units (in % of the total)

Рис. 4. Распределение новорожденных, госпитализированных в отделения реанимации и интенсивной терапии новорожденных, по срокам госпитализации в отделения реанимации и интенсивной терапии новорожденных (в % к итогу)

Analysis of the outcomes revealed that most newborns were transferred to specialized departments of the perinatal center for further treatment after their condition stabilized (72.5%). 12.7% of patients in intensive care did not show any improvement after receiving the necessary medical care, while 3.9% of children showed improvement. Another 2.9% of children were transferred to other medical institutions. In 7.8% of NICU patients, hospitalization ended fatally.

Physical development indicators and hospitalization duration in newborns were analyzed throughout the study, taking into account their condition at birth (Table 3). Children in extremely severe condition showed the lowest physical development indicators, which increased as their condition improved, while children born in satisfactory condition showed the highest indicators. A pairwise comparison of groups with different degrees of severity at birth using the nonparametric Mann–Whitney U test revealed statistically significant differences ($p < 0.05$) for all indicators studied (gestational age, body weight, body length, length of hospital stay) between the group of children in extremely severe condition and all other groups. The greatest differences were observed between the group in extremely severe condition and the group in satisfactory condition. No statistically significant differences were found between the groups of newborns in severe and moderate condition, as well as between the groups of children in moderate and satisfactory condition for some indicators (length of hospitalization) ($p > 0.05$).

The correlation analysis confirmed this statement. A strong direct correlation was found between infants' condition at birth and gestation age ($\rho=0.66$; $p < 0.001$), body weight ($\rho=0.68$; $p < 0.001$), and body length ($\rho=0.70$; $p < 0.001$). Accordingly, the need for resuscitation measures at birth is higher when the weight, body length, and gestational age of newborns are lower (Table 4).

The assessment of stay in the NICU showed that the longest stays were among children born in extremely severe condition, and the shortest stays were among those born in satisfactory condition (36.87 vs. 15.38 days). A moderate inverse correlation was found between the condition and length of hospital stay ($\rho=-0.51$). Consequently, when a newborn's condition at birth is worse (lower score), the longer the length of their hospital stay. Conversely, newborns born in satisfactory condition spend less time in the hospital.

Accordingly, the data obtained confirm that severity at birth is closely related to physical development indicators and determines the duration of necessary treatment in the NICU. The study showed that the most significant

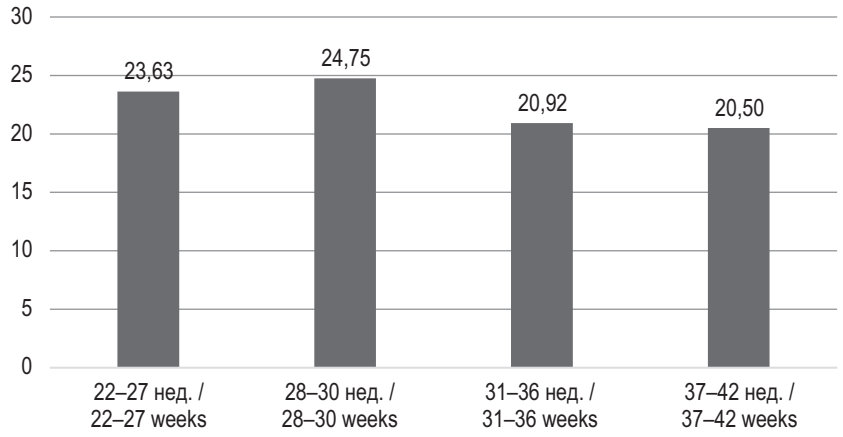

Fig. 5. Duration of hospitalization in newborns hospitalized in the neonatal intensive care units, depending on their gestational age (M)

Рис. 5. Продолжительность госпитализации у новорожденных, госпитализированных в отделения реанимации и интенсивной терапии новорожденных, в зависимости от их гестационного возраста (M)

Table 3

Indicators of physical development and duration of hospitalization in newborns hospitalized in the NICU, depending on the severity of their condition at birth (M±m)

Таблица 3

Показатели физического развития и продолжительности госпитализации у новорожденных, госпитализированных в ОРИТН, в зависимости от степени тяжести их состояния при рождении (M±m)

Показатель / Index	**Крайне тяжелое / Extremely severe**	**Тяжелое / Severe**	**Средней тяжести / Moderate**	**Удовлетворительное / Satisfactory**	**p***
	группа 1	**группа 2**	**группа 3**	**группа 4**	
Гестационный возраст (нед.) / Gestational age (weeks)					
M±m	32,07±1,28	35,12±0,48	36,88±0,97	37,46±0,48	$p_{1,2}$<0,001; $p_{1,3}$<0,001; $p_{1,4}$<0,001; $p_{2,3}$<0,05; $p_{2,4}$<0,05; $p_{3,4}$>0,05
SD	4,95	3,87	2,75	1,71	
Min / Max	24 /39	25 / 41	32 / 40	35 /41	
Масса тела при рождении (г) / Birth weight (g)					
M±m	1924,67±279,72	2524,11±121,35	2698,00±335,37	3191,54±153,82	$p_{1,2}$<0,01; $p_{1,3}$<0,05; $p_{1,4}$<0,001; $p_{2,3}$>0,05; $p_{2,4}$<0,001; $p_{3,4}$<0,05
SD	1083,36	985,85	948,56	554,61	
Min / Max	650 / 3700	800 / 5000	1620 / 3930	2330 / 4040	
Длина тела при рождении (см) / Birth length (cm)					
M±m	40,53±2,58	45,88±0,68	48,00±1,75	50,77±0,83	$p_{1,2}$<0,001; $p_{1,3}$<0,001; $p_{1,4}$<0,001; $p_{2,3}$<0,05; $p_{2,4}$<0,001; $p_{3,4}$<0,05
SD	9,98	5,50	4,96	3,00	
Min / Max	21 / 55	31 / 55	42 / 55	45 / 56	
Продолжительность госпитализации в ОРИТН (дней) / Length of stay in the NICU (days)					
M±m	36,87±10,59	17,52±2,95	18,00±1,75	15,38±8,81	$p_{1,2}$<0,001; $p_{1,3}$<0,01; $p_{1,4}$<0,001; $p_{2,3}$>0,05; $p_{2,4}$>0,05; $p_{3,4}$>0,05
SD	41,03	23,99	20,96	31,77	
Min / Max	2 / 129	2 / 150	12 / 55	2 / 120	

* p — статистически значимые различия между группами. / p — statistically significant differences between groups.

Table 4

Results of Spearman correlation (ρ) calculation

Таблица 4

Результаты расчета корреляции Спирмена (ρ)

Параметр для сравнения / Parameter for comparison	Коэффициент Спирмена (ρ) / Spearman's coefficient	p	Характеристика силы связи / Strength of correlation
Гестационный возраст (Gestational age) / Тяжесть состояния (Severity of condition)	0,66	<0,001	сильная прямая связь / strong direct connection
Масса тела (Body weight) / Тяжесть состояния (Severity of condition)	0,68	<0,001	сильная прямая связь / strong direct connection
Длина тела (Body length) / Тяжесть состояния (Severity of condition)	0,70	<0,001	сильная прямая связь / strong direct connection
Продолжительность госпитализации (Duration of hospitalization) / Тяжесть состояния (Severity of condition)	–0,51	<0,001	умеренная обратная связь / moderate feedback

factors influencing medical care provision in the NICU were: a significant proportion of deeply premature infants and patients in extremely severe condition; long stays in the NICU, and unfavorable outcomes. These results help to identify further directions that could improve medical care in the NICU of the perinatal center:

- improving control over the activities of women's clinics for the early detection of perinatal pathology and fetal malformations and timely referral to specialized medical care in third-level obstetric hospitals to determine the tactics of pregnancy management and obstetric care;
- optimizing outpatient and inpatient obstetric and gynecological care to prolong pregnancy in order to reduce the incidence of premature births;
- introducing remote specialist consultations to improve coordination between regional medical organizations and the federal perinatal center;
- optimization of routing algorithms, especially for patients from remote regions, for the timely admission of critically ill patients in order to increase the chances of a favorable outcome, etc.

CONCLUSION

1. The majority of newborns hospitalized in the NICU of the federal perinatal center were regional patients (66.3%) born in this obstetric facility and admitted through internal routing (58.9%). Most of the children were in severe condition (65.7%), and a significant proportion were in extremely severe condition (13.7%). At the same time, 52.0% of infants were born prematurely, 52.9% of children were born with a body weight of less than 2500 g, and 38.2% of newborns had a body length below average value.

2. The average number of diseases per patient was 5.76±0.55 cases, with perinatal pathology (2500.0‰) and CM (1186.27‰) significantly predominating among the diseases. CM (43.1%) occupied the leading position in the structure of the main diagnoses upon admission. The second most common were perinatal conditions (32.4%), among which the most frequent were distress (P22) and fetal growth retardation (P07). Concomitant diagnoses were found in 96.1% of neonates, and the dominant concomitant pathologies were individual conditions arising in the perinatal period (45.7%) and CM (20.1%). The most common complications found in the majority of patients (69.9%) were perinatal pathology (46.6%), diseases of the circulatory system (16.3%), and diseases of the respiratory system (12.2%).

3. The average duration of treatment in the NICU was 19.29±2.72 days, depending on the length of hospitalization, gestational age, and severity of the condition at birth, which, in turn, is closely related to physical development indicators. Most of the NICU patients (72.5%) were stabilized and transferred to specialized departments for further treatment.

Thus, the perinatal center at SPSPMU fulfills the functions of a federal-level medical organization entirely. The need for resuscitation measures at birth is higher the lower the weight, length, and gestational age of new-

borns. The most severe cases require long-term observation and longer hospitalization periods. The organization of medical care at the SPSPMU NICU ensures high survival rates and successful treatment even in severe cases. However, significant risks remain, especially for newborns with low body weight and gestational age. A comprehensive approach is needed to address these issues, including organizational measures, preventive measures, improvements in treatment and rehabilitation, and strengthening of human resources. This will significantly improve the quality of medical care for newborn patients in the NICU of the SPSPMU Perinatal Center and reduce the number of adverse outcomes.

ADDITIONAL INFORMATION

Authors' contribution. All authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

Competing interests. The authors declare that they have no competing interests.

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Вклад авторов. Все авторы внесли существенный вклад в разработку концепции, проведение исследования и подготовку статьи, прочли и одобрили финальную версию перед публикацией.

Конфликт интересов. Авторы декларируют отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.

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Original papers

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Dynamics and volume assessment of medical care provided to patients while ensuring forced security measures and treatment in the Republic of Belarus

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ABSTRACT. ***Introduction.*** The relevance of organizing medical care for patients while ensuring compulsory security measures and treatment is due to on the one hand, the need to organize psychiatric care to protect society from individuals prone to committing socially dangerous acts, and on the other hand, to ensure the rights of patients, their safety and ability to be adapted, not to lose their last chance to remain in the familiar micro-society. ***The aim of the research*** — to analyze the dynamics of the volume of medical care provided in outpatient and inpatient settings in order to implement compulsory safety and treatment measures in the Republic of Belarus to justify the development of a patient-oriented system of its organization. ***Materials and methods***. The assessment of the long-term trend in the dynamics of the volume of medical care in outpatient and inpatient settings for the purpose of implementing enforced safety and treatment measures was carried out on the basis of calculating the average annual long-term growth/reduction rate (the weighted geometric mean of average growth/reduction rates). ***Results and discussion***. From 2019 to 2023, the number of patients requiring medical care in outpatient and inpatient settings for the purpose of implementing compulsory security and treatment measures increased by 19.7% (from 2,384 to 2,853 people). The trend in the dynamics of the number of patients requiring medical care in outpatient and inpatient settings for the purpose of implementing forced security and treatment measures was characterized by an average degree of growth, the average long-term growth rate was +4.6%. ***Conclusion.*** Analysis of the dynamics of the volume of medical care provided in outpatient and inpatient settings for the purpose of implementing compulsory security and treatment measures in the Republic of Belarus indicates an increase in the need for this type of care. The organization of specialized care in the context of optimization of the healthcare system requires not only improving organizational technologies at different levels and conditions of providing medical care, medical rehabilitation and medical prevention, aimed at ensuring a patient-oriented approach in its provision, but also constructive interaction between the healthcare system and legal bodies (judicial) on the issue of appointment/cancellation of compulsory security measures and treatment of patients.

KEYWORDS: medical care, compulsory security and treatment measures, dynamics

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Оригинальная статья

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Оценка динамики объемов оказания медицинской помощи пациентам при обеспечении принудительных мер безопасности и лечения в Республике Беларусь

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РЕЗЮМЕ. ***Введение.*** Актуальность организации медицинской помощи пациентам при обеспечении принудительных мер безопасности и лечения обусловлена, с одной стороны, необходимостью организации психиатрической помощи для защиты общества от лиц, склонных к совершению общественно опасных деяний, а с другой стороны — обеспечением прав пациентов, их безопасности и возможности быть адаптированным, не потерять последний шанс остаться в привычном микросоциуме. ***Цель исследования*** — провести анализ динамики объемов оказания медицинской помощи в амбулаторных и стационарных условиях при реализации принудительных мер безопасности и лечения в Республике Беларусь для обоснования разработки пациент-ориентированной системы ее организации. ***Материалы и методы***. Оценка многолетней тенденции динамики объемов медицинской помощи в амбулаторных и стационарных условиях с целью реализации принудительных мер безопасности и лечения проводилась на основе расчета среднегодового многолетнего темпа прироста/убыли. ***Результаты и обсуждение.*** С 2019 по 2023 годы численность пациентов, нуждающихся в медицинской помощи в амбулаторных и стационарных условиях при реализации принудительных мер безопасности и лечения, увеличилась на 19,7% (с 2384 до 2853 человек). Тенденция динамики численности пациентов, нуждающихся в медицинской помощи в амбулаторных и стационарных условиях при реализации принудительных мер безопасности и лечения, характеризовалась средней степенью выраженности роста, средний многолетний темп прироста составил +4,6%. ***Заключение.*** Анализ динамики объемов оказания медицинской помощи в амбулаторных и стационарных условиях при реализации принудительных мер безопасности и лечения в Республике Беларусь свидетельствует об увеличении потребности в данном виде помощи. Организация специализированной помощи в условиях оптимизации здравоохранения требует не только изменения организационных технологий на разных уровнях и условий оказания медицинской помощи, медицинской реабилитации и медицинской профилактики, направленных на обеспечение пациент-ориентированного подхода при ее предоставлении, но и конструктивного взаимодействия системы здравоохранения с правовыми органами (судебными) по вопросу назначения/отмены принудительных мер безопасности и лечения пациентов.

КЛЮЧЕВЫЕ СЛОВА: медицинская помощь, принудительные меры безопасности и лечения, динамика

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INTRODUCTION

The protection of mental health is a strategic priority for many countries today. Health care systems play an important role herein, ensuring that individuals' interests and citizens' rights to quality medical care and social support are upheld [1–6].

The current stage of mental health care development in the Republic of Belarus is in line with global trends and is aimed at increasing the volume of specialized care provided in outpatient and polyclinic settings and optimizing inpatient care. It includes restructuring the bed capacity of psychiatric healthcare organizations, introducing technologies that minimize patient isolation, and developing psychiatric day care units. Mental health care is also aimed at using a biopsychosocial model of medical care for patients with mental and behavioral disorders, based on the organization of multidisciplinary teams of specialists to provide comprehensive psychiatric, psychotherapeutic, psychological, and medical-social services. Special attention should be paid when organizing medical care for patients while ensuring compulsory safety measures and treatment [7, 8].

This issue is relevant because, on the one hand, there's a need to organize psychiatric care to protect society from people who are prone to committing socially dangerous acts (SDA), and on the other hand, to ensure patients' rights, their safety, and their ability to adapt and not lose their last chance to stay in their familiar microsociety.

In 2012, 15% of patients in the Republic of Belarus were under compulsory outpatient supervision and treatment by a psychiatrist, while 85% were in inpatient settings, including 63% of patients under compulsory treatment in a psychiatric hospital with routine supervision, 13% under enhanced supervision, and 9% under strict supervision [9]. In 2023, the proportion of patients under compulsory outpatient supervision and treatment was 39.5%. Growing number of patients receiving outpatient medical care requires both new medical technologies for diagnosis, treatment, and rehabilitation, as well as organizational measures aimed at providing accessible and high-quality psychiatric care, protecting society from individuals prone to committing socially dangerous acts on the other.

The economic burden on society and state associated with healthcare costs for this category of patients, as well as the reduced quality of life for patients, is also significant. It should be noted that providing medical care to patients while ensuring compulsory security measures and treatment requires improving the regulatory framework governing this process, aimed at maintaining a balance between security and humanity, the interests of society and the rights of persons requiring treatment, despite the fact that its organization in the Republic of Belarus is carried out in accordance with the principles of the World Health Organization (WHO) and is regulated by international and national regulatory legal acts: the laws of the Republic of Belarus "On Health Care", "On the Provision of Psychiatric Care", "On the Provision of Psychological Care", "On Appeals by Citizens and Legal Entities", "On the Procedure and Conditions for Referring Citizens to Medical and Labor Preventive Institutions and the Conditions for Staying in Them"; "On Amendments to Laws on Compulsory Treatment and Medical and Social Rehabilitation"; the Criminal Code of the Republic of Belarus; the Criminal Procedure Code of the Republic of Belarus, etc. [7, 8].

AIM

The aim is to analyze changes in the volume of outpatient and inpatient medical care provided during compulsory security and treatment measures in the Republic of Belarus in order to justify the development of a patient-oriented system for organizing psychiatric care.

MATERIALS AND METHODS

Analytical and statistical methods were used in the study. Dynamic data on the volume of medical care in outpatient and inpatient settings during the implementation of compulsory security and treatment measures in the Republic of Belarus for 2019–2023 were analyzed. The sources of information for the study were the state statistical reports of the Ministry of Health of the Republic of Belarus for the period 2019–2023.

Statistical analysis was performed using nonparametric research methods, including

the method of assessing statistically significant differences (Pearson's χ^2, p). To analyze the dynamics of outpatient and inpatient medical care for implementing compulsory safety and treatment measures, time series indicators were used (absolute increase/decrease, growth/decline rate, growth/decline rate, visibility indicator).

A long-term trend in the volume of medical care in outpatient and inpatient settings for compulsory safety and treatment measures was assessed based on the calculation of the average annual long-term growth/decline rate ($ALTG_{gr/dc}$). $ALTG_{gr/dc}$ values from 0 to 1% corresponded to a moderate trend, $ALTG_{gr/dc}$ from 1 to 5% corresponded to a medium trend, and $ALT_{Gpr/ub}$ over 5% corresponded to a pronounced trend. Statistical data processing was performed with the STATISTICA 10 software package. 5% was taken as the critical value of the significance level when testing null hypotheses (p=0.05).

RESULTS

From 2019 to 2023, the number of patients requiring medical care when enforcing coercive security measures and treatment increased by 19.7% (from 2,384 to 2,853 people). The number of patients requiring medical care when enforcing coercive security and treatment measures increased moderately ($ALTG_{gr/dc}$ = = +4.6%) (Table 1).

In 2023, 60.5% of patients received medical care on an outpatient basis and 39.5% were hospitalized. From 2019 to 2023, there were no statistically significant differences in the proportion of patients depending on the conditions of medical care for compulsory safety and treatment measures (p >0.05).

Table 1

Dynamics of the number of patients who receive medical care in outpatient and inpatient settings for the purpose of implementing compulsory security and treatment measures in the Republic of Belarus (Absolute value, %)

Таблица 1

Динамика численности пациентов, которым оказывается медицинская помощь в амбулаторных и стационарных условиях с целью реализации принудительных мер безопасности и лечения в Республике Беларусь (абсолютное количество, %)

Годы / Years	Численность пациентов при оказании медицинской помощи / Number of patients provided with medical care					
	амбулаторные условия / outpatient settings		стационарные условия / inpatient settings		всего / total	
	абсолютное количество / absolute value	показатель наглядности / obvious value (%)	абсолютное количество / absolute value	показатель наглядности / obvious value (%)	абсолютное количество / absolute value	показатель наглядности / obvious value (%)
2019	1439	100,0	945	100,0	2384	100,0
2020	1439	100,0	929	98,3	2368	99,3
2021	1449	100,7	971	102,8	2420	101,5
2022	1622	112,7	1065	112,7	2687	112,7
2023	1727	120,0	1126	119,7	2853	119,7
Средний многолетний темп прироста/ убыли / The average annual long-term growth/ reduction rate (the geometric mean for growth /reduction rates)	+4,7%		+4,5%		+4,6%	
Оценка тенденции / Trend assessment	Средняя степень выраженности / Average severity		Средняя степень выраженности / Average severity		Средняя степень выраженности / Average severity	

The number of patients requiring outpatient and inpatient medical care for compulsory safety and treatment measures increased by 20.0% (from 1,439 to 1,727 people) and 19.7% (from 945 to 1,126 people), respectively. The trends were similar for the number of patients requiring outpatient and inpatient medical care and were characterized by a moderate rate of growth. The average long-term growth rate in the number of patients requiring outpatient and inpatient medical care was: $ALTG_{gr/dc}$ = +4.7% and $ALTG_{gr/dc}$ = +4.5%, respectively (Table 1).

From 2019 to 2023, the number of patients who withdrew from compulsory treatment decreased from 417 to 357 (by 14.4%), and the trend was characterized by a moderate degree of intensity ($ALTG_{dc}$ = –3.8%).The decrease in the number of patients who discontinued compulsory treatment occurred alongside an increase in the number of patients receiving outpatient medical care. The number of patients who left without completing compulsory treatment increased from 89 to 139 (by almost 56%), with a pronounced upward trend ($ALTG_{gr}$ = +11.8%).

From 2019 to 2023, there was a statistically significant (χ^2=28.65, p=0.00001) increase in the proportion of patients who dropped out without completing compulsory treatment in hospitals, from 21.3% to 38.9%. The transition from inpatient to outpatient compulsory security measures and treatment was one of the reasons.

The structure of patients receiving inpatient medical care, depending on the type of compulsory safety measures, was dominated by patients under routine observation, whose proportion increased from 54.6% to 62.5% between 2019 and 2023 (Fig. 1). The proportion of patients under strict observation in inpatient care decreased from 31.7% to 28.2%. The proportion of patients under enhanced observation varied from 13.7% to 9.3%.

It should be noted that trends in the number of patients requiring inpatient care for implementing compulsory safety measures and treatment depended on the type of compulsory safety measures. During the period under review, the number of patients under routine observation increased (from 516 to 704) by 36.4%. The trend in the number of these patients was characterized by a pronounced degree of growth ($ALTG_{gr/dc}$ = +8.1%). The number of patients under strict observation increased (from 300 to 317) by 5.7%. The trend in the number of these patients was characterized by a moderate degree of growth ($ALTG_{gr/dc}$ = +1.4%). The number of patients under enhanced observation decreased by almost 19% (from 129 to 105). The trend in the number of these patients was characterized by a moderate decrease ($ALTG_{gr/dc}$ = –5.0%).

During the period under review, the number of patients who completed compulsory inpatient treatment by court order for compulsory security measures and treatment in hospitals in the Republic of Belarus increased from 5.52 to 6.62 cases per 100,000 population, by almost 12.5%. The trend was characterized by a

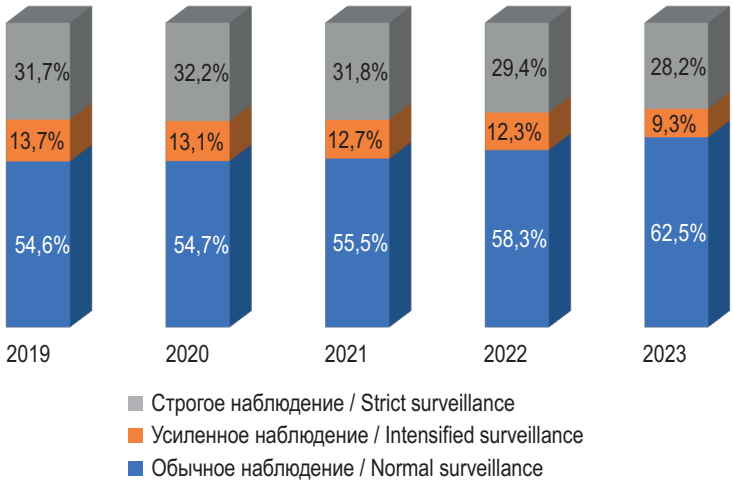

Fig. 1. The structure of patients when providing medical care in inpatient settings depending on the type of compulsory security measures (%)

Рис. 1. Структура пациентов при оказании медицинской помощи в стационарных условиях в зависимости от вида принудительных мер безопасности (%)

moderate rate of growth ($ALT_{Ggr/dc}$ = +4.8%). In 2023, the highest frequency of patients who completed compulsory inpatient treatment was observed among patients under routine observation, amounting to 5.27 cases per 100,000 population, while the lowest frequency was observed among patients under enhanced observation, amounting to 0.62 cases per 100,000 population.

It should be noted that levels and trends regarding the frequency of patients who completed inpatient compulsory treatment by court order depended on the type of compulsory treatment. The frequency of patients who completed inpatient compulsory treatment with routine supervision increased from 3.95 to 5.27 cases per 100,000 population. The trend was characterized by a marked increase ($ALTG_{gr/dc}$ = +7.5%). The trend in the frequency of patients who completed inpatient compulsory treatment with enhanced (from 0.70 to 0.62 cases per 100,000 population) and strict supervision (from 0.87 to 0.77 cases per 100,000 population) was characterized by a moderate decrease ($ALTG_{gr/dc}$ = –3.0%).

From 2019 to 2023, the average duration of treatment for patients who completed compulsory inpatient treatment by court order in the Republic of Belarus decreased from 818.0 to 680.7 days (by almost 17%). The maximum average duration of treatment is typical for patients under strict observation and is 1,167.4 days, while the minimum is for patients under routine observation and is 402.4 days. During the period under review, the average length of treatment for patients decreased from 443.7 to 402.4 days (by almost 10%) for those under routine observation and from 1,666.6 to 1,167.4 days (by almost 30%) for those under strict observation. The average duration of treatment for patients under enhanced supervision increased from 343.8 to 472.3 days (by almost 37.4%). The trend was characterized by a marked increase ($ALTG_{gr/dc}$ = +8.3%).

CONCLUSION

An analysis of trends in the volume of medical care provided in outpatient and inpatient settings for implementing compulsory security and treatment measures in the Republic of Belarus indicates an increase in the need for this type of care. Organizing specialized care in the context of healthcare optimization requires both changes in organizational technologies at various levels and conditions for providing medical care, medical rehabilitation, and medical prevention aimed at ensuring a patient-oriented approach to its provision, and constructive interaction between the healthcare system and legal (judicial) authorities on prescribing/canceling compulsory safety measures and treatment for patients.

ADDITIONAL INFORMATION

Authors' contribution. All authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

Competing interests. The authors declare that they have no competing interests.

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Красота общественного строя детских больниц

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РЕЗЮМЕ. Опираясь на многолетнюю практику работы в детских медицинских учреждениях разных стран, автор описывает понятие «красоты общественного строя» — особой атмосферы заботы, взаимопомощи и человечности, присущей детским больницам, рассматривая ее как противоположность коммерциализации и отчужденности, усиливающихся в современной медицине. На основе анализа накопленного опыта в статье формулируется базовая концепция организации работы детской больницы, направленной на максимально эффективное и успешное функционирование. Предлагаемая концепция формулируется как целостная философско-экономическая модель медицинской деятельности, в центре которой находятся человек, забота и доверие. Концепция, которая была разработана на основе наблюдения, анализа и обобщения успешных практик, рассматриваемая как интегральная система, получила название общественно-ориентированной экономической модели детского здравоохранения (ОЭМДЗ). Представленная модель охватывает не только финансовые и управленческие методы, но и включает нравственные принципы построения рабочих взаимодействий. Модель подвергается всестороннему анализу, в котором раскрываются ее основные принципы, структурные компоненты, выявляются сильные и уязвимые стороны, а также проводится сравнительный разбор эффективности одних и тех же учреждений, работающих по различным методикам, что наглядно показывает, как ценности, лежащие в основе системы, непосредственно влияют на ее результаты. В статье раскрывается уникальный феномен формирования среды, в которой достигается гармония профессиональных и межличностных отношений между медицинским персоналом, пациентами, административными работниками и руководством учреждения. Показан существенный трансформационный потенциал модели, выходящий за рамки единичных медицинских учреждений, способный служить фундаментом для формирования эффективных кооперации между больницами, а также для развития региональных и национальных систем здравоохранения. Теоретическое обоснование предполагает, что системное внедрение принципов ОЭМДЗ способно привести к структурным изменениям в организации социума, создавая более эффективную и гуманную модель общественного устройства.

КЛЮЧЕВЫЕ СЛОВА: общественная экономика, красота общественного строя, общественно-ориентированная экономическая модель детского здравоохранения, ОЭМДЗ, детские больницы, детское здравоохранение, нравственные принципы, нравственная мотивация, гармония профессиональных и межличностных отношений

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The Social Beauty of Children's Hospitals

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ABSTRACT. In the nineteenth century, the great French writer and philosopher Victor Hugo in his immortal novel *Les Misérables* introduced a profound idea of Social Beauty. This concept, rooted in principles of justice, compassion, and collective solidarity, posited that humanity could construct a world governed by moral and ethical harmony. A century and a half later that very *Beauty* was revived within children's hospitals. This study explores a distinctive phenomenon: the formation of a milieu where professional excellence and interpersonal harmony coalesce among healthcare providers, patients, administrative staff, and governing bodies. Based on five decades of author's international experience, a philosophical and economic model of healthcare organization is presented. The Children's Hospital Public Economy Model places humanity, care, and trust at its core. The model undergoes rigorous analysis, outlining its key principles, structural components, strengths, and vulnerabilities. A comparative assessment of institutions operating under different methodologies demonstrates how the underlying values of a system directly influence its outcomes. Moreover, the study advances the proposition that the principles embodied in pediatric hospitals may serve as a foundational paradigm for societal organization at large. Illustrative examples are provided, showing the expansion of this model from a single medical institution to a nationalwide network of children's hospitals in Canada. Thus, the article provides contributes to interdisciplinary discourse at the intersection of medical ethics, organizational theory, and social philosophy, proposing a replicable model that could be a roadmap for sustainable health and social development, bringing modern society closer to the point where the ideals envisioned by Victor Hugo are not merely imagined, but institutionalized.

KEYWORDS: Public economy, Social Beauty, Children's Hospital Public Economy Model (CHPEM), children's hospitals, pediatric healthcare, altruistic leadership, human nature, moral incentive

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СЛОВО ОБ АВТОРЕ

Доктор Роберт Реннебом — педиатр и детский ревматолог, чье имя стало синонимом надежды для тех, кто сталкивается с редким и малоизученным аутоиммунным расстройством — синдромом Сусака, характеризующимся триадой энцефалопатии, ретинальной васкулопатии и кохлеарной дисфункцией. Сегодня доктор Реннебом признан одним из самых востребованных и уважаемых специалистов в мире по этому заболеванию, его рекомендации используют повсеместно, а за профессиональным советом обращаются со всех концов планеты. Особенно радостно отметить, что, несмотря на масштаб своей международной деятельности, доктор Реннебом находит время для помощи детям в Санкт-Петербурге и способствует развитию доказательной детской ревматологии в России, выступая в роли приглашенного профессора Санкт-Петербургского государственного педиатрического медицинского университета.

Медицинская карьера Роберта Реннебома началась в 1972 году, когда после окончания Калифорнийского университета в Сан-Диего он посвятил себя педиатрии. Ординатура прошла в Детской больнице имени А.У. Киллама при Университете Далхаузи в Канаде, а специализация по детской ревматологии — в Детском медицинском центре Цинциннати. Уже в самом начале своего профессионального пути доктор Реннебом сыграл важную роль в развитии детской ревматологии, работая в Китае в Пекинской детской больнице. Затем последовали два десятилетия в Медицинской школе Государственного университета Огайо и Детской больнице Колумбуса в США, где Роберт Реннебом заведовал отделением детской ревматологии. С 2008 года он занимал должность профессора педиатрии и детской ревматологии в Университете Калгари в Канаде, а через несколько лет перешел в Детскую больницу Кливленда. Здесь доктор Реннебом основал уникальный в своем роде Международный консультативный центр по синдрому Сусака, где под его руководством был разработан инновационный междисциплинарный подход к ведению пациентов.

Важным и ценным аспектом подхода профессора Реннебома является его принципиальная научная открытость, проявляющаяся в готовности к продуктивной дискуссии и признании ценности всех аргументированных точек зрения. Доктор Реннебом делится с нами не только своими достижениями, но и теми трудными уроками, которые преподнесла ему практика, и неизменно подчеркивает необходимость рассматривать любые обоснованные альтернативные мнения как ресурс для дальнейшего развития разрабатываемой им экономической модели здравоохранения.

Мы приглашаем всех, кто готов делиться знаниями, задавать неудобные вопросы и вместе искать взвешенные ответы к участию в открытом научном диалоге. Независимо от позиции — критической или поддерживающей — мы будем рады вашим профессиональным наблюдениям и замечаниям.

РЕЗЮМЕ

Мне посчастливилось провести 50 лет своей карьеры педиатра, работая в детских больницах, — в семи детских больницах в четырех странах на трех континентах. Это были: Детская больница имени А.У. Киллама (Галифакс, Новая Шотландия, Канада), Детская больница Цинциннати (Цинциннати, Огайо, США), Детская больница Колумбуса (Колумбус, Огайо, США), Детская больница Альберты (Калгари, Альберта, Канада), Детская больница клиники Кливленда (Кливленд, Огайо, США), Пекинская детская больница (Пекин, Китай) и Детская больница Санкт-Петербургского государственного педиатрического медицинского университета (Санкт-Петербург, Россия).

Я упоминаю об этом потому, что именно в детских больницах я впервые испытал на себе истинную *красоту общественного строя*. Этот опыт убедил меня в том, что создание более гармоничных и красивых социальных отношений возможно не только в небольших коллективах, но и в более крупных сообществах и даже в масштабах всего мира [1, с. 88–98]. Я верю, что нравственные и экономические подходы, на которые опирается устройство детских больниц (лидерская парадигма, ценностные основания, каноны поведения в социуме и финансовые механизмы) [1, с. 109–122], —

и по отдельности, и в своей совокупности — могут стать как вдохновением, так и практическим основанием для *социально-экономической модели всего общества* [1].

Экономическая модель детских больниц — это вовсе не абстрактная или утопическая идея. Она уже была разработана, внедрена и десятилетиями успешно применяется педиатрами во многих странах, принося значительную пользу обществу. Эта модель доказала свою жизнеспособность, реалистичность и финансовую доступность. Более того, как я поясню далее, наивно и нецелесообразно ожидать, что детские больницы смогут эффективно и полноценно обслуживать детей, если они, наоборот, следуют противоположной рыночно-ориентированной модели. Говорю об этом с полной уверенностью, поскольку и мои коллеги, и я сам лично стали свидетелями того, как снизилось качество помощи детям, когда гармония человеческих отношений была принесена в жертву, и альтруистические детские больницы были преобразованы в корпоративные учреждения, управляемые соответствующими установками, директивами и логикой. Практика работы в подобных больницах позволяет уверенно утверждать, что корпоративная модель неспособна обеспечить устойчивое и эффективное развитие ни для общества, ни для глобальной экономики.

Таким образом, можно обоснованно предположить, что принципы, лежащие в основе работы детских больниц — ориентированные на человека философия, альтруистическое поведение и справедливая экономическая организация, — способны служить основой для построения более гармоничного и социально красивого мирового сообщества. Как указано в сопроводительных статьях, эту модель можно обозначить как «*общественно-ориентированная экономическая модель детского здравоохранения*» (ОЭМДЗ, Children's Hospital Public Economy Model) [1].

ДЕТСКИЕ БОЛЬНИЦЫ В ДВЕ РАЗНЫЕ ЭПОХИ

В первые 25 лет моей работы педиатром детские больницы были настоящими бастионами альтруизма. В последние годы многие детские больницы все больше становились оплотами корпоративной деятельности. Я лично пережил оба эти этапа, включая переход от одного к другому. За это время я многое узнал о природе человека, экономических системах, конфликте моральных и финансовых побуждений, а также о корпоративной культуре. В результате я осознал, что для меня и многих моих коллег — педиатров, медсестер и других специалистов здравоохранения — важнейшей ценностью является то, что я называю «самой драгоценной свободой» [1].

Сначала я расскажу о том, что наблюдал, чувствовал и осознал в течение 25 лет «Эпохи красоты общественного строя» (или «Эпохи альтруизма»). Затем поделюсь уроками из «Корпоративной эпохи».

ЭПОХА КРАСОТЫ ОБЩЕСТВЕННОГО СТРОЯ — ЭПОХА АЛЬТРУИЗМА

Для меня было большой честью и редкой привилегией трудиться в детских больницах в тот период, который я называю эпохой красоты общественного строя, т.е. временем гармоничного устройства человеческих взаимоотношений, когда во всех странах и на всех континентах, где мне довелось работать, господствовала гуманистическая, ориентированная на общественное благо философия. Эта философия основывалась на положительном восприятии природы людей, на понимании, которое *способствовало проявлению и практическому развитию наилучших качеств, присущих человеческой натуре* [2].

Главной движущей силой детских больниц тогда было *нравственное стремление* максимально полно откликаться на потребности детей в здоровье и заботе [1]. Все участники этого процесса — врачи, медсестры, технический персонал, административные работники, санитарные службы — трудились с искренним желанием помогать, чувствуя *глубокую ответственность* перед обществом. Каждый стремился быть частью значимого *объединяющего дела*. Вопросы денежного вознаграждения не стояли на первом плане. Достаточно было достойной зарплаты.

Творческие решения и *инновации* рождались сами собой, как естественный отклик на профессиональную увлеченность и внутреннюю потребность делать свою работу лучше — ради детей. *Альтруизм* был не лозунгом, а повседневной нормой — живым, органичным поведением, пронизывающим атмосферу. Не нужно было произносить это слово, его дух витал в воздухе, вдохновляя на добрые дела, укрепляя чувство единства, окрыляя и самих врачей, и, что важнее всего, детей и их родителей. Я мог наслаждаться тем, что я называю *самой драгоценной свободой* [1]. Наша работа приносила не только профессиональное удовлетворение, но и глубокую интеллектуальную и человеческую радость.

Пекинская детская больница (ПДБ) под руководством доктора Чжу Фу Тана стала воплощением «Эпохи красоты общественного строя», продемонстрировав эталонную реализацию принципов ОЭМДЗ. Два месяца работы там в 1981 году стали одним из самых ценных опытов в моей педиатрической практике. Доктор Чжу Фу Тан пригласил меня помочь ПДБ и другим детским больницам Китая в развитии педиатрической ревматологии как специализации. За всю свою карьеру я не встречал более компетентных, самоотверженных, аль-

труистичных и душевных педиатров, чем те, с кем работал в 1981 году. И не знаю более достойного примера больницы, чем Пекинская детская больница тех лет.

Доктор Чжу Футан (1899–1994) — основатель Пекинской детской больницы (1955) и первый заведующий педиатрического отделения. Он занимает особое место в истории китайской медицины как самый авторитетный и почитаемый педиатр страны. В 1943 году он опубликовал «Практическое руководство по педиатрии» — фундаментальный учебник, ставший основой детской медицины в Китае.

Доктор Чжу был не просто замечательным врачом, преподавателем и ученым — он был редким человеком с тонким социальным чутьем, мудростью и врожденным лидерским даром. Его руководство не зиждилось на власти или давлении, а рождалось из внутреннего достоинства, честности, доброжелательности и способности вести за собой с добротой, уважением и сочувствием. Он был неподкупен [1].

Среди многих талантов доктора Чжу выделялась его способность точно определять, какие педиатры в ПДБ, помимо их профессионального мастерства, обладали также глубокой эмпатией, были искренне добрыми, альтруистичными и одновременно прирожденными лидерами [3]. Благодаря своей мудрости он добивался того, чтобы ключевые руководящие позиции в ПДБ и других детских больницах Китая занимали не только выдающиеся клиницисты, но доктора с врожденным даром руководителя, отличающиеся честностью, скромностью, бескорыстием и неподкупностью. Он тщательно избегал назначать на влиятельные должности тех, в ком замечал склонность к компромиссам, высокомерие, эгоизм, недостаток эмпатии, лицемерие, беспринципность или коррупционные наклонности, даже если это был очень умный и образованный человек.

Он высоко ценил альтруизм и прекрасно понимал его важность. Целенаправленно профессор Чжу создавал такую атмосферу, которая способствовала развитию бескорыстного поведения и формированию личности, ориентированной на альтруизм. Он ясно осознавал, что среда приспособленчества и беспринципности, акцентирующая внимание на финансовых мотивах и стремлении к материальному обогащению, способна сделать врачей менее сострадательными, менее альтруистичными и менее эффективными. Вместе с тем он с мудростью предупреждал о рисках чрезмерного и насильственного навязывания альтруизма, что позже и происходило, часто в искаженных формах, во времена Культурной революции в Китае (1966–1976).

В эпоху красоты общественного строя и другие ведущие медицинские учреждения демонстрировали успешную работу общественно-ориентированной экономической модели детского здравоохранения. Например, *Детская больница имени А.У. Киллама, Детская больница Цинциннати, Детская больница Колумбуса* и *Детская больница Альберты* также служили примерами эффективного функционирования по ОЭМДЗ. В частности, в этот период Детская больница Цинциннати была одной из самых уважаемых детских больниц в мире и доказала, что в рамках ОЭМДЗ могут происходить великие инновации и научные открытия: именно в этой больнице Альберт Сабин создал пероральную вакцину против полиомиелита.

И по сей день педиатры детской больницы при Санкт-Петербургском государственном педиатрическом медицинском университете продолжают следовать лучшим традициям ОЭМДЗ — модели, где главное не прибыль, а забота о детях.

ЭПОХА КОРПОРАТИВНОГО УПРАВЛЕНИЯ

К сожалению, за последние 25 лет красота общественного строя и принципы общественно-ориентированной экономической модели детского здравоохранения (ОЭМДЗ) встречались все реже, уступая место рыночно-экономическому подходу корпоративного типа. Иногда переход происходил постепенно и почти незаметно, иногда резко; порой лишь в какой-то мере, а зачастую и полностью. Этот процесс наблюдался во многих детских больницах, особенно в США. В качестве примера корпоративной стратегии развития и перехода к ней можно привести Детскую больницу Колумбуса, где я работал с 1986 по 2008 год. Позже она была переименована в Национальную детскую больницу [1, с. 116–122].

Начало перехода к новой экономико-философской модели приходится на конец 1990-х годов. Совет директоров больницы, в основном состоявший из бывших и действующих корпоративных руководителей, состоятельных предпринимателей и благотворителей, пришел к выводу, что больница сможет стать лучше, богаче и эффективнее, если возьмет за основу корпоративную философию и деловые подходы, ориентированные на рынок. Идея заключалась в том, чтобы управлять больницей так же, как управляют финансово успешными корпорациями. Совета попросили у мощной международной консалтинговой компании, специализирующейся на корпоративном бизнесе. Одной из рекомендованных стратегий по увеличению доходов стало максимальное инвестирование в программы с наибольшим потенциальным ростом доходов. То есть приоритет отдавался направлениям, предлагающим медицинские услуги, которые наиболее выгодно возмещались страховыми компаниями. Этот подход игнорировал ключевую медицинскую

этику: помогать всем нуждающимся детям, независимо от экономической целесообразности.

Акцент сместился на финансовые показатели. Перед врачами поставили задачу повышать доходность: обслуживание большего количества пациентов, выставление максимально возможных счетов за услуги и сокращение тех видов помощи, которые плохо оплачиваются. На обучающих семинарах их буквально учили, как «максимизировать прибыльность оказания услуг».

Примечательно, что новая стратегия затронула даже *график приема пациентов*. Расчеты показали, что страховые компании выплачивали за один 60-минутный прием «нового больного» больше, чем за три 20-минутных повторных визита. Следовательно, чтобы увеличить прибыль медучреждения, врачам рекомендовали *набирать больше первичных пациентов*, сокращая время на повторные визиты. Дело в том, что для новых пациентов в среднем приходится назначать больше *платных обследований*, что оказывалось финансово выгодным для клиники. Вместе с тем это напрямую противоречило потребностям многих больных в регулярном наблюдении и необходимости повторных консультаций для поддержания качества медицинской помощи. Особенно показателен случай, когда руководителя одного из наших педиатрических отделений особо отмечали и называли «героем» учреждения за успешную реализацию этой модели расписания. Остальным подразделениям настоятельно предлагалось перенять его практику.

Еще один способ увеличить доходы заключался в том, что врачей стали убеждать не тратить время на научные изыскания, если на это не получен специальный грант. Нефинансируемые исследования допускались, но только вне основного рабочего времени и не за счет часов, оплачиваемых учреждением. При такой политике не в чести принцип, согласно которому исследовательская работа является неотъемлемой частью педиатрии вне зависимости от наличия финансирования. Кроме того, из-за этого многие важные проекты остались без материальной поддержки, что привело к значительному сокращению исследовательской деятельности.

Детская больница Коламбуса является образовательным центром, аффилированным с кафедрой педиатрии Медицинской школы Государственного университета Огайо. Врачи детской больницы, являющиеся сотрудниками кафедры, входят в состав научно-преподавательского коллектива — так называемые академические педиатры. Одной из их ключевых обязанностей является обучение студентов-медиков и ординаторов педиатрии.

Несмотря на то что официальных указаний сокращать время, выделяемое на обучение, не было, преподаватели быстро осознали, что сложно одновременно удовлетворять требованиям по увеличению доходов и при этом уделять достаточно времени образовательному процессу. Между тем подготовка будущих врачей представляет собой одну из ключевых миссий как медицинского университета в целом, так и педиатрической кафедры в частности.

Еще одним проявлением новой стратегии стала постепенная замена руководителей. На смену альтруистично настроенным управляющим, для которых финансовые показатели не были приоритетом, пришли те, кто с энтузиазмом поддерживал внедрение корпоративных ценностей в работу больницы. Альтруистично настроенные лидеры больше не соответствовали новой корпоративной модели учреждения. На смену им приходили руководители с предпринимательским мышлением, ориентированные на рост доходов. Эти новые администраторы, в свою очередь, выдвигали на ключевые должности врачей, разделявших их взгляды. В результате большинство руководящих позиций вскоре заняли те, кто был наиболее лоялен идеям коммерциализации и корпоративной морали. Те же, кто сохранял приверженность гуманистическим и альтруистическим ценностям, постепенно вытеснялись на периферию, воспринимались как чужие и даже подвергались различным формам давления.

Один особенно альтруистично настроенный педиатр был отправлен в клинику в Канзас, которая занимается оценкой профессиональной пригодности «проблемных» врачей. Его «профессиональный изъян» заключался в том, что он испытывал трудности с адаптацией к изменениям и проявлял сопротивление реформам, суть которых сводилась к переходу учреждения от гуманистической модели к корпоративной. После недели интенсивного тестирования комиссия поставила диагноз «патологический альтруизм».

В результате стратегий, подобных описанным выше, изменилось не только отношение к врачам, но и критерии их оценки. До конца 1990-х годов — в период, что мы назвали эпохой альтруизма, педиатры воспринимались как врачи, посвятившие себя служению пациентам. Позднее мы стали «предоставлять медицинские услуги», а пациенты превратились в «клиентов». С наступлением эпохи корпоративного управления ситуация усугубилась: мы превратились в «источник дохода», работающий на интересы корпорации.

И все же одно корпоративное изменение оказалось полезным. Это касается названия больницы. Поскольку Национальная страховая компания (Nationwide Insurance Company), базирующаяся в Колумбусе, инвестировала значительные средства в трансформацию больницы по корпоративной модели, было решено переименовать учреждение в Национальную детскую больницу (Nationwide Children's Hospital).

Следует признать, что в период корпоративной трансформации Национальная детская больница

значительно расширилась во многих отношениях: увеличилось число врачей и преподавателей, выросли масштабы инфраструктуры, расширился спектр клинических услуг, возрос объем финансируемых исследований, а также укрепилась ее репутация как на национальном, так и на международном уровне. Это произошло благодаря огромным денежным вливаниям со стороны больших предприятий и частных благотворителей.

Тем не менее важно осознавать, что основная причина развития заключалась не в корпоратизации как таковой, а в беспрецедентном объеме привлеченных средств. *Эти же ресурсы, инвестированные в традиционную модель гуманистической медицины, направленные на улучшение и расширение исходной, некорпоративной Детской больницы Колумбуса под руководством альтруистичных педиатров, могли дать сопоставимые или превосходящие результаты — без компромиссов в отношении врачебной этики и качества помощи.* Фактически не превращение больницы в корпорацию подняло ее престиж и увеличило ее масштабы, а именно огромные финансовые вливания сделали эти усовершенствования возможными.

ЗАКЛЮЧЕНИЕ

Педиатры, медсестры и другие сотрудники детских больниц, искренне приверженные альтруистическим ценностям, хорошо знают, насколько эффективно функционировала модель детской больницы в эпоху, когда преобладала красота общественного строя. Мы не просто наблюдали это, мы были частью этой системы, проживали ее каждый день, успешно реализовывали ее принципы в разных странах, при этом сохраняя разумные расходы для общества. Мы убеждены в ее ценности и жизнеспособности.

Мы также хорошо понимаем, к чему приводит замена модели детской больницы, основанной на гармонии человеческих отношений (модель эпохи красоты общественного строя), на рыночно-ориентированный подход (модель корпоративной эпохи). Мы сами прошли через этот переход и стали свидетелями его последствий, поэтому можем с уверенностью и точностью предсказать, к каким результатам он ведет.

Известны нам и глубинные причины негативных последствий корпоративной модели управления больницами. В то же время понятна и обоснована высокая степень институциональной поддержки такого способа организации работы медицинских учреждений со стороны правящих структур. Именно поэтому мы с уверенностью предлагаем социальную экономическую модель эпохи красоты общественного строя, реализованную в детских больницах (в ряде публикаций она называется Общественно-ориентированной экономической моделью детского здравоохранения (ОЭМДЗ)) как жизнеспособную и действенную альтернативу, обладающую возможностью, в отличие от корпоративного подхода, формировать подлинную красоту социальных отношений в обществе в целом.

В самом деле, корпоративная модель уже показала свою несостоятельность в сфере здравоохранения и все явственнее терпит неудачу в глобальном масштабе [1]. Достаточно взглянуть на все эти ужасные войны, как на один из примеров, чтобы убедиться в том, что подобный подход неспособен выстроить гармоничное общество, основанное на гуманности, сбалансированных человеческих отношениях и подлинной социальной красоте [1].

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Автор прочитал и одобрил финальную версию перед публикацией.

Конфликт интересов. Автор декларирует отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.

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Medical organizational analysis of cancer morbidity, prevalence and mortality (Udmurt Republic data based)

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ABSTRACT. ***Introduction.*** Cases of Cancer have proved to be the leading causes of morbidity and mortality and determine the need for medical organizational analysis in order to improve public health system. ***Aim*** — to make a medical organizational analysis of cancer morbidity, prevalence and mortality in Udmurt Republic (UR). ***Materials and methods***. The object of the research is the healthcare system of the UR (2002–2022). Data taken from from Rosstat (RF) and the Medical Information and Analytical Center of the Ministry of Health of the UR (2002–2022) were analyzed. The dynamics of cancer morbidity, prevalence and mortality (per 100 thousand population) in the UR and the RF were concidered. Vectors for improving of public health care for patients with cancer have been identified. Research methods: literature analysis, analytical, statistical, time series, comparative. ***Results and discussion.*** In 2002–2022, the dynamics of growth of cancer morbidity, prevalence and mortality and a shortage of oncologists in the Udmurt Republic were determined. The cancer morbidity increased from 260.5 to 486.6 per 100 thousand population (growth rate 186.8%, rate of increase 86.8%), more significantly among the urban compared to the rural population — positive growth of 60.5% and 49.5%, respectively; the cancer prevalence increased from 1296.5 to 2839.8 per 100 thousand population (growth rate 223.2%, rate of increase 123.2%); the proportion of patients with stage IV malignant neoplasms decreased in 2002–2012 and 2020–2022 to 21.5% and 23.8%, respectively, and increased in 2002–2020 to 25.8%; cancer mortality increased from 160.8 to 192.0 per 100 thousand population (growth rate 119,4%, rate of increase 19,4%), more significantly among the rural than among the urban population — the positive growth was 32.8% and 15.7%, respectively. The provision of oncologists in the Udmurt Republic in 2022 was 0.78 per 10 thousand population. ***Conclusions.*** The growth of cancer morbidity, prevalence and mortality and shortage of oncologists in the UR in 2012–2022 defined the need of improvement of oncological care by means of introduction of effective clinical organizational management models based on shift and telemedicine technology.

KEYWORDS: medical organizational analysis, cancer, morbidity, mortality, shortage of oncologists, Udmurt Republic

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Медико-организационный анализ заболеваемости, распространенности и смертности при злокачественных новообразованиях (по данным Удмуртской Республики)

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РЕЗЮМЕ. ***Введение.*** Злокачественные новообразования (ЗНО) являются ведущими причинами заболеваемости и смертности населения и определяют потребность проведения медико-организационного анализа в целях совершенствования общественного здравоохранения. ***Цель исследования*** — выполнить медико-организационный анализ заболеваемости, распространенности и смертности при ЗНО по данным Удмуртской Республики (УР). ***Материалы и методы.*** Объект исследования — население с ЗНО, организация здравоохранения УР (2002–2022 гг.). Использованы сведения Росстата и Республиканского медицинского информационно-аналитического центра Минздрава УР за 2002–2022 гг. Исследована динамика заболеваемости, распространенности и смертности при ЗНО (на 100 тыс. населения) и установлены векторы совершенствования онкологической помощи. Методы исследований: контент-анализ, статистический, динамических рядов, сравнительный анализ. ***Результаты и обсуждение.*** За период 2002–2022 гг. в УР установлена динамика роста заболеваемости, распространенности и смертности при ЗНО. Первичная заболеваемость ЗНО выросла с 260,5 до 486,6 на 100 тыс. населения (темп роста 186,8%, темп прироста 86,8%), более значительно среди городского, чем среди сельского населения, — положительный прирост 60,5 и 49,5% соответственно; совокупный показатель распространенности ЗНО вырос с 1296,5 до 2839,8 на 100 тыс. населения (темп роста 223,2%, темп прироста 123,2%); удельный вес пациентов с ЗНО IV стадии снижался в 2002–2012 гг. и 2020–2022 гг. до 21,5 и 23,8% соответственно, а в 2002–2020 гг. вырос до 25,8%; показатель смертности от ЗНО вырос с 160,8 до 192,0 на 100 тыс. населения (темп роста 119,4%, темп прироста 19,4%), более значительно среди сельского, чем среди городского населения, — положительный прирост составил 32,8 и 15,7% соответственно. За исследуемый период в регионе установлен дефицит врачей-онкологов. Обеспеченность врачами-онкологами в 2022 г. составила 0,78 на 10 тыс. населения. ***Выводы.*** Установленные в УР за период 2012–2022 гг. рост заболеваемости, распространенности и смертности при ЗНО и кадровый дефицит врачей-онкологов определяют потребность совершенствования онкологической помощи на основе внедрения эффективных клинико-организационных моделей, включая вахтовую и телемедицинскую технологии.

КЛЮЧЕВЫЕ СЛОВА: медико-организационный анализ, злокачественные новообразования, заболеваемость, смертность, кадровый дефицит, Удмуртская Республика

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INTRODUCTION

Cancer is a global social and economic problem. It highlights the need for clinical and organizational improvements in public health. Malignant neoplasms (MN) account for one in six cases of overall mortality (16.8%) and one in four cases of non-communicable diseases (22.8%) worldwide. Cancer is the cause of three out of ten premature deaths among people aged 30–69 in the structure of non-communicable diseases and is among the three leading causes of death in this age group in 177 of the 183 member countries of the World Health Organization [1, 2].

Cancer creates barriers to increasing life expectancy and contributes to socioeconomic losses [3].

F. Guida et al. found that in 2020, approximately 1 million children worldwide were orphaned due to the death of their mother from cancer within the same year that the cancer was diagnosed. About 50% of these women died as a result of cervical and breast cancer [4].

In 2022, there were about 20 million new cases of cancer and 9.7 million deaths from cancer worldwide. According to forecasts by the International Agency for Research on Cancer, by 2040, the primary incidence of cancer will increase to 29.9 million cases per year, and the number of deaths from progressive cancer will increase to 15.3 million per year [5].

Every year, about 400,000 children develop cancer. The highest incidence of cancer is recorded in countries whose populations have the highest life expectancy, level of education, and standard of living [6].

The incidence of MN in the United States of America for the period 2017–2022 amounted to about 440.5 per 100,000 population per year, and mortality was about 146.0 per 100,000 population per year [5, 7].

In 2022, European countries accounted for one-fifth of newly diagnosed cancer cases (22.4%) and deaths from cancer (20.4%) worldwide. It is important to note that less than 10% of the world's population (9.6%) lives in Europe. The incidence of cancer in European countries in 2022 averaged 290.9 per 100,000 population, with the lowest rate in Eastern European countries (261.1 per 100,000 population) and the highest in Northern European countries (315.55 per 100,000 population) [6].

The mortality rate from MN in European Union countries in 2022 was 106.3 per 100,000 population. The highest standardized mortality rates from MN in Europe, exceeding 300 per 100,000 population, were recorded in Hungary and Croatia, and the lowest (198.3 per 100,000 population) in Malta [6, 8].

In the Russian Federation (RF) in 2022, cancer was diagnosed for the first time in 624,835 patients. The incidence of cancer in 2022 was 425.89 per 100,000 population, which is 7.0% higher than in 2021 and 15.6% higher than in 2012. The increase in the number of cases in 2022 compared to 2021 was 7.6%. The prevalence of MN among the population of the Russian Federation in 2022 was 2,742.4 per 100,000 population, with an increase of 33.9% over 10 years [9].

The mortality rate from MN in the Russian Federation in 2022 was 188.7 per 100,000 population, which is 6.5% lower than the mortality rate in 2012 [10].

Compared to European countries and the United States, the high incidence of MN in the Russian Federation is due to low access to primary specialized medical care (PSMC) against the backdrop of a shortage of specialists and a reduction in primary health care (PHC) organizations [11].

The availability of oncologists in the Russian Federation increased from 0.46 to 0.62 per 10,000 population (a positive increase of 34.8%) between 2012 and 2020, which contributed to a decrease in the proportion of advanced-stage (stage IV) from 21.2% to 19.8% (negative growth of 6.6%) and mortality from MN from 203.1 to 191.6 per 100,000 population (negative growth of 5.66%). Compared to the period 2002–2012, the incidence and prevalence of MN in the Russian Federation in the period 2012–2020 increased by 1.66 and 1.3 times, respectively, and exceeded the indicators of European countries and the United States [12].

AIM

The aim is to perform a medical and organizational analysis of the incidence, prevalence, and mortality of MN based on data from the Udmurt Republic (UR) for the period 2002–2022.

MATERIALS AND METHODS

The object of the study is the population with MN and the healthcare system of the Udmurt Republic (2002–2022). Scientific and methodological support was provided by the relevant department of the Faculty of Continuing Medical Education of the Medical Institute of the Patrice Lumumba Peoples' Friendship University of Russia. Data from Rosstat and the Republican Medical Information and Analytical Center of the Ministry of Health of the Udmurt Republic for 2002–2022 were used. The dynamics of morbidity, prevalence, and mortality from MN (per 100,000 population) in the Udmurt Republic were compared with those in the Russian Federation. Vectors for improving public health in relation to MN were identified. The following methods were used: content analysis of scientific literature, statistical analysis, dynamic series analysis, and comparative analysis. Statistical processing of the material was carried out with the STATISTICA 6.0 software package (StatSoft Inc., USA). The White's t-test was used to assess reliability. Differences in the compared indicators were considered reliable at $p < 0.05$.

RESULTS

The analysis (Fig. 1) presents a diagram of MN incidence dynamics based on data from the Udmurt Republic and the Russian Federation for the period 2002–2022.

MN incidence dynamics in the Udmurt Republic and the Russian Federation for the period 2002–2022 was characterized by similarly directed growth vectors in 2002–2019 and 2020–2022. In the period 2019–2020, a downward trend in the incidence of MN was observed in the Udmurt Republic and the Russian Federation, which was due to registration conditions during the pandemic.

During the period 2002–2019, there was an increase in MN incidence in the Udmurt Republic from 260 to 486.6 per 100,000 population (growth rate 186.8%, rate of increase 86.8%). A similar trend in the incidence of MN was observed in the Russian Federation — from 317.2 to 443.6 per 100,000 population (growth rate 139.8%, rate of increase 39.8%). During the period 2019–2020, the incidence of MN in the UR decreased from 430.9 to 380.5 per 100,000 population (growth rate 88.3%, negative growth rate 11.7%), as did in the Russian Federation, from 443.6 to 382.3 per 100,000 population (growth rate of 86.1%, negative growth rate 13.8%). During the period 2020–2022, the incidence of MN in the UR and the Russian Federation increased from 380.5 to 486.6 per 100,000 population (growth rate 127.88%, rate of increase 27.88%) and from 382.3 to 443.6 per 100,000 population (growth rate 116.03%, rate of increase 16.03%).

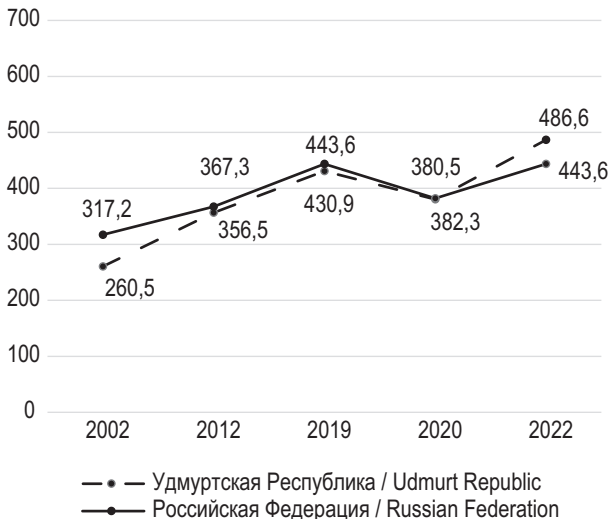

Fig. 1. Morbidity of cancer on the data of Udmurt Republic and the Russian Federation in 2002–2022 (per 100 thousand population)

Рис. 1. Заболеваемость злокачественными новообразованиями по данным Удмуртской Республики и Российской Федерации в 2002–2022 гг. (на 100 тыс. населения)

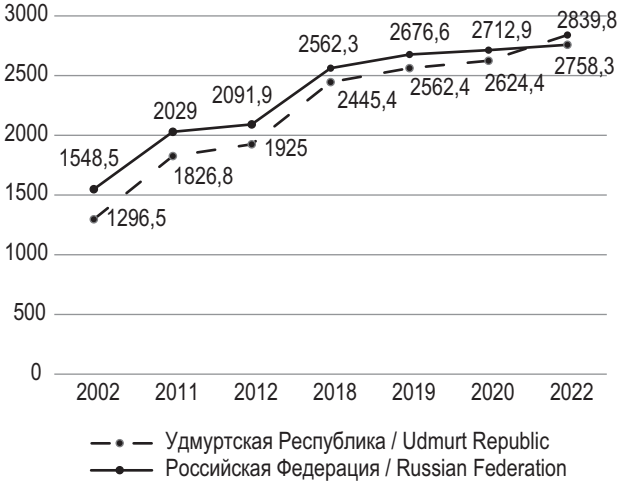

Fig. 2. Prevalence of oncological diseases on the data of Udmurt Republic and the Russian Federation in 2002–2012 (per 100 thousand population)

Рис. 2. Распространенность онкологических заболеваний по данным Удмуртской Республики и Российской Федерации в 2002–2012 гг. (на 100 тыс. населения)

In 2002–2019, the rate of increase in MN incidence in the UR was higher than the average for the Russian Federation (86.8% and 39.8%, respectively). It was caused by a lower incidence of MN in the UR in 2002 than in the Russian Federation. In 2019, the incidence rates of MN in the UR and the Russian Federation did not differ significantly — 430.9 and 443.6 per 100,000 population, respectively. In 2022, the incidence of MN in the UR was 1.1 times higher than the average for the Russian Federation.

An interregional analysis for the period 2013–2022 revealed the largest increase in MN incidence in the Karakulinsky (104.4%), Syumsinsky (92.5%), and Sarapulsky (87.7%) districts. The proportion of morphologically confirmed cancer cases in 2022 was 95.1%.

Figure 2 shows the dynamics of cancer prevalence in the Udmurt Republic and the Russian Federation for the period 2002–2022.

When compared with the dynamics of MN incidence, the dynamics of cancer prevalence in the Udmurt Republic and the Russian Federation in 2002–2022 had an identical vector, but with constant growth without significant fluctuations throughout the study period. The prevalence of cancer in the UR increased from 1,296.5 to 2,839.8 per 100,000 population (growth rate 223.2%, rate of increase 123.2%), and in the Russian Federation from 1,548.5 to 2,758.3 per 100,000 population (growth rate 178.1%, rate of increase 78.1%).

Figure 3 presents a diagram of MN morbidity among the urban and rural populations of the Udmurt Republic for the period 2002–2022, based on the results of the analysis.

Over the period 2002–2019, the indicator increased among the urban and rural populations, similar to the dynamics of the overall incidence of MN in the Udmurt Republic. There was a more significant positive growth rate in the incidence of MN among the urban population than among the rural population — 60.5% and 49.5%, respectively.

The dynamics of MN incidence among the urban and rural populations during the period under review did not have a unidirectional vector. During the period 2019–2020, the incidence of MN among the urban and rural populations decreased from 455.2 to 423.4 per 100,000 population (growth rate 93%, negative growth rate of 7%) and from 411.8 to 361.3 per 100,000 population (growth rate of 87.7%, negative growth rate of 12.3%), respectively. Thus, during the period 2019–2020, there was a more intense decline in morbidity among the rural population than the urban population (which may be related to access to medical care during the pandemic).

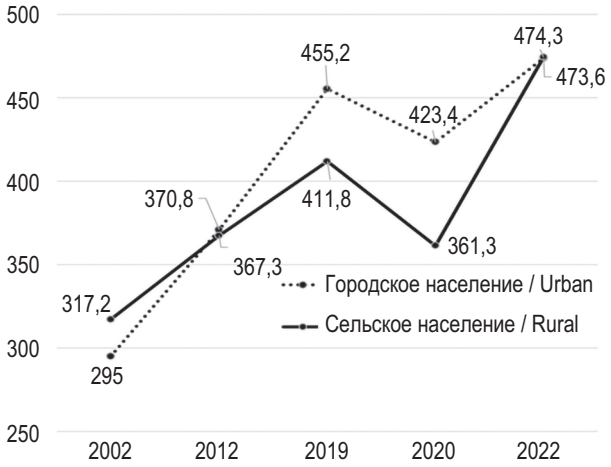

Fig. 3. Morbidity of cancer among urban and rural population on data of the Udmurt Republic in 2002–2022 (per 100 thousand population)

Рис. 3. Заболеваемость злокачественными новообразованиями городского и сельского населения по данным в Удмуртской Республике за 2002–2022 гг. (на 100 тыс. населения)

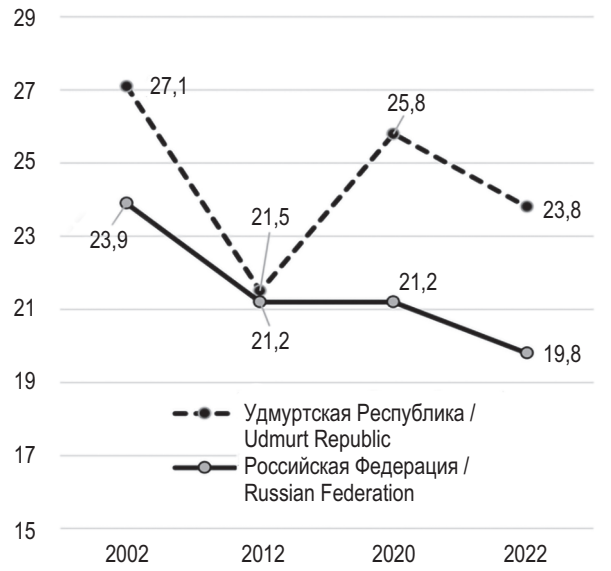

Fig. 4. The proportion of patients with cancer stage IV on data of the Udmurt Republic and the Russian Federation among patients with newly diagnosed oncological disease (%)

Рис. 4. Доля пациентов со злокачественными новообразованиями по данным в Удмуртской Республике и Российской Федерации, у которых диагностирована IV стадия заболевания, из числа пациентов с впервые выявленным онкологическим заболеванием (%)

During the period 2020–2022, there was an increase in MN morbidity (so-called compensated morbidity), which was more intense among the rural population than among urban residents, with positive growth of 31.1% and 12%, respectively. No significant differences in MN incidence rates between urban and rural populations were found in 2022 — 473.6 and 474.3 per 100,000 population (p=0.95).

Figure 4 shows the dynamics of the proportion of patients with MN in the Udmurt Republic and the Russian Federation for the period 2002–2022 who were diagnosed with stage IV disease and were among those with newly diagnosed cancer.The proportion of patients with MN diagnosed with stage IV disease among patients with newly diagnosed cancer in the Russian Federation decreased between 2002 and 2022, with a negative growth rate of –17.15%. However, between 2012 and 2020, the average for the Russian Federation remained unchanged at 21.2%.

As for the Udmurt Republic, there was a decrease in the share of patients with stage IV MN among those with newly diagnosed cancer from 27.1% to 21.5% (a negative growth rate 20.7%) over the period from 2002 to 2012. Such structural dynamics indicate the potential for improving cancer care in the region.

During the period 2012–2020 , the indicator under review increased from 21.5% to 25.1% (positive growth rate 16.7%), followed by a decrease from 25.1% to 23.8% (negative growth rate 5.18%) in 2020–2022. The highest proportion of patients with advanced MN in 2022 was recorded in the Vavozhsky, Debessky, Kiznersky, and Kambarsky districts; the lowest was in the Seltinsky, Votkinsky, Kiyasovsky, Glazovsky, and Kezsky districts.

Figure 5 demonstrates the dynamics of mortality from MN in the Udmurt Republic and the Russian Federation for the period 2002–2022, based on the results of the analysis.

Vectors of mortality dynamics from MN in the RF and UR for the period 2002–2022 were multidirectional. From 2002 to 2022, mortality from MN in the RF decreased from 205 to 191.6 per 100,000 population (negative growth 6.5%). In the UR, mortality from MN increased from 160.8 to 192.0 per 100,000 population (growth rate 119.4%, growth rate 19.4%) during the period 2002–2022. A sharp increase in mortality from MN in the UR was recorded in the period 2002–2020 — from 160.8 to 195.7 per 100,000 population (growth rate 121.7%, rate of increase 21.7%). During the period 2020–2022, mortality from MN in the UR decreased from 195.7 to 192 per 100,000 population (negative growth rate 1.89%), but in 2022 it remained higher than the average for the Russian Federation — 192 and 191.6 per 100,000 population, respectively.

Figure 6 demonstrates the dynamics of mortality from MN among the urban and rural populations in the Udmurt Republic for the

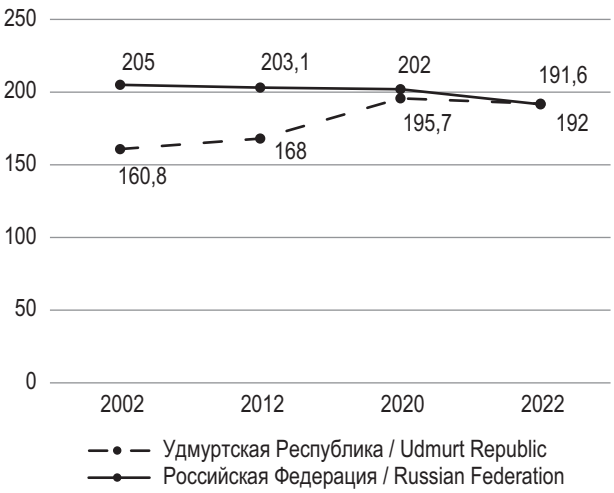

Fig. 5. Mortality of patients with cancer on the data of the Udmurt Republic and the Russian Federation in 2002–2022 (per 100 thousand population)

Рис. 5. Смертность от злокачественных новообразований по данным Удмуртской Республики и Российской Федерации в 2002–2022 гг. (на 100 тыс. населения)

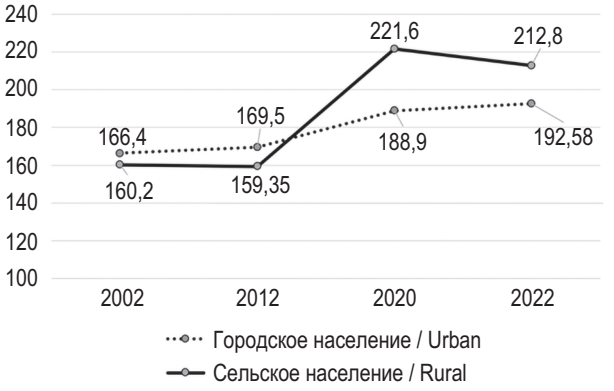

Fig. 6. Mortality of patients with cancer among the urban and rural population on the data in the Udmurt Republic for the period 2002–2022 (per 100 thousand population)

Рис. 6. Смертность от злокачественных новообразований среди городского и сельского населения по данным в Удмуртской Республике за период 2002–2022 гг. (на 100 тыс. населения)

period 2002–2022, based on the results of the analysis.

Mortality from MN among the rural population of the UR for the period 2002–2022 increased more significantly than among the urban population, with a positive increase of 32.8% and 15.7%, respectively.

The mortality rate from MN among the urban population of the Udmurt Republic in 2002 and 2012 did not differ significantly, amounting to 166.4 and 169.5 per 100,000 population (p=0.95), respectively. A similar statistical ratio was observed in rural areas — 160.2 and 159.3 per 100,000 population (p=0.95), respectively.

Between 2012 and 2020, there was an increase in mortality from MN among the urban population of the UR from 169.5 to 221.6 per 100,000 population (growth rate 130.7%, rate of increase 30.7%). Among the rural population of the UR, mortality from MN increased rapidly between 2012 and 2020, from 159.95 to 221.6 per 100,000 population (growth rate 138.5%, growth rate 38.5%), followed by a decline by 2022 to 212.6 per 100,000 population (negative growth rate 3.97%).

In 2022, mortality from cancer among the urban population of the UR was lower than among the rural population — 192.58 and 212.8 per 100,000 population, respectively (p=0.9).

The increase in morbidity and mortality among the population of the Udmurt Republic in 2002–2022 occurred against the backdrop of a staff shortage, both in urban and regional healthcare. In the Vavozhsky district, the availability of oncologists in 2022 and 2023 was 0.72 per 10,000 population, in the Malopurginsky district — 0.32 per 10,000 population, while in Izhevsk it was 33.26 and 34.05 per 10,000 population, respectively. In Votkinsk, it ranged from 22.2 to 21.5 per 10,000 population, and in Glazov, it amounted to 27.25 and 27.82 per 10,000 population. In the Debessky, Alnashsky, Vavozhsky, Krasnogorsky, Igrinsky, Syumsinsky, Glazovsky, and Seltinsky districts, there were no oncologists during this period. On average, the availability of oncologists in the Udmurt Republic in 2002–2023 was 0.78 per 10,000 population.

DISCUSSION

Based on data from the Udmurt Republic, within the period 2002–2022 the study identified trends in incidence, prevalence, and mortality from MN.

Trends in MN incidence among the population within the period 2002–2022 in the Udmurt Republic corresponded to trends in the Russian Federation. Mortality from MN in the Udmurt Republic increased from 160.8 to 192.0 per 100,000 population, while in the Russian Federation it decreased from 205 to 191.6 per 100,000 population.

In accordance with Decree No. 725-r of the Government of the Udmurt Republic dated June 21, 2019, "On the Approval of the Regional Program 'Combating Cancer in the Udmurt Republic for 2019–2024'" (as amended on September 25, 2023), mortality from MN in the Udmurt Republic in 2024 is expected to be reduced to 182 per 100,000 population [13].

The incidence of cancer in the Udmurt Republic, reaching a maximum of 486.6 per 100,000 population during the study period in 2022, did not differ significantly between urban and rural populations — 474.3 and 473.6 per 100,000 population (p=0.95), respectively.

The prevalence of MN in the UR and the RF was characterized by positive growth dynamics, which was more intense in the UR than in the RF — 123.2 and 78.1%, respectively.

Mortality from MN in the UR for the period 2002–2022 increased to 192 per 100,000 population, with a positive rate of increase 19.4%. During the same period, the average mortality rate from MN in the Russian Federation steadily declined, reaching 191.6 per 100,000 population in 2022 (a negative growth rate –6.5%).

The proportion of patients diagnosed with stage IV MN among patients with newly diagnosed cancer was higher in the UR compared to the Russian Federation average, and only in 2012 there was no significant difference (21.5% and 21.2%, respectively). Over the period 2020–2022, the average for the Russian Federation and the UR showed a downward trend in the proportion of patients diagnosed with stage IV disease.

During the period under review, there was a shortage of oncologists in the Udmurt Republic, mainly in rural areas, which led to a decrease in the availability of oncological care at an outpatient and primary care level. In accordance with Decree No. 725-r of the Government of the Udmurt Republic dated June 21, 2019, "On the Approval of the Regional Program «Combating Cancer in the Udmurt Republic for 2019–2024»" (as amended on September 25, 2023), cancer care in the Udmurt Republic is provided in primary

cancer clinics, outpatient cancer care centers, and cancer hospitals. Seven outpatient cancer care centers were opened in 2021 in hospitals in Votkinsk, Glazov, Sarapul, Mozhga, and Igra. A three-level system for providing medical care to patients with cancer has been created in the Udmurt Republic, including: Level 1 — 29 primary oncology clinics and 53 examination rooms; Level 2 — 7 outpatient oncology care centers; Level 3 — the regional center, the Sergey Grigorievich Primushko Republican Clinical Oncology Hospital of the Ministry of Health of the Udmurt Republic, a budgetary healthcare institution. In 2023, 44,000 patients with malignant neoplasms were under medical monitoring. In 2023, more than 7,300 new cases of malignant neoplasms were detected, including about 40% of cases at stages III and IV [13].

Organizational measures and reinforcement of material and technical resources for the oncology care system in the Udmurt Republic during the study period did not contribute to eliminating the shortage of oncologists. In 2024–2025, telemedicine and shift technologies for primary specialized medical care for cancer were introduced. They involved a chief consultant for oncology care from the Ministry of Health of the Udmurt Republic. Improvements in oncology care at the regional level are based on proven clinical and organizational solutions, including shift and telemedicine models for primary specialized medical care for MN [14].

CONCLUSION

According to the analysis, an upward trend in the incidence, prevalence, and mortality from MN was established in the Udmurt Republic for the period 2002–2022 against the backdrop of a shortage of oncologists, mainly at the level of rural healthcare. Improving access to oncological care has been identified as a pressing task for improving public health in the Udmurt Republic in order to reduce MN incidence and mortality. The decline in the proportion of patients with stage IV MN among patients newly diagnosed with cancer in the period 2020–2022 in the Udmurt Republic allows us to conclude that clinical and organizational measures taken in the region are medically effective. It is predicted that the incidence of cancer in the Udmurt Republic will decline against the backdrop of increased access to primary specialized (oncological) medical care using shift and telemedicine technologies. Structural dynamics of indicators testify to the potential of healthcare to forecast a reduction in MN growth as a remote consultation system is expanded and might cover the primary healthcare at the level of paramedic and midwifery stations.

ADDITIONAL INFORMATION

Authors' contribution: research concept and design — D.I. Kich, O.V. Rukodaynyy, S.A. Bagin, R.S. Goloshchapov-Aksenov; collection and processing of the material — S.A. Bagin, R.S. Goloshchapov-Aksenov; writing a text — D.I. Kicha, S.A. Bagin, R.S. Goloshchapov-Aksenov; making a list of references — D.I. Kicha, S.A. Bagin, R.S. Goloshchapov-Aksenov; statistical evaluation of data — D.I. Kicha, R.S. Goloshchapov-Aksenov; scientific editing — D.I. Kicha, O.V. Rukodaynyy, S.A. Bagin, R.S. Goloshchapov-Aksenov. All authors are responsible for approving the final version of the article and ensuring the integrity of all parts of the article.

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Conflict of interests. The authors declare no conflict of interest.

Compliance with ethical standards. The study does not require the submission of a biomedical ethics committee opinion or other documents.

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The risk of professional disadaptation of elderly medical workers

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ABSTRACT. ***Introduction.*** Modern research confirms the presence of stress-related working conditions in various medical institutions. Elderly employees can be identified as one of the most problematic groups. ***The purpose of the research:*** the goal is to study predisposition to development of professional maladaptation in elderly medical workers. ***Materials and methods.*** The study involves doctors and nursing staff of hospitals and sanatoriums. Each of the 4 test groups includes 15 people from 60 to 75 years old. ***Results.*** The most significant problems for elderly doctors are those related to the relationship between doctors and managing staff (53.3% of doctors from sanatoriums and 60% of hospital doctors). The level of maladaptation of the average medical staff of a hospital is higher than that of the average medical staff of a sanatorium (60.33±8.59 and 51.60±7.60 points, respectively, at ($p \leq 0.01$)). All groups of physicians are characterized by low self control. The low level of motor pace can be explained by age-related changes. ***Conclusion.*** Doctors consider the main professional problem to be the presence of conflicts in communication with the management and colleagues, and the nursing staff — the imperfection of the working conditions' organization. Maladaptive characteristics for all elderly physicians are low speed of motor activity, emotional intemperance and the desire to avoid unpredictable events.

KEYWORDS: professional stress, professional maladaptation, elderly medical personnel, coping strategies, personal resources

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Риск профессиональной дезадаптации медицинских работников пожилого возраста

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РЕЗЮМЕ. ***Введение.*** Многие исследования подтверждают стрессогенность условий медицинских учреждений. Наиболее страдающая группа сотрудников медицинских учреждений — это работники от 55 лет. ***Цель исследования*** — изучение предрасположенности к развитию профессиональной дезадаптации у пожилых медицинских работников (врачей и среднего медицинского персонала), работающих в санаторно-курортных и больничных учреждениях. ***Материалы и методы.*** В исследовании участвовали врачи и средний медицинский персонал больницы и санаторно-курортного учреждения. В каждой из четырех групп по 15 человек от 60 до 75 лет. ***Результаты.*** Значимыми для пожилых медиков являются проблемы, связанные с отношениями с руководством (53,3% врачей из санатория и 60% врачей из больницы). Уровень дезадаптации среднего медицинского персонала больницы выше, чем у среднего медицинского персонала санатория (60,33±8,59 и 51,60±7,60 баллов соответственно при ($p \leq 0,01$)). У всех групп медиков показатели по шкале «Моторный темп» близки к низким. Для всех исследованных медицинских работников характерен низкий показатель по шкале «Самоконтроль». Средний медицинский персонал больницы более дезадаптирован вследствие повышенной нагрузки. ***Выводы.*** Основной профессиональной проблемой врачи считают наличие конфликтов в общении с руководством и коллегами, а средний медицинский персонал — несовершенство организации условий труда. Дезадаптирующими характеристиками для всех групп медиков пожилого возраста являются низкая скорость двигательной активности, эмоциональная несдержанность и стремление избегать неожиданных событий.

КЛЮЧЕВЫЕ СЛОВА: профессиональный стресс, профессиональная дезадаптация, медики пожилого возраста, стратегии совладающего поведения, личностные ресурсы

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INTRODUCTION

Adaptive capabilities of medical workers during intense professional activity have been a relevant research topic for many years and are actively studied by domestic and foreign authors [1–4].

Professional adaptation refers to the process of adjusting to specific working conditions and/or changing these conditions in specific work situations, which is facilitated by the employee's personal initiative and contributes to their development. Specific features of professional adaptation may be related to various characteristics of an employee: his or her level of qualification (whether the employee is a doctor [1] or a member of the nursing staff [5]). It can also be related to specific professional conditions provided by a medical organization [2, 5], the age and experience of an employee [6] and coping strategies used by medical professionals of different specializations [7]. Many studies confirm high stress levels experienced by medical professionals in hospital settings [1, 5]. It is believed that work in health resorts is less stressful than work as a surgeon, anesthesiologist, or therapist in a hospital. At the same time, according to P.I. Sidorov and I.A. Novikova, one in five employees of health resorts shows signs of maladjustment, despite the fact that working conditions in these institutions are less intense and stressful [8]. When discussing the age and length of service of medical professionals, it is worth referring to a study by I.V. Vasilyeva, which states that the group of medical facility employees who suffer the most are those aged 55 and over with more than 15 years of experience in the healthcare sector [9]. Research on medical professionals in this age group is also relevant because, according to N.G. Bazhenova, healthcare workers are "aging": 62% of medical professionals have 15 or more years of experience [10].

Studying the health of elderly people, V.V. Frolkis obtained results indicating that people aged 60–75 are prone to developing senile hypoxia [11]. A decrease in energy requires an elderly person to switch to a more energy-efficient mode of functioning, which can manifest itself in emotional changes. T.A. Nemchin, studying elderly people, identified a stable, rigid dominance of certain types of experiences, such as anxiety, sadness, and irritability [12].

Under the influence of senile hypoxia, mental processes undergo the following changes: sensitivity to external stimuli affecting the body decreases, the speed of perception slows down, and the volume of perceived objects in the environment decreases, resulting in suspiciousness and a decline in intellectual activity. However, these changes vary widely among older people and can manifest differently. Some people acquire personality traits such as prudence and caution, while others experience a noticeable decline in mechanical memory, which is compensated for by logical-semantic memory. Psychomotor changes also become apparent: there is a deterioration in fine motor control and the most delicate movements [13].

It is logical to assume that professional adaptation is more difficult for older employees than for their younger colleagues. Let us consider some of the features of older people's adaptation to work responsibilities.

G.S. Nikiforov identified a characteristic feature of adaptation in older people. They tend to seek an environment that is most suitable for normal functioning, as older people are less inclined to change themselves and adapt independently to external conditions [13].

N.V. Yakovleva and Yu.V. Silina studied maladaptive neuropsychiatric conditions in elderly doctors (aged 60–68). Elderly employees were found to have frequent sleep disorders, cerebroasthenic symptoms, memory impairment, decreased sensitivity of the senses (auditory, visual, and skin-kinesthetic), general weakness, and reduced reserve capacity of the central nervous system [6].

A study by I.V. Tikhonova examined the directionality of reactions in the process of interpersonal interaction [14]. It was found that young nursing staff most often use intropunitive responses when communicating, while older medical staff use extrapunitive responses. Thus, during work conflicts, young medical professionals take responsibility for arising misunderstandings upon themselves, while older members of the nursing staff attribute causes of conflict to those with whom they are directly confronting, which contributes to exacerbating conflicts with patients.

It is also worth noting that older people have certain characteristics that facilitate adaptation. For example, the severity of changes associa-

ted with a decline in physical abilities is influenced by both initial physical abilities, which are individual, and regular exercise throughout life [13]. In addition, the professional activity of some elderly doctors is characterized by an increase in the quality and accuracy of diagnostic assessment based on visual examination of a patient, although their visual analysis skills are deteriorating [12]. M.D. Petrash's study also examined coping behaviors among elderly medical workers, revealing that doctors in difficult situations are most likely to choose coping strategies such as "accepting responsibility", "planning a solution to the problem", and "self-control". Representatives of the nursing staff rely on the following coping strategies: "planning a solution to the problem," "self-control," and "accepting responsibility" [15]. The same study examined professional resources. For doctors, this resource is determination, while for mid-level medical personnel, it is psychophysiological potential and extroversion.

Thus, older medical professionals show a tendency to exhibit symptoms associated with involutional physiological changes. In addition, there are many factors that enable older employees to perform their professional duties effectively.

AIM

Based on the issues studied, an aim was formulated: to investigate predisposition to professional maladjustment among elderly medical workers (doctors and nursing staff) working in sanatoriums, resorts, and hospitals. The data obtained will make it possible to identify similar and distinctive characteristics and formulate a number of theoretical propositions that would provide information on how the workplace and the profile of elderly medical workers are related to the peculiarities of their professional adaptation.

MATERIALS AND METHODS

The study involved hospital employees (doctors, n=15; nursing staff, n=15) and health resort employees (doctors, n=15; nursing staff, n=15). Their ages ranged from 60 to 75 years. All respondents gave their written voluntary informed consent to participate in the study and denied that chronic diseases had any impact on their psychological state.

The following tools were used for psychological diagnosis: an original questionnaire developed by N.V. Kozina and A.S. Uspenskaya to identify social and demographic characteristics and features of subjective perception of professional problems; a questionnaire for assessing manifestations of professional maladjustment by O.N. Rodina; a compact temperament structure questionnaire (STQ-77) based on the neurochemical model FET by V.M. Rusakov and I.N. Trofimova for studying psychophysiological characteristics; a questionnaire "Adaptive Behaviour Strategies" (ABS) by N.N. Melnikova for studying communicative strategies for coping with stress, the "Coping Behaviour Methods" questionnaire by R. Lazarus (adapted by T.L. Kryukova and E.V. Kufyak) for determining coping behaviour strategies; open participant observation method; introductory interview method; Mann–Whitney nonparametric U-test for mathematical analysis of the data obtained.

RESULTS

The most significant problems for older doctors in both hospitals and sanatoriums are professional issues associated with relationships with management (according to the questionnaire, 53.3% of doctors from sanatoriums and 60% of doctors from hospitals have a high score on this scale).In addition, high scores were obtained in the groups of doctors on the scales "Problems in relations with colleagues" (53.3% in sanatoriums and 73.3% in hospitals) and "Reduction of personal achievements" (53.3% in sanatoriums and 66.7% in hospitals).

60% of older nursing staff at the hospital report imperfect working conditions, while individual interviews reveal difficulties associated with staff shortages and the resulting high workload for each employee. They also note problems such as a reduction in personal achievements, depletion of energy resources, and increased anxiety.

53.3% of nursing staff at the sanatorium highlight difficulties related to poor organization of working conditions. Experienced employees mention outdated equipment, which leads to a decline in the quality of services provided to patients.

Hospital employees are more concerned about work-related problems than sanatorium medical staff. All respondents also scored high on the severity of health concerns (60, 73.3, 66.7, and 80% in each group).

Older workers note resources that allow them to restore their energy potential. We considered the resources that enable older workers to adaptively cope with professional tasks. Thus, 53.3% of sanatorium doctors prefer walking, while 60% of hospital doctors believe that the main way to relax is to go on vacation. Many respondents pointed out the importance of quality sleep: 66.7% of sanatorium doctors, 73.3% of hospital doctors, and 60% of hospital nursing staff emphasize its significance.

According to the data presented in Table 1, the results for sanatorium doctors and hospital doctors are similar, and no significant differences between them were found. It should be noted that hospital doctors scored higher on the "Features of Individual Mental Processes" scale, which can manifest itself in forgetfulness and distractibility, and on the "Feeling of Fatigue" scale, which may indicate a decrease in the activity of older workers. Hospital doctors also experience difficulties in social interaction, which manifest themselves in reduced sociability and conflicts with colleagues. Significant differences between the medical staff of the sanatorium and the hospital were found on the scales "Emotional shifts", "Features of individual mental processes", "Somatic and vegetative disorders". Although these values cannot be considered high, they are most pronounced among the hospital's mid-level medical staff, which may manifest itself in indifference, forgetfulness, and a large number of health complaints among hospital workers.

The results presented in Table 2 indicate low scores for the majority of elderly doctors at hospitals and sanatoriums on the "Probability Assessment" scale. This is due to the fact that doctors most often do not make long-term treatment plans for patients, but act based on the patient's current health situation. Under such conditions, patients often find themselves

Table 1

Comparative analysis of results across individual scales among doctors and nursing staff
(Questionnaire for assessing manifestations of maladaptation by O.N. Rodina)

Таблица 1

Сравнительный анализ результатов по отдельным шкалам у врачей и медицинского персонала
(Опросник для оценки проявлений профессиональной дезадаптации О.Н. Родиной)

Группы / Groups / Шкалы / Scales	**Врачи. Санаторий / Doctors. Sanatorium**	**Врачи. Больница / Doctors. Hospital**	**Средний медицинский персонал. Санаторий / Nursing staff. Sanatorium**	**Средний медицинский персонал. Больница / Nursing staff. Hospital**
Эмоциональные сдвиги / Emotional shifts	8,80±1,63	7,87±1,97	5,87±1,50***	9,67±1,99***
Особенности отдельных психических процессов / Characteristics of specific mental processes	5,53±1,20	**6,33±1,44**	4,33±1,45*	5,60±1,71*
Снижение общей активности / Decrease in overall activity	6,53±1,26	6,93±1,83	5,07±1,71	5,13±2,23
Ощущение усталости / Sensation of fatigue	7,33±1,02	**8,40±1,96**	7,43±1,73	7,13±1,36
Соматовегетативные нарушения / Somatovegetative disturbances	11,47±1,14	12,47±1,44	10,93±1,03**	13,60±1,64**
Нарушение цикла «сон–бодрствование» / Disruption of the "sleep–wake" cycle	8,73±1,99	9,00±1,51	9,20±1,43	9,93±1,71
Особенности социального взаимодействия / Features of social interaction	6,67±1,78	**8,27±1,37**	4,93±1,01	5,87±1,37
Снижение мотивации к деятельности / Reduction in motivation for activity	4,20±1,32	4,13±1,60	3,13±1,06	3,40±0,83

Significance of differences / Достоверность различий: * p ≤0,05; ** p ≤0,01; *** p ≤0,001.
Note: values outside the standard range are shown in bold.
Примечание: жирным шрифтом выделены значения, выходящие за пределы нормативных значений.

insufficiently examined and complain that the treatment is not helping. Older doctors also score close to low on the "Motor Pace" scale, which manifests itself in a slow pace of physical activity. Older doctors in both hospitals and sanatoriums complain about not having enough time to complete their tasks: they spend more time than their younger colleagues filling out medical documentation. In addition, elderly doctors in both groups have fairly low scores on the "Satisfaction" scale, which means that they are more often pessimistic about future developments. For example, sanatorium doctors express negative predictions about the future of the organization, and conflicts often arise between hospital doctors due to difficulties in agreeing on a treatment plan for patients.

Table 2 shows the following:

- all of the doctors surveyed have high social-verbal endurance;
- elderly hospital doctors have a low ability to quickly adapt to changing situations, change their course of action, and switch between tasks;
- elderly sanatorium doctors have low scores on the "Search for Sensations" scale, which manifests itself in the desire of medical professionals to create unchanging working conditions that do not involve diversity of professional activity.

According to Table 2, most nursing staff, like doctors, score relatively low on the "Motor Pace" scale.

Older mid-level medical staff at hospitals tend to score low on the "Probability Assessment" scale, which means that mid-level medical staff at hospitals are generally not accustomed to paying attention to whether the treatment prescribed to a patient is appropriate for their health condition, but simply follow the instructions given to them. In addition, indicators on the "Social-Verbal Endurance" scale for this group are close to high and are higher than those for the average medical staff at the sanatorium. Hospital nursing staff with extensive work experience are much more involved in verbal dialogue with patients than elderly medical staff at

Table 2

Comparative analysis of psychophysiological characteristics of doctors and nursing staff (Structure of Temperament Questionnaire (STQ-77) by V.M. Rusalov and I.N. Trofimova)

Таблица 2

Сравнительный анализ психофизиологических характеристик врачей и среднего медицинского персонала (Опросник структуры темперамента-компакт (STQ-77) по нейрохимической модели FET В.М. Русалова и И.Н. Трофимовой)

Группы / Groups / Шкалы / Scales	**Врачи. Санаторий / Doctors. Sanatorium**	**Врачи. Больница / Doctors. Hospital**	**Средний медицинский персонал. Санаторий / Nursing staff. Sanatorium**	**Средний медицинский персонал. Больница / Nursing staff. Hospital**
Поиск ощущений / Sensations	**11,80±2,93**	14,27±4,57	**11,80±2,93**	14,27±4,57
Эмпатия / Empathy	13,67±3,60	15,53±3,54	13,67±3,60	15,53±3,54
Оценка вероятностей / Probabilities	**12,07±3,97**	13,47±3,56	**12,07±3,97**	13,47±3,56
Моторный темп / Motor tempo	**13,20±3,45**	**13,60±3,85**	**13,20±3,45**	**13,60±3,85**
Социально-вербальный темп / Social tempo	16,20±4,96	16,07±3,35	16,20±4,96	16,07±3,35
Пластичность / Plasticity	15,07±4,10	**13,27±4,17**	15,07±4,10	**13,27±4,17**
Моторно-физическая выносливость / Motor endurance	15,33±3,54	14,47±3,85	15,33±3,54	14,47±3,85
Социально-вербальная выносливость / Social endurance	**18,67±4,59**	**18,93±3,33**	**18,67±4,59**	**18,93±3,33**
Интеллектуальная выносливость / Intellectual endurance	13,93±3,88	15,00±4,16	13,93±3,88	15,00±4,16
Нейротицизм / Neuroticism	17,20±3,75	17,20±3,73	17,20±3,75	17,20±3,73
Импульсивность / Impulsivity	17,53±2,95	17,67±2,16	17,53±2,95	17,67±2,16
Довольность / Satisfaction	**11,40±4,01**	**12,33±4,15**	**11,40±4,01**	**12,33±4,15**

Note: values outside the standard range are shown in bold.
Примечание: жирным шрифтом выделены значения, выходящие за пределы нормативных значений.

the sanatorium, whose scores on this scale are average.

The nursing staff at the sanatorium tend to score low on the Empathy scale, which, according to observations, is also reflected in their work with patients: older medical staff at the sanatorium often perform procedures automatically, without paying much attention to the emotional state and needs of patients. At the same time, it is interesting to note that the sanatorium's medical staff have relatively high scores on the "Intellectual Endurance" scale, which manifests itself in a well-developed ability to maintain attention while suppressing behavioral reactions to distractions.

Significant differences were found on the "Search for Sensations" scale — hospital medical staff scored low, while sanatorium medical staff scored at the average level.

Significant differences were also obtained on the "Flexibility" scale: for sanatorium medical staff, they are at an average level, while for hospital workers, they are low. Flexibility manifests itself in the ability to quickly adapt to changing situations and switch between tasks, and hospital medical staff do this less successfully than sanatorium medical staff.

According to the data presented in Table 3, the most typical behavior strategy in difficult interaction situations among elderly doctors in both hospitals and sanatoriums is active self-change, which is expressed in the fact that doctors are able to change their focus of perception of the situation and develop new forms of behavior and response. This feature is manifested in the fact that doctors are more likely to change their view in conflict situations with patients or colleagues than to stubbornly defend their position.

The results presented in Table 3 indicate that middle-aged medical staff in hospitals and sanatoriums, as well as doctors, have a fairly pronounced strategy of actively changing themselves. At the same time, it is worth noting that the indicators on the "Passive waiting for external changes" scale are higher for mid-level medical personnel in hospitals than for employees of sanatoriums, which is

Table 3

Comparative analysis of coping communicative strategies among doctors and nursing staff (adaptive Behavior Strategies questionnaire by N.N. Melnikova)

Таблица 3

Сравнительный анализ коммуникативных стратегий совладания со стрессом у врачей и среднего медицинского персонала (опросник «Адаптивные стратегии поведения» (АСП) Н.Н. Мельниковой)

Группы / Groups / **Шкалы / Scales**	**Врачи. Санаторий / Doctors. Sanatorium**	**Врачи. Больница / Doctors. Hospital**	**Средний медицинский персонал. Санаторий / Nursing staff. Sanatorium**	**Средний медицинский персонал. Больница / Nursing staff. Hospital**
Активное изменение среды / Active environment modification	5,40±2,23	5,60±2,35	4,80±0,94	5,53±2,33
Активное изменение себя / Active self-modification	**7,33±1,76**	**6,20±1,66**	**6,00±1,96**	**6,47±1,64**
Уход из среды и поиск новой / Leaving the environment and seeking a new one	4,40±1,12	5,33±1,63	4,73±1,53	5,13±1,85
Уход от контакта со средой и погружение во внутренний мир / Withdrawal from environmental contact and immersion into the inner world	4,73±0,96	5,00±1,51	4,73±1,49	4,93±1,71
Пассивная репрезентация себя / Passive self-representation	4,93±2,55	5,20±1,74	4,73±2,37	4,53±2,83
Пассивное подчинение условиям среды / Passive submission to environmental conditions	4,87±2,07	5,33±2,16	5,13±1,13	5,07±2,02
Пассивное выжидание внешних изменений / Passive waiting for external changes	5,73±2,05	5,27±1,91	5,20±1,47	**6,40±1,72**
Пассивное ожидание внутренних изменений / Passive anticipation of internal changes	3,87±1,88	3,33±1,23	4,87±1,68	3,60±1,99

Note: values outside the standard range are shown in bold.
Примечание: жирным шрифтом выделены значения, выходящие за пределы нормативных значений.

expressed in the desire to avoid unpleasant environmental influences. Thus, when faced with a conflict situation with a patient, mid-level medical personnel wait for doctors to resolve the conflict rather than trying to deal with it themselves. These characteristics have a negative impact on team performance, as doctors often find themselves involved in resolving conflicts between mid-level medical personnel and patients.

According to Table 4, there are significant differences on the "Seeking Social Support" scale, which are significantly higher among sanatorium doctors than among hospital doctors. Probably, the main way for sanatorium medical workers to overcome difficulties in their professional sphere is to turn to colleagues who, in their opinion, are most competent in matters of patient treatment. Experienced sanatorium doctors often turn to the same colleague, who usually has a high workload. Thus, they create additional difficulties for him and shift their own tasks of prescribing treatment, which negatively affects both the emotional state of their colleague, expressed in complaints of severe fatigue at the end of the working day, and the doctor himself, who may lose motivation for professional development. The low score on the "Confrontational Coping" scale among sanatorium employees is reflected in the fact that older doctors are not inclined to insist on their positions in conflict situations. In addition, elderly doctors in both groups have low scores on the "Self-control" scale, which is outwardly expressed in their lack of restraint, low control over their own actions, and manifests itself in frequent emotionally charged conflicts with colleagues.

According to the data presented in Table 4, coping strategies used by older medical staff are similar in nature, but it is worth noting that all medical workers surveyed have low scores on the "Self-control" scale. In addition, nursing staff at the hospital are more inclined to seek social support than medical staff at the sanatorium. This is expressed in the nursing staff's appeals to doctors regarding pressing issues, and this feature contributes to a better exchange of information about the condition of patients between nursing staff and doctors.

DISCUSSION

Age plays a significant role in research results. All respondents scored high on health-related experiences, which is associated with

Table 4

Comparative analysis of coping mechanisms among doctors and nursing staff
(ways of Coping Questionnaire by R. Lazarus (adapted by T.L. Kryukova and E.V. Kuftyak))

Таблица 4

Сравнительный анализ копинг-механизмов у врачей и среднего медицинского персонала
(опросник «Способы совладающего поведения» Р. Лазаруса (адаптация Т.Л. Крюковой и Е.В. Куфтяк))

Группы / Groups / Шкалы / Scales	Врачи. Санаторий / Doctors. Sanatorium	Врачи. Больница / Doctors. Hospital	Средний медицинский персонал. Санаторий / Nursing staff. Sanatorium	Средний медицинский персонал. Больница / Nursing staff. Hospital
Конфронтационный копинг / Confrontive coping	**38,87±5,60**	42,40±7,26	47,07±6,83	43,07±6,57
Дистанцирование / Distancing	48,87±6,51	48,67±6,37	51,07±7,41	48,13±7,27
Самоконтроль / Self-controlling	**35,67±4,45**	**39,73±6,54**	**37,20±4,99**	**36,07±5,02**
Поиск социальной поддержки / The Need of Social support	**68,60±12,24**	49,67±11,82	53,33±12,78	**62,93±13,47**
Принятие ответственности / Acceptance of Responsibility	48,40±8,01	53,47±6,42	49,40±9,74	47,93±7,96
Бегство–избегание / Escape–avoidance	51,87±7,38	52,00±9,93	53,00±9,49	53,87±6,36
Планирование решения проблемы / Planning of problem-solving	52,60±5,68	52,93±10,29	49,80±10,51	50,60±5,70
Положительная переоценка / Positive reassessment	52,73±6,15	52,33±6,44	49,67±8,32	50,07±6,50

Note: values outside the standard range are shown in bold.
Примечание: жирным шрифтом выделены значения, выходящие за пределы нормативных значений.

aging and deterioration of bodily functions and, as a result, slower physical performance. Similar results were found in a study by N.V. Yakovleva and Yu.V. Silina on maladaptive neuropsychiatric conditions in elderly medical workers [6]. Elderly hospital doctors were also found to have a low ability to switch quickly between tasks, which can be explained by a decrease in receptor sensitivity to stimuli from the surrounding world, a decrease in speed and volume of mental processes such as perception, as well as a deterioration in cognitive functions, as G.S. Nikiforov wrote in his work on psychological support for the end of a professional career [13]. Forgetfulness and distractibility are observed in elderly doctors. At the same time, such results can also be explained by organizational difficulties: a high level of workload due to a shortage of personnel and a specific nature of hospital work in multidisciplinary teams. The latter can lead to social interaction problems among hospital doctors, which manifest in reduced sociability and conflicts with colleagues. Negative predictions about the future made by sanatorium doctors can be explained by the research of T.A. Nemchin, who identified a rigid dominance of a certain modality of experience in older people [7]. At the same time, doctors have developed social and verbal endurance, which is associated with the established skill of seeing a large number of patients. Low scores on the "Empathy" and "Intellectual Endurance" scales among the doctors at the sanatorium can be explained by the results obtained in the study by N.V. Yakovleva and Yu.V. Silina: in elderly doctors, the dynamism and modality of emotional states change. Moreover, there are different ways to express these changes: some medical workers show inertia, while others show lability, rapid changes in emotions. The number of negative emotions also increases, and empathy towards others may decrease [5]. According to observations, it is more difficult for elderly doctors to maintain their attention without being distracted by extraneous matters, they often make mistakes due to inattention. Moreover, elderly doctors at the sanatorium have been observed to have a rather formal attitude towards patients, which, in our opinion, is associated not only with changes in the dynamics of emotional states in old age, but also with the commercialization of the industry. Key factors influencing the procedures prescribed are not their relevance to treatment, but rather the absence of contraindications.

Nursing staff at the hospital tend to be indifferent and forgetful, which may be associated with increased workload. In this case, these results correlate with the findings of L.N. Gumenyuk and E.V. Sarchuk, who identified symptoms of professional maladjustment among mid-level medical staff, such as emotional emptiness, chronic fatigue, and asthenic intransigence [5]. Low scores on the "Empathy" scale and relatively high scores on the "Intellectual Endurance" scale among medical workers at the sanatorium do not coincide with the data obtained in the study by L.N. Gumenyuk and E.V. Sarchuk, who found high values for these indicators among nursing staff [5]. These differences can be explained by specific professional activities, in particular, well-developed automated skills in working with medical equipment (most of the nursing staff at the sanatorium are involved in providing services using equipment, and once an employee has mastered the skills to work with it, no special intellectual effort is required).

Significant differences were found on the "Search for Sensations" scale: they were low among the hospital's nursing staff and average among the resort's medical staff, which can be explained by differences in their activities: older hospital workers with extensive experience have much more contact with patients (dispensing medication, setting up intravenous drips, giving injections) than older medical staff at the sanatorium (their work is usually related to operating medical equipment and is limited to standard procedures). Significant differences were also found on the "Flexibility" scale: the indicators for nursing staff at the sanatorium are at an average level, while those for hospital workers are low, which can be explained by the number of tasks at the hospital exceeding workers' actual capabilities due to staff shortages.

All medical workers surveyed scored low on the "Self-control" scale. It can be assumed that this is an invariant characteristic associated with age-related biological changes, namely the involutional changes described above. It is interesting to note that the results obtained on coping strategies differ from the data of M.D. Petrash (given above) [15]. In our opinion, such differences can be explained by specific activities performed

while providing medical care to patients and certain characteristics of relationships that have developed within teams.

Nursing staff at the hospital are the most challenging group, and their high resourcefulness index can be explained by the fact that older medical professionals in this group do not sufficiently analyze their available personal resources and therefore assess their severity rather formally.

CONCLUSION

The following conclusions were drawn as a result of our study.

1. Social and demographic indicators for the elderly medical workers surveyed are positive: most professionals are fulfilled in their personal lives, have no housing issues, and do not need to seek additional sources of income.

2. Doctors surveyed consider conflicts with management and colleagues to be the main professional problem, while nursing staff consider poor working conditions as the main problem. Older hospital workers report frequent conflicts with colleagues and a lack of compliance with patients. Medical professionals point to a limited range of ways to restore resources, and many of their responses are insufficiently specific, which indicates the need for expanding medical professionals' adaptive strategies.

3. Maladaptive characteristics for all groups of elderly medical professionals studied include low motor activity, emotional instability, and a tendency to avoid unexpected events. For doctors with extensive work experience, high forgetfulness and reduced activity are common.

4. The ability to maintain long-term social and verbal interaction contributes to the professional adaptation of the elderly medical professionals studied. In controversial situations, sanatorium doctors seek help from colleagues and are also capable of changing their focus of perception and developing new forms of behavior and response.

5. A comprehensive analysis of data revealed that the surveyed mid-level medical staff of the hospital have the highest risk of professional maladjustment. The professional problems that concern older medical staff in this group include: imperfect working conditions, staff shortages, devaluation of personal achievements, and increased anxiety. This group is not inclined to engage in physical activity and finds it difficult to adapt to rapidly changing environmental conditions. When difficulties in social interaction arise, medical professionals wait for the situation to change without their intervention.

6. Further research is needed to investigate whether the results obtained are typical for various medical institutions or whether they are specific to the medical institutions from which the sample was recruited.

7. The study opens up opportunities for further work: it will allow to formulate recommendations for medical management and train medical professionals in self-regulation methods, promote adaptive coping strategies and their effective application in accordance with the identified characteristics.

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Review

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Working conditions and occupational health of intensive care anesthesiologists

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ABSTRACT. ***Introduction***. The main reasons for the decline in the Russian population, despite the increase in average life expectancy, are related to demographic aging and a decrease in the birth rate. In this regard, considerable attention is paid in the Russian Federation to maintaining and strengthening the health of the population, increasing the duration of their active life, including that in the professional sphere. Anesthesiologists and intensive care specialists form an integral part of the numerous medical specialists who protect the health of our citizens. However, the working conditions, alongside harmful and (or) dangerous production factors affecting them and the degree of the latter impact on health are insufficiently studied currently. An analysis of scientific publications on the impact of working conditions on the health of anesthesiologists and intensive care physicians can identify gaps in this issue and an urgent need to further investigate them. ***The purpose*** of our study was to analyze scientific publications and evaluate the impact of the working conditions and specific characteristics of labor of intensive care anesthesiologists on their health and professional longevity. ***Materials and methods.*** A retrospective analysis of domestic and foreign scientific literature was carried out, during which 60 publications containing information on the working conditions and health status of anesthesiologists and intensive care physicians were selected. ***Results and conclusions.*** An analysis of the literature data shows that intensive care anesthesiologist are exposed to various harmful and (or) dangerous factors of the labor environment of a psychophysiological, physical, chemical and biological nature during their work. Increasing staff awareness of occupational risks and creating a supportive work environment is a critical factor that not only improves occupational safety, but also indirectly improves patient care and promotes professional longevity for employees.

KEYWORDS: working conditions, harmful and (or) dangerous industrial factors, intensive care anesthesiologist, occupational health

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Обзор

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Условия труда и профессиональное здоровье анестезиологов-реаниматологов

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РЕЗЮМЕ. ***Введение.*** Основные причины сокращения численности населения России, несмотря на увеличение средней продолжительности жизни, связаны с демографическим старением и снижением рождаемости. В связи с этим в Российской Федерации уделяется значительное внимание сохранению и укреплению здоровья населения, увеличению продолжительности его активной жизни, в том числе в профессиональной сфере. Одними из многочисленных медицинских специалистов, стоящих на страже здоровья граждан нашей страны, являются врачи — анестезиологи-реаниматологи. Однако условия труда, а также воздействующие на них вредные и (или) опасные производственные факторы и степень их влияния на здоровье в настоящее время изучены недостаточно. Анализ научных публикаций по изучению влияния условий труда на здоровье врачей — анестезиологов-реаниматологов может выявить имеющиеся в этом вопросе пробелы и в последующем исследовать их. ***Целью*** нашего исследования было проанализировать научные публикации и оценить изученность вопроса влияния условий и характера труда врачей — анестезиологов-реаниматологов на их здоровье и профессиональное долголетие. ***Материалы и методы.*** Проведен ретроспективный анализ отечественной и зарубежной научной литературы, в ходе которого отобраны 60 публикаций, содержащих информацию об условиях труда и о состоянии здоровья анестезиологов-реаниматологов. ***Результаты и выводы.*** Анализ данных литературы свидетельствует, что анестезиологи-реаниматологи в процессе работы подвергаются воздействию различных вредных и (или) опасных факторов производственной среды психофизиологической, физической, химической и биологической природы. Повышение осведомленности персонала о профессиональных рисках и создание благоприятной рабочей среды является критически важным фактором, который не только повышает безопасность труда, но и опосредованно улучшает показатели оказания помощи пациентам и способствует профессиональному долголетию сотрудников.

КЛЮЧЕВЫЕ СЛОВА: условия труда, вредные и (или) опасные производственные факторы, анестезиолог-реаниматолог, профессиональное здоровье

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INTRODUCTION

Despite the increase in average life expectancy, the main reasons for the decline in population are still linked to demographic aging and declining birth rates. Therefore, in the Russian Federation, considerable attention is paid to maintaining and strengthening the health of the population and increasing the length of its active life, including in the professional sphere: national projects such as "New Health Preservation Technologies", "Family", and "Long and Active Life", which are intended to create conditions for improving the quality of life of citizens and increase the accessibility, effectiveness, and efficiency of medical care, aimed primarily at preventing the development of various occupational diseases. Moreover, it is expected that these projects will increase the life expectancy of the population, reduce mortality, and increase the birth rate [1]. Maintaining and improving the health of the population, as well as increasing the length of its active life, are largely determined by the degree of development of the national healthcare system. The key resource of this system is medical workers, who perform the main function in the processes of diagnosis, treatment, prevention of diseases, and organization of patient care [2]. At the same time, the professional activities of medical workers in a number of specialties are associated with a high risk of exposure to harmful and/or hazardous factors in the working environment and work process. This circumstance leads to a high probability of developing both work-related illnesses and occupational diseases. According to the World Health Organization, unsafe working conditions are a significant factor increasing the risk of occupational diseases among medical personnel. This, in turn, leads to a decline in the quality of medical care provided and undermines the sustainability of the healthcare system [3, 4].

Maintaining and improving the health of healthcare workers, particularly anesthesiologists and intensive care specialists, is a critical task for ensuring the sustainability of the national healthcare system [5]. The working conditions of this category of specialists are characterized by the complex impact of harmful and hazardous occupational factors, which leads to increased risks of deterioration in their health and requires the development of preventive measures. Analysis of current data allows us to systematize these risks and identify ways to minimize them [6, 7].

It is relevant to study the impact of working conditions on the health of anesthesiologists and intensive care specialists as a basis for developing measures to reduce the negative impact of harmful and/or hazardous factors on the health and longevity of workers, which will increase their working capacity, including by reducing the likelihood of developing occupational diseases.

AIM

The aim of the study is to evaluate the impact of the working conditions and nature of the work of anesthesiologists and intensive care physicians on their health and career longevity based on an analysis of scientific literature.

MATERIALS AND METHODS

A retrospective analysis of domestic and foreign scientific literature devoted to the conditions and nature of the work of anesthesiologists and intensive care physicians, harmful and/or hazardous factors affecting them, and their connection to health was conducted. The search for publications was carried out using the eLIBRARY, RINC, Web of Science, PubMed, Scopus, CyberLeninka, and Google Scholar databases for the period 2010–2025. Scientific publications were selected using the keywords: "anesthesiologist-resuscitator," "working conditions", "nature of work", "occupational factors", and "health status". After an initial analysis of 540 articles by domestic and foreign authors, 60 publications were selected that contained basic information about the working conditions and health status of anesthesiologists-resuscitators.

RESULTS

An analysis of scientific publications devoted to the working conditions of anesthesiologists and intensive care physicians has shown that they are exposed to various harmful and/or hazardous occupational factors and working environments of a psychophysiological [2–4], physical [7, 8], chemical [9, 10], and biological nature [11, 12]. The World Federation

of Societies of Anaesthesiologists (WFSA) has divided occupational risks into five main categories: 1) physical factors (ionizing and non-ionizing radiation, noise and vibration, temperature, ventilation, lighting); 2) chemical factors (inhalation anesthetics, medications, disinfectants); 3) biological factors (conditionally pathogenic and pathogenic microorganisms); 4) mental changes (chronic occupational stress, psychosocial disorders, emotional burnout syndrome); 5) the severity and intensity of the work process (work organization, workload, uncomfortable working posture). However, according to most authors, the main factor affecting anesthesiologists and resuscitators is work intensity [13, 14]. This is largely due to both daily emotional stress (empathy for patients and their relatives who are in a difficult life situation, the presence of danger and the need to overcome it for the sake of the patient's and the doctor's own life, a high degree of moral and legal responsibility) and high intellectual stress. The work of anesthesiologists and intensive care specialists in intensive care units is characterized by an additional set of psychophysiological stresses associated with the specific characteristics of patients. The use of complex and high-tech equipment — complex anesthesia and respiratory technology and other equipment that monitors and maintains patients' vital functions — requires in-depth knowledge, the ability to quickly analyze and respond effectively (if necessary) to changes in instrument readings, as well as responsible decisions in critical situations to save patients.

An anesthesiologist-resuscitator must be highly focused and stress-resistant in their work, as they often have to act in conditions of limited information and time, limited diagnostic and treatment resources, and an understanding of the likelihood of a fatal outcome when providing care to a patient [15, 16]. The work of an anesthesiologist-resuscitator is often accompanied by irregular working hours: night shifts and, in some cases, round-the-clock duty [17, 18]. After night duty, department staff often continue to work for another 5 to 7 hours, with 25–50% of doctors who were on duty the day before participating in the anesthesiological support of surgical interventions, which not only increases the intensity of their work but also increases the likelihood of errors [19]. According to available data, 45% of the doctors surveyed work more than 50 hours per week [20–22], 60% do not have occupational safety measures in place in their work environment [23], 41% are unable to take their allotted vacation time [24], and 90.5% do not take breaks [25].

An analysis of the working conditions of anesthesiologists and intensive care physicians reveals a critical violation of basic occupational safety principles related to the inability to comply with work and rest schedules. The lack of regulated breaks and untimely meals or “snacking on the go” can not only increase the psychological stress of work, but also contribute to the development of gastrointestinal diseases [26].

In addition, both traditional (physical, chemical) factors and factors associated with constant work behind computer screens are considered to be occupational stressors [27].

High psycho-emotional stress can lead to mental health maladjustment in anesthesiologists and intensive care specialists, reduced performance, the development of neuroses, emotional burnout, and the desire to leave the profession. According to data from A.Yu. Lovchev and V.A. Koryachkin, 59.4 to 65.2% of anesthesiologists and intensive care specialists reported subjective feelings of fatigue, and 65.4% of doctors in this specialty from St. Petersburg, 51.8% from Ryazan, and 37.7% from Arkhangelsk [28]. According to various authors, emotional burnout syndrome was diagnosed in 25.0–64.7% of anesthesiologists [29, 30], with 5% in the fully developed stage and the rest in various stages of development. Individual manifestations of emotional burnout syndrome may be characteristic of more than 90% of specialists [31]. A number of authors indicate in their works that the severity of emotional stress depends on the age of employees [32]. Higher rates of professional burnout are observed in young specialists under the age of 30 compared to doctors with extensive work experience [33, 34]. According to V.V. Solovyov, anesthesiologists and intensive care specialists experience greater work stress compared to doctors working in other fields of medicine [26].

Based on an analysis of current research, it has been established that professional stress in anesthesiologists-resuscitators manifests itself as a complex of interrelated symptoms reflecting disorders at various levels of body regulation:

doctors often complain of dizziness, rapid fatigue, decreased sustained attention and performance, poor sleep, headaches, pain in the heart and back, irritability, sweating, hot flashes, or chills [35, 36]. According to V.G. Puzyrev et al., anxiety and negative emotions lead to activation of the sympathetic nervous system and, accordingly, an increase in heart rate [37, 38]. It is worth noting that emotional burnout syndrome manifests itself in the form of physical (fatigue, sleep disorders, headaches, digestive system diseases), psychological (restlessness, anxiety, depression, detachment), behavioral (aggression, defensive behavior, use of prohibited substances), and professional symptoms (tardiness, low productivity, and decreased interest in work) [39–41]. It is noteworthy that such stress-associated effects can lead to disorders such as stomach and duodenal ulcers, gastritis, hypertension, arrhythmia, angina pectoris, neurological diseases, decreased immunity, reproductive system diseases, and the risk of spontaneous miscarriage. Chronic occupational stress can lead to workplace injuries, resulting in decreased productivity and sometimes temporary disability [40, 41].

The assessment of the severity of work performed by anesthesiologists and intensive care specialists is presented in isolated studies [12, 26] and remains largely unexplored. Analysis of working conditions shows that the activities of these specialists are characterized by the need to perform professional tasks in unnatural, forced positions with significant static and dynamic stress. In intensive care units, especially when providing emergency resuscitation care, it is necessary to work in an uncomfortable position — leaning forward and holding the patient for a long time, performing intensive physical work [4]. V.V. Solovyov classifies the physical load on doctors — anesthesiologists and resuscitators — as the second permissible class of labor according to the hygienic classification [26, 42].

Anesthesiologists and intensive care physicians have to work with numerous medical devices — anesthesia machines, artificial circulation devices, electrocardiographs, encephalographs, and radio telemetry equipment — and such work poses a significant ergonomic risk. Equipment that does not meet ergonomic requirements and anthropometric characteristics of personnel can increase the workload of doctors and contribute to the development of musculoskeletal disorders. The height of operating tables and patient beds in intensive care units and resuscitation rooms, when they cannot be quickly adjusted, also contributes to the increased workload of anesthesiologists and intensive care physicians when providing care to patients [43, 44].

Scientific studies have paid little attention to the microclimate conditions in the workplaces of anesthesiologists and intensive care physicians, although many researchers recognize that an unfavorable microclimate can have a negative impact on the staff of medical organizations. Currently, it is recommended to maintain the air temperature in intensive care units and operating rooms within the range of 21–24 °C, with an air velocity of 0.1–0.2 m/s and a relative humidity of no more than 60% [45, 46]. However, it is not always possible to maintain such a microclimate in rooms, where the air temperature may exceed or fall below the recommended parameters [2]. An unfavorable microclimate can disrupt the thermal balance of workers, which will affect their well-being and reduce their performance. It should be noted that when working in operating rooms, medical personnel wear protective suits that prevent heat and sweat from being removed from the body. A survey of personnel working in operating rooms shows that employees prefer a lower air temperature of 15.5–17.8 °C with a humidity of 40–50% [47].

There are a few studies in foreign literature confirming that in operating rooms, where anesthesiologists and intensive care physicians spend most of their working time, noise levels can reach 75–90 dB, which significantly exceeds hygienic requirements [20, 21, 45]. Individual impulse sounds during work can reach 100–120 dB. According to the literature, excessive noise levels affect the mental working capacity and cognitive functions of doctors and reduce their reaction speed [20, 21]. High noise levels in the workplace interfere with verbal communication and the receipt of important information about equipment operation during procedures. Noise induces stress, increased irritability, and hearing loss. According to the Risk Assessment Report in Anesthesiology, 88% of anesthesiologists and intensive care physicians indicated that they experience excessive noise in the workplace, and 46.5% of

respondents noted that lighting during procedures was insufficient [21].

Lighting plays an important role in the work of anesthesiologists and intensive care physicians. Without adequate lighting, it is impossible to perform the diagnostic and therapeutic procedures that anesthesiologists and intensive care physicians must perform in their daily work. Vision problems and workplace injuries were more frequently reported in operating rooms with unsatisfactory lighting conditions [48].

In recent years, medical organizations have increasingly been setting up X-ray operating rooms, which is accompanied by an increased risk of ionizing radiation exposure for staff. According to N. Bilir, anesthesiologists and intensive care specialists are exposed to radiation six times more often than other staff during angiographic procedures [22]. The level of occupational exposure of anesthesiologists and intensive care specialists has not been sufficiently studied, but it has been established that the dose load depends on the following factors: the nature and volume of surgical activity, the effectiveness of the protection used, and the location at the operating table [49, 50]. Various equipment that is a source of non-ionizing radiation is widely used in the workplaces of anesthesiologists and intensive care specialists. The level of electromagnetic radiation (EMR) in the workplaces of anesthesiologists and intensive care specialists is determined by complex electrical components of the equipment and high-frequency signals generated to obtain accurate diagnostic images and perform medical procedures. These factors can have a negative impact on staff, causing increased heart rate, dizziness, and reduced performance [51, 52].

According to researchers, most lasers used in operating rooms are Class IV devices. Laser radiation levels in the workplace of surgeons can reach values that significantly exceed the maximum permissible levels, which are dangerous for the visual analyzer. Laser radiation can cause burns to the cornea and retina, damage to the macula and optic nerve, and lead to the formation of cataracts [11, 23, 24, 50].

An analysis of working conditions indicates a significant chemical load on anesthesiologists and intensive care specialists due to contact with a wide range of chemicals in the course of their professional activities [53, 54]. Chemical compounds contained in medicines, anesthetics, disinfectants, and detergents can cause dermatoses, pustular skin lesions, and fungal diseases when in constant contact. Chemicals are absorbed through the skin and mucous membranes, causing allergic reactions or serious complications such as bronchial asthma, allergic bronchitis, and Quincke's edema. The concentration and toxicity of the agent, the respiratory index, individual susceptibility, and duration of exposure are equally important. The leading chemical factor is waste anesthetic gases, which accumulate when the disposal system is faulty. The maximum amount of waste gases present in the operating room is not usually measured during a work shift. Chronic exposure can cause headaches, nausea, drowsiness, fatigue, difficulty with judgment and coordination, and irritability [25]. In addition, contact with latex gloves has been reported to cause allergic reactions [55].

According to data available in the scientific literature, intensive care unit specialists are in constant contact with airborne, bloodborne, and other infectious disease pathogens during their work shifts [56, 57]. In addition, staff are most often infected by patients with dangerous infections such as hepatitis B and C, tuberculosis, HIV, and COVID-19 [58, 59]. The likelihood of infection is particularly high in cases of injury with sharp objects during various procedures [60]. The risk of infection is also contributed to by the microbial landscape in wards, the acceleration of the rate of change in nosocomial infections in medical organizations, the number of patients in hospital wards with limited space, an increase in the number of invasive procedures that increase the risk of infection, and a deterioration in the epidemiological situation in the region [2].

CONCLUSION

Thus, analysis of scientific literature data shows that anesthesiologists and intensive care specialists are exposed to various harmful and dangerous factors of a psychophysiological, physical, chemical, and biological nature in the course of their professional activities. It is worth noting that the scientific literature has most thoroughly studied the impact of psycho-emotional factors on anesthesiologists and intensive care specialists, while studies devoted to the combined and cumulative effects of factors

on the body of this category of medical workers are much less common. There are virtually no scientific studies characterizing the specifics of work in pediatric healthcare. The lack of necessary data does not allow for the full development of a consistent system of primary and secondary prevention of the adverse effects of a complex of factors in the work process on the physical and mental health of anesthesiologists and intensive care specialists. In addition, further research is needed to prove the existence of a link between mental disorders developing in specialists with long-term work experience and their professional activity.

Anesthesiologists and intensive care physicians are exposed to numerous potential risks that can harm their overall health. These risks are the main factors in mortality and morbidity among doctors. Raising staff awareness of occupational risks and creating a supportive work environment is a critical factor that not only improves occupational safety but also indirectly improves patient care outcomes and promotes career longevity among employees.

ADDITIONAL INFORMATION

Authors' contribution. All authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

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Between tradition and global ethical dialogue: a new paradigm for Islamic bioethics

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ABSTRACT. This article offers a comprehensive analysis of some transformations in Islamic bioethics being observed by the author since the early 2000s, set against the background of global developments in medical ethics and the biomedical sciences. The study traces the shift from traditional philosophical–religious and legal theorizing, grounded primarily in classical Islamic sources and fiqh — based practice, toward an institutionalized, interdisciplinary, and clinically oriented bioethics. It demonstrates that even representatives of previously conservative theological schools have come to recognize the significance of Islamic bioethics as both an independent academic discipline and an applied field relevant to medical practice, research institutions, and educational programs. The paper highlights current research directions, key figures, and emerging models that help to integrate Islamic bioethics into the global bioethical discourse. Special attention is given to how the intellectual legacy of classical scholars (al-Ruhawi, al-Razi, and Ibn Sina) is being reinterpreted and adapted to contemporary clinical, regulatory, and educational contexts, including organ transplantation, reproductive medicine, genetic technologies, and end-of-life care. The article underscores that Islamic bioethics today functions not only as a guardian of tradition but also as an active participant in the global ethical dialogue, contributing unique conceptual and value-based perspectives to solving of universal bioethical challenges.

KEYWORDS: Islamic bioethics, fiqh, medicine, adab, maqasid, social ethics, A. Padela, O.H. Kasule, A. Sachedina, S. Aksoy, A.S. Daar, H. Chamsi-Pasha, M. Gali, D. Atighetchi, Y. Rady, J. Verheijde, medical practice, bioethical models

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Между традицией и глобальным этическим диалогом: новая парадигма исламской биоэтики

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РЕЗЮМЕ. Статья посвящена комплексному анализу трансформаций исламской биоэтики, наблюдаемых автором с начала 2000-х годов, в контексте общемировых изменений в области медицинской этики и биомедицинских наук. Исследование фиксирует переход от традиционного философско-религиозного и правового теоретизирования, основанного преимущественно на классических исламских источниках и фикховой практике, к институционализированной, междисциплинарной и клинически ориентированной биоэтике. Автор показывает, что даже представители ранее консервативных теологических школ признают значимость исламской биоэтики как самостоятельной академической дисциплины и прикладной сферы, востребованной в медицинской практике, исследовательских институтах и образовательных программах. В работе представлены современные направления исследований, ключевые фигуры и новые модели, интегрирующие исламскую биоэтику в глобальный биоэтический дискурс. Особое внимание уделяется анализу того, как наследие классических мыслителей (Аль-Рухави, Ар-Рази, Ибн Сина) переосмысливается и адаптируется в современных клинических, нормативных и образовательных контекстах, включая вопросы трансплантологии, репродуктивной медицины, генетических технологий и конца жизни. Подчеркивается, что исламская биоэтика в настоящее время выступает не только как хранитель традиции, но и как активный участник глобального этического диалога, способный вносить уникальные концептуальные и ценностные ориентиры в решение универсальных биоэтических проблем.

КЛЮЧЕВЫЕ СЛОВА: исламская биоэтика, фикх, медицина, адаб, макасид, социальная этика, A. Padela, O.H. Kasule, A. Sachedina, S. Aksoy, A.S. Daar, H. Chamsi-Pasha, M. Gali, D. Atighetchi, Y. Rady, J. Verheijde, медицинская практика, биоэтические модели

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INTRODUCTION

The year 2025 marks the 20th anniversary of the first National Congress on Bioethics with international participation held in Uzbekistan (Charvak, September 2005), which marked the beginning of the institutional and academic establishment of bioethics as an independent discipline in the region. A significant contribution to the organization and conduct of the Congress was made by academician and a Hero of Uzbekistan M.S. Abdul-Lakhojaeva, who is rightly considered a pioneer of bioethics in the country.

In publications in the early 2000s, the author raised issues of adapting Western bioethics to the Islamic cultural and legal context, as well as challenges related to integrating the ethical heritage of classical Muslim medicine into educational and clinical practices. These theoretical developments have gained recognition in academic circles [1]. The 2005 Congress was an important milestone for the institutional recognition of Islamic bioethics in the region. It featured a presentation by the author, "Islamic Bioethics in Historical Perspective" [2], and a presentation by Professor Abulfadl Mohsin Ebrahim of the Islamic University (Durban, South Africa) entitled "Human Rights and the Rights of the Unborn" [3]. Abulfadl Mohsin Ebrahim's presentation was distinguished by its analytical nature, respect for the cultural and religious characteristics of the region, and the ability to find common ground between universal bioethical principles and Islamic values. His participation in the congress was an important contribution to strengthening scientific ties between Uzbekistan and the international academic community.

The author's subsequent publications include an analysis of the contradictions of Islamic bioethics in the 21st century, the role of cultural and religious factors, participation in international conferences in Tashkent, Tehran, Tomsk, Zurich, and Dushanbe, Almaty, Astana, St. Petersburg, Ankara, and Moscow, publications in Uzbek, Russian, and English in republican and foreign journals and conference proceedings, teaching aids, and textbooks. The research conducted has contributed to the formation of academic discourse on Islamic bioethics in the region. These works systematized key bioethical dilemmas relevant to the Islamic world: the admissibility of continuing or discontinuing life-sustaining therapy, palliative care, ethical boundaries of working with human embryos, religious and legal assessment of organ transplantation, and the issue of voluntary refusal of treatment. From the outset, the author viewed these topics as a space for dialogue between theological and medical expertise, which later became the basis for the formation of Islamic bioethics as an interdisciplinary field [4–10].

AIM

The aim of this article is to show how Islamic bioethics has evolved from a predominantly fiqh-based discipline[1] to an interdisciplinary field that now integrates theology, law, philosophy, clinical practice, and international ethical standards. Particular attention is paid to contemporary models of bioethics, new names, and the practical application of Islamic ethical principles in a globalizing medical space.

MATERIALS AND METHODS

Early publications on this topic justified the need to develop Islamic bioethics as an independent scientific and clinical field. They systematized key ethical issues relevant to the modern Islamic community: the permissibility of continuing or discontinuing life-sustaining therapy, conducting biomedical experiments on embryos, the legality of organ transplants from deceased donors, the limits of the right to voluntarily refuse life support, and other issues arising at the intersection of medical practice and religious and legal thought. From the outset, these issues were considered from an interdisciplinary perspective, combining medical and theological expertise.

The methodological basis of the study includes comparative analysis, historical-philosophical reconstruction, critical-analytical, and interpretative approaches. The comparative method is used to compare the Islamic bioethical tradition with global bioethical models, to identify common value orientations and unique cultural and religious characteristics. Particular

[1] Fiqh is an Islamic legal tradition encompassing the rules and regulations governing the religious, social and personal life of Muslims, based on the interpretation of the Qur'an, hadith, the collective opinion of scholars (ijma) and analogy (qiyas).

attention is paid to the comparative analysis of fiqh, maqasid[1] , and philosophical approaches, which has made it possible to reveal the diversity within Islamic bioethical thought and its adaptation to the modern challenges of medicine.

The empirical and source base includes:

- academic publications on Islamic bioethics since the early 2000s;
- key works by contemporary researchers (A. Padela, O.H. Kasule, A. Sa-chedina, M. Ghaly, etc.);
- documents of international Islamic organizations (in particular, the Islamic Organization for Medical Sciences — IOMS);
- classical texts on Islamic medical ethics (Adab al-Tabib by Ishaq ibn al-Rukhawi, Akhlaq al-Tabib by Ar-Razi, works by Ibn Sina).

Methodologically, the work is also based on a qualitative review of the transformation of views and the development of applied Islamic bioethics in a global and regional context, which allows us to reflect both the dynamics of discussions and the peculiarities of regional interpretations.

The author's academic and practical experience plays an important role in the study, including publications and presentations at international conferences on Islamic bioethics and medical ethics (Tashkent, Almaty, Dushanbe, Moscow, Kazan, Tehran, Zurich, Tomsk, etc.). These materials reflect both the evolution of discussions in Central Asia and the inclusion of the Islamic perspective in the global bioethical dialogue.

RESULTS AND DISCUSSION

Historical and philosophical foundations of Islamic bioethics

The ethical principles of Islamic medicine are rooted in the works of scholars such as Ishaq ibn al-Rukhawi (9th century), Abu Bakr al-Razi (865–925), and Ibn Sina (980–1037). Their treatises laid the foundations for the moral character of a physician, combining spirituality, reason, and service to society. The central categories were adab and the ideal of "komil inson" — the concept of the "perfect human being", implying the harmonious development of spiritual, moral, and intellectual qualities for the benefit of society. These ideas were woven into the philosophical traditions of Muslim Central Asia. The ethical foundations of Islamic medicine were laid long before the emergence of modern bioethics. As early as the 9th century, Ishaq ibn al-Rukhawi, in his treatise Adab al-Tabib, described the moral image of a doctor as a "guardian of the soul and body". He insisted on social responsibility, maintaining a balance between faith, knowledge, and compassion, and emphasized the importance of professional self-control and modesty. According to Ruhawi, a doctor is obliged to serve not only the patient's body, but also their spiritual support, while observing humanism and equal treatment of representatives of all religions [11].

Abu Bakr al-Razi made an equally important contribution to Islamic medical ethics. In his work "Ahlak al-Tabib", he outlined the moral duties of a doctor: the pursuit of virtue, compassion, honesty, and continuous professional development. Razi emphasized that a doctor should inspire hope even in hopeless cases and treat poor and rich patients with equal attention and respect [11].

The central concept of the Islamic ethical tradition became adab — a holistic understanding of morality, good manners, and proper behavior. In the Islamic education system, it was combined with the ideal of komil inson ("perfect man"), who cultivates moral integrity, spiritual stability, and a desire to serve society.

Sources from Central Asia, such as Kaykous's Kobusnoma, Ibn Sina's philosophical and moral treatises, and other texts that formed "codes of conduct" for doctors and students, hold a significant place. These works, combining Islamic faith, philosophical reflection, and humanistic principles, essentially formed the foundation on which Islamic bioethics still rests today.

Transition to a new paradigm: from fiqh to practical bioethics

It should be noted that unlike Christian bioethics, especially in the Catholic and Orthodox traditions, where institutional unification of ap-

[1] The maqasid approach (*from maqasid ash-Shari'a*) is aimed at identifying the highest goals and values of Sharia, including the preservation of life, reason, religion, property and family.

proaches is possible, there is no single religious center in the Islamic world. There are five main madhhabs (legal schools): Sunni — Hanafi, Maliki, Shafi'i, and Hanbali; and Shiite — Ja'fari. Each of them has its own interpretations of ethical norms and approaches to bioethical issues. For example, in the Hanafi madhhab, abortion is permissible in cases where the mother's life is at risk, while the Hanbali school tends to be more strict and allows termination of pregnancy only in exceptional circumstances. In addition to the madhhabs, institutional Islamic bodies that develop bioethical positions play an important role: The International Islamic Fiqh Academy (IIFA), established in 1981 in Jeddah; The Islamic Organization for Medical Sciences (IOMS), established in 1994; The Islamic Fiqh Academy (IFA) at the Muslim World League in Mecca, operating since 1977. These bodies contribute to the formation of consensus and clarification of ethical norms, but do not have absolute jurisdiction, which makes Islamic bioethics both flexible and diverse in its local expressions. In its early stages (in the 1980s–2000s), Islamic bioethics developed mainly in line with the fiqh tradition. Ethical issues in medical practice were considered primarily through the prism of Sharia norms, fatwas, and legal opinions of ulemas[1]. Even against the backdrop of rapid developments in biomedical technologies and growing interest in bioethical issues, Islamic ethics remained deeply rooted in a theological and legal approach. Among those who criticized Western bioethics from a fiqh perspective were M.A. Al-Bar, H. El-Hajj, M.S. Al-Awa, A. Al-Dawoody, and O.H. Kasule.

- One of the most prominent critics of Western bioethics during this period was Professor Omar Hasan Kasule, a Muslim scholar in the field of public health and epidemiology working at the International Islamic University Malaysia (IIUM) in Kuala Lumpur. In his 2005 work, he argued that bioethics as an academic discipline is a product of European secularization and has no methodological legitimacy in Islamic epistemology. From his point of view, the Islamic tradition has a self-sufficient normative and moral system and does not need to borrow external ethical models [12].
- Abulfadl Mohsin Ebrahim of the Islamic University (Durban, South Africa) also uses the Islamic legal tradition, but his approach is more academic, moral-philosophical, and ethical-applied, rather than fiqh-legal in the narrow sense. His works focus on moral dilemmas and their interpretation through spiritual and moral categories; theological ethics (kalam) and principled analysis (maslahah, adl, rahmah[2]); pluralism of opinions among scholars within Islam and attempts to synthesize with international bioethics. He often emphasizes the need for an interdisciplinary approach: cooperation between theologians, doctors, and scientists [3].
- Mohamed Ali Al-Bar is a Saudi scholar and physician, author of a number of works on Islamic medicine and bioethics. He adheres to a traditionalist approach, emphasizing fatwas, Sharia law, and the authority of ulema opinions as the basis for bioethical decision-making. In his publications, he consistently criticizes the universalism, secularism, and individualism of Western bioethics [14].
- Hatem El-Hajj is an Islamic theologian and physician, a member of the Assembly of Muslim Jurists of America (AMJA), who actively advocates a fiqh-legal interpretation of bioethical issues, including reproductive technologies, organ donation, euthanasia, and informed consent. He strongly criticizes the concepts of absolute patient autonomy and moral relativism characteristic of Western bioethics [15].
- Muhammad Salim Al-Awa is an Egyptian Islamic scholar and jurist who represented the fiqh-legal school within the IOMS (Kuwait) and participated in the preparation of a number of fatwas. He consistently emphasizes that Western bioethics focuses excessively on autonomy and does not

[1] Ulemas are scholarly theologians, religious leaders upon whom the Islamic tradition relies for the understanding and application of religious laws.

[2] Maslahah — "public good, benefit," a principle that prioritizes the preservation of benefit over the prevention of harm;
Adl — "justice," a requirement for equal and impartial treatment of patients;
Raḥmah — "charity," a guideline for medical practice that expresses concern for the weak and suffering.

take into account the spiritual and religious component [16].

- Ahmad Al-Dawoody, Chief Islamic Adviser to the International Committee of the Red Cross (ICRC), emphasizes fiqh, madhhabs[1], and fatwas as fundamental elements of Islamic moral discourse in his academic publications. Although he does not always directly criticize Western ethics, he emphasizes the need for an autonomous Islamic approach, especially in matters of humanitarian medicine, euthanasia, and the right to life [17].

It is also worth mentioning Fathi Osman (1928–2010), an Egyptian Islamic thinker, theologian, and reformer who, despite his more moderate positions, emphasized the importance of cultural relevance and a contextual approach. Sami A. Aldeeb Abu-Sahlieh is a Swiss lawyer of Palestinian origin, an Islamic scholar, and a specialist in Islamic law. Born in Palestine (1949), he later obtained Swiss citizenship. From the standpoint of Islamic reformism, he criticized both Islamic and Western bioethics, but at the same time considered fiqh to be a mandatory methodological basis for analysis [18].

Contributions to the development of the fiqh model were also made by participants in the early IOMS conferences in Kuwait (1981–1990s), where collective fatwas were adopted on issues of transplantology, abortion, in vitro fertilization (IVF), etc. These documents remain an important source of fiqh bioethics in the Muslim world [16].

However, as early as the 2010s, O.H. Kasule's works show a revision of previous positions. He begins to use the concept of maqasid al-sharia[2]. In his article Principles of Islamic Medical Ethics: A Methodological Framework (2010), he no longer limits himself to criticizing Western bioethics as a secular project, but offers his own systematic methodology of Islamic medical ethics. Thus, the emphasis shifts from opposition to the search for a constructive, conceptually independent, but universally applicable model of bioethical thinking in the Islamic context [13]. These principles are intended to guide decision-making in new, previously undescribed situations, including biomedical challenges, as a methodological basis for the ethical analysis of biomedical situations. His approach assumes a hierarchy of goals: the preservation of life, reason, offspring, and religion, which are then translated into medical practice. O.H. Kasule's model took on a systematic form and began to be used in educational courses for doctors and students in Muslim countries [13].

However, critics, including Padela Aasim I, note that even the maqasid model remains largely abstract and insufficiently operationalized for the clinical environment. It is more suitable for norm-setting and general theoretical analysis than for decisions in real-life practice "at the patient's bedside." This became the impetus for the formation of a new, more flexible and interdisciplinary paradigm of Islamic bioethics [19].

Competing models: philosophical and universalist approaches

Against the backdrop of the development of fiqh-centric approaches to Islamic bioethics in the 2000s and 2010s, a number of alternative models have emerged that appeal to more universal and philosophical foundations. A representative of the new paradigm of Islamic bioethics is Professor Daar AS, an internationally recognized surgeon from Oman, scientist, and expert in the field of global bioethics, global health, and science ethics. He was an active member of the Human Genome Organization (1999–2010) and UNESCO International Bioethics Committee (2008–2015) committees, and winner of the UNESCO Avicenna Prize for Ethics in Science in 2005 [20]. His teaching emphasizes that bioethical decisions should be based on values derived from the Quran and Sunnah, as well as Islamic legal tradition (Sharia) and ijtihad[3], which provides flexi-

[1] Mazhab — "school of law" in Islam; a system of interpretation of the Shariah based on the methodology of a particular imam (e.g., Hanafi, Maliki, Shafi'i, Hanbali).

[2] Maqasid al-shari'ah are "the goals of the shari'ah," that is, the highest spiritual and moral guidelines of Islamic law, such as the preservation of life (*ḥifẓ al-nafs*), reason (*ḥifẓ al-ʿaql*), religion (*ḥifẓ al-dīn*), property (*ḥifẓ al-māl*), and posterity (*ḥifẓ al-nasl*).

[3] Shari'ah — a set of divine injunctions and norms governing all aspects of a Muslim's life; based on the Qur'an, Sunnah, ijmaʿ (consensus of scholars) and qiyas (comparative judgment).
Ijtihad is a method of independent interpretation and legal judgment by a scholar based on Shari'ah sources, especially in new or controversial matters where there is no direct text in the Qur'an and Sunnah.

bility when working with modern biomedical technologies. Daar AS argues that Islamic bioethics is capable of responding flexibly to new biomedical technologies, including organ transplantation, genetics, brain diagnostics, human immunodeficiency virus (HIV), and reproductive technologies [21, 22]. The approach provides for international dialogue and interdisciplinarity with the involvement of doctors, ethicists, and theologians, not in a narrow fiqh direction, but in a model that can be called interdisciplinary, principled, and flexible-adaptive Islamic bioethics. It promotes bioethical practice based on principles, morals, and religious tradition, adapted to the challenges of the XXI century. His approach combines normative and moral-philosophical elements and seeks dialogue between Islamic traditions and global bioethical practice.

One of the prominent representatives of the new trend was Taha Jabir Al-Alwani, Professor of Fiqh and Usul al-Fiqh at Imam Muhammad ibn Saud University, Riyadh, Saudi Arabia[1]. He proposed a concept of ethics based on the principle of tawhid — the unity of God, knowledge and man. Taha Jabir Al-Alwani sought to overcome a strictly legal approach, insisting on the need for a philosophical justification of universal moral guidelines applicable both in the Islamic and global bioethical contexts [23].

Another important figure was Sachedina Abdulaziz[2]. In his works, he interprets Islamic bioethics as part of social ethics, which must take into account pluralism of values, respect for human rights, and intercultural dialogue. He actively criticizes the limitations of fiqh in matters of bioethics and asserts the need to develop Islamic bioethics as a global discipline capable of communicating with the modern world in a common moral language [24].

Şahin Aksoy[3] — one of the first scientists in the Muslim world who, in the 1990s and 2000s, began to develop Islamic bioethics as an academic discipline focused on international dialogue. He represented a universalist approach, seeking to combine the principles of Islamic ethics with the foundations of secular bioethics, including the principles of Beauchamp and Childress. He made a significant contribution to the formation of Islamic bioethics by presenting a combination of medical, theological, and ethical perspectives. He was one of the first researchers in the Muslim world to seek to integrate Islamic values into contemporary bioethical standards [25].

In his works, including articles in the Journal of Medical Ethics and Eubios Journal of Asian and International Bioethics, Aksoy emphasizes the importance of cultural relevance, but does not reject global ethical universals. He actively advocated that Islamic bioethics should not be limited to fiqh and fatwas, but should include philosophical reflection, clinical practice, and the participation of Muslim doctors in international discussions on bioethics [26, 27].

Aasim I. Padela[4] — his work encompasses a combination of clinical practice, bioethics, and religious studies, including Islamic bioethics. In his seminal article [19], Aasim I. Padela analyzed both of the above approaches and put forward his own position. He recognizes the value of maqasid and philosophical models, but points to their abstract nature and insufficient applicability in clinical practice. Aasim I. Padela proposes a hybrid model that combines Islamic legal thought, maqasid, principles of social ethics, and elements of modern bioethics. His approach is focused on solving specific ethical dilemmas

[1] Taha Jabir Al-Alwani (1935–2016) — Iraqi Islamic scholar, specialist in Fiqh and the usul of Fiqh, founder and chairman of various Islamic academic and Fiqh organizations (for example, Fiqh Council of North America, Graduate School of Islamic and Social Sciences, Cordoba University). He is the author of concepts related to Fiqh al-aqalliyyat and the methodology of independent legal interpretation (ijtihad).

[2] Sachedina, Abdulaziz (1942) is a contemporary Islamic thinker and professor of religious studies at the University of Virginia (USA). He is the author of Islamic Biomedical Ethics (2009), in which he applies the principles of Islamic ethics to contemporary medical issues.

[3] Şahin Aksoy (1965–2012) is a Turkish physician and scholar in the field of bioethics and history of medicine. He graduated from Ankara University Faculty of Medicine (1990) and received his doctorate from the University of Manchester (UK). He worked as Professor and Head of the Department of History of Medicine and Ethics, Faculty of Medicine, Harran University (Şanlıurfa, Turkey). Author of works on medical ethics, clinical bioethics and Islamic ethics.

[4] Aasim I. Padela is Professor of Emergency Medicine, Bioethics and Medical Humanities; Vice Chair for Research in the Department of Emergency Medicine, Medical College of Wisconsin (MCW, USA). MD (Weill Cornell Medical College), MSc (University of Michigan), BA (University of Rochester).

at the patient's bedside and emphasizes the need for interdisciplinary interaction [19].

As an example, he cites the case of a Muslim patient suffering from cancer who needed palliative care. Aasim I. Padela shows that the simple application of maqasid — for example, the priority of preserving life — does not provide a clear answer in a situation where the prognosis is unfavorable and suffering is intensifying. He analyzes how the patient's spiritual values, her trust in doctors, family involvement, and religious beliefs can be included in the ethical discussion. A doctor working in an Islamic context must consider not only legal norms, but also compassion, social support, and the patient's right to pain relief and a dignified death.

In addition, Aasim I. Padela analyzes other situations in which universal Islamic principles must be reconciled with clinical reality. For example, he considers the issue of consent to treatment on behalf of women under the guardianship of their husbands or fathers and the need to take into account their personal autonomy, especially in the US context. He also touches on dilemmas related to resuscitation, discontinuation of artificial ventilation, and draws attention to how the opinion of the local fatwa group can enter into dialogue with the opinions of the doctor, patient, and family. All of these cases underscore that Islamic bioethics does not function as a rigid normative system, but rather as a flexible and context-sensitive moral compass that can be integrated into professional clinical ethics protocols.

Implementation in medical practice: from concepts to clinical work

Since the end of the 20th century, Islamic bioethics has begun to move beyond theoretical discourse and gradually enter the field of practical medicine. One of the key steps was the formation of a regulatory framework: as early as 1981 and 1982, conferences organized by the Islamic Organization for Medical Sciences (IOMS) proposed the first codes of Islamic medical ethics based on the principles of Sharia law [28].

In the following decades, bioethics committees at medical institutions, fatwa councils on health issues, and interdisciplinary groups for the analysis of complex clinical situations began to develop actively. Medical universities in Muslim countries introduced courses on Islamic bioethics, focusing on both theological foundations and clinical scenarios. These processes were accompanied by the adaptation of international bioethical norms (e.g., the Declaration of Helsinki) to the Islamic legal and cultural context. Thus, Islamic bioethics began to function not only as a philosophical and theological system of values, but also as a practical basis for making ethically sound medical decisions. This was made possible by the cooperation of the academic community of scientists, theologians, and clinicians interested in forming a universal, yet religiously sensitive and culturally significant ethical environment. Islamic bioethics has become a working ethical guideline used in real medical practice. The most striking example of the transformation of Islamic bioethics into an applied discipline is the practice in certain countries, particularly Uzbekistan. Although Uzbekistan is a secular state, Islam remains an important element of the cultural and moral life of a significant part of the population. In recent decades, there has been a significant increase in the number of practicing Muslims in Uzbekistan, reflecting the strengthening of the religious identity of the population and the formation of public demand for religiously based positions on key bioethical issues. Here, the development of medical ethics is based not only on regulatory documents, but also on religious and legal guidelines. For example, with regard to artificial insemination, in 2018 the Muslim Board of Uzbekistan (UMU) published a fatwa permitting the use of artificial insemination methods exclusively for married couples under Sharia law and only in cases of extreme necessity. Biomaterials must come from the spouses without mixing, and the procedure must be performed by a qualified doctor. All other methods — donation, surrogacy, cryopreservation involving third parties — are considered incompatible with Sharia law and are prohibited. The participation of the head of the fatwa department of the UMC, Khomijon Ismatbekov, in the Fatwa Council of the Eurasian Islamic Union [29] underscores the systematic approach of the Uzbek Islamic community to the issue of reproductive technologies.

Although Uzbekistan does not have specific laws regulating surrogacy and artificial insemination, legislation in the field of reproductive

health has nevertheless undergone significant changes: on March 11, 2019, the law "On the Protection of Reproductive Health of Citizens" [30] was adopted. The law provides a basic level of legal regulation of reproductive aspects, defines at the state level guarantees of access to information on contraception methods and reproductive technologies, the procedure for the use of assisted reproductive procedures, and the principles of medical care, including safe abortion and emergency contraception. Current legislation does not cover surrogacy and embryo donation, and international and national initiatives are still being developed and have not yet led to the regulatory regulation of these specific technologies. A comparative review of the legal regulation of reproductive technologies in Central and South Asian countries shows that these topics remain unregulated and subject to a legal vacuum, which is consistent with the Islamic position in Uzbekistan.

Thus, Islamic bioethics began to function not only as a philosophical system, but also as a practically applicable ethical system capable of guiding doctors and patients in real clinical situations. This was made possible by the efforts of both the academic community and practitioners interested in creating a universal yet religiously sensitive ethical environment.

Academic and interdisciplinary discussions have become particularly important. In this context, the exchange of views between Ahmed Raissouni, a Moroccan Islamic scholar, lawyer-theologian, and one of the leading contemporary theorists of Islamic law, and Chamsi-Pasha, a Syrian-Saudi cardiologist and specialist in applied Islamic bioethics working at the intersection of medicine and Sharia law. Raissouni proposed a maqasid-centric model of Islamic bioethics, which is predominantly legal and methodologically abstract. In response, Chamsi-Pasha, in his article Response to Raissouni's Paper, respectfully but firmly advocated an applied, clinically oriented approach to Islamic bioethics, emphasizing the need for its practical implementation in a hospital setting, and not just in theological discourse [31]. His broader position on the application of Islamic ethics in modern medicine is also presented in a joint monograph with Albar, Mohammed A., which discusses specific cases, from transplantation to resuscitation protocols [32]. He advocates that Islamic bioethics should take into account the real challenges of healthcare, be implemented in hospitals, be reflected in protocols, and take into account the opinions of doctors, patients, and ethics committees. Mohammed Ghaly's[1].scientific work occupies a special place in the development of Islamic bioethics. His articles analyze fundamental concepts of Islamic ethics as they apply to pressing issues in modern medicine — from brain death and palliative care to fairness in the distribution of resources during pandemics [33–36]. Mohammed Ghaly combines theological analysis with international bioethical norms, contributing to the formation of Islamic bioethics as a recognized academic discipline. Mohammed Ghaly's article explores the debate surrounding the concept of brain death in light of Islamic religious ethics [33]. Mohammed Ghaly shows how classical and contemporary Islamic sources interpret the boundary between life and death in different ways. Mohammed Ghaly's article examines the role of collective ijtihad (ethical and legal interpretation) in medical ethics [34]. Analyzes the efforts of organizations such as IOMS and IFA[2] in shaping bioethical decisions. Particular emphasis should be placed on "Islam and Disability: Theological and Legal Perspectives", a chapter in the collective monograph (Handbook) Islam and Disability, which identifies the theological foundations of bioethics in the Islamic tradition, including the concepts of suffering, justice and social responsibility. This work serves as a model for Islamic philosophical bioethics, expanding the discipline beyond purely medical

[1] Mohammed Ghaly was born in Egypt and received a BA in Islamic Studies from Al-Azhar University in Cairo. He later continued his studies in the Netherlands, where he earned an MA and PhD in Islamic Studies from Leiden University. He is a professor in the Department of Islamic Ethics at the Center for Islamic Legislation and Ethics (CILE) in Qatar. He also serves on the editorial boards of leading journals in bioethics and Islamic studies. Since the 2010s, he has published extensively in international journals such as Asian Bioethics Review, Medicine, Health Care and Philosophy, and Islamic Studies.

[2] IOMS — International Organization for Medical Sciences, an international organization that develops standards and guidelines in medicine and medical ethics.

IFA — International Fiqh Academy, an international Islamic legal academy affiliated with the Organization of Islamic Cooperation (OIC) that develops fatwas and recommendations on Shari'ah issues, including bioethics.

or legal analysis (35). Explores how Islamic sources (fiqh, tafsir, hadith) shape attitudes toward people with disabilities, including issues of reproduction, rights, and care (36). Mohammed Ghaly devoted an article to the review of Islamic approaches to clinical ethics, where he proposes a framework that combines the principles of Shariah with practical scenarios from medical practice [37]. The concepts of "medical futility" and "hope for cure" in an Islamic context are analyzed in an article by Mohammed Ghaly [38], where ICU (Intensive Care Unit) scenarios are considered, which are clinical situations occurring in an intensive care or intensive care setting where physicians and families are faced with moral dilemmas, where patients are in critical condition and:

- need life support devices (ALV, monitoring, medication support);
- are often unable to express their will (unconscious, comatose);
- decisions are made by family and physicians based on prognosis, medical benefit, and ethical standards.

Ethical dilemmas in the ICU are:

- Should we discontinue ventilator support?
- Should life be prolonged if the prognosis is irreversible?
- Who has the right to make the decision?
- How to reconcile this with Islamic norms (e.g., in the context of preserving life as maqasid)?

These are precisely the situations of Mohammed Ghaly, Aasim I. Padela and Chamsi-Pasha see as key points of intersection between Islamic law and clinical bioethics. In 2020 Mohammed Ghaly reviewed Islamic ethics in a pandemic: fairness in resource allocation, access to palliative care, and Muslim participation in medical research [39]. Also of note is a collective work edited by Mohammed Ghaly that brings together articles by leading scholars on Islamic bioethics, including a discussion of the principles of autonomy, beneficence, justice and harm in the Islamic context [40]. The book is based on a 2013 workshop organized by the Center for Islamic Legislation and Ethics (CILE) at Qatar University, which brought together Muslim theologians, biomedical scientists, and Western bioethicists. The central theme is the dialogue between religious and principled bioethical thinking: how the Islamic tradition can enrich universal principles (autonomy, beneficence, justice) through the goals of Shari'ah (maqasid al-shari'ah) and fiqh maxims (qawā'id fiqhīyah).

The contribution of Daruach Atighetchi[1] is significant in this context.

His key topics have been the religious and legal aspects of the development of biomedical technologies in the Islamic world, including in vitro fertilization, transplantation, genetics, femicide, contraception, and other topical issues [41]. In his numerous publications, he systematically analyzes how the Islamic legal and ethical tradition adapts to contemporary medical issues: transplantation, euthanasia, brain death, and reproductive technologies. Of particular significance is his seminal work Islamic Bioethics: Problems and Perspectives (Springer, 2007), which is not just a collection of case studies, but a comprehensive textbook on the historical, legal, and philosophical foundations of Islamic bioethics [42]. Dariusch Atighetchi elaborates on how Islamic ethics can be integrated into the framework of contemporary clinical practice, drawing attention to the diversity of views between different Islamic schools of law, regional traditions, and the level of engagement with Western bioethical thought [43].

Dariusch Atighetchi is also an active participant in international conferences, scientific editorial boards and dialogues concerning comparative religious bioethics. His approach is characterized by balance: he demonstrates respect for religious identity while at the same time calling for universalism and dialogue. Thanks to his research, Islamic bioethics has been recognized not only in Muslim countries but also in European academic institutions as a distinct field of applied ethics.

A new generation of Islamic bioethicists: names and directions

A new generation of researchers is emerging in Islamic bioethics today, making significant contributions to the institutionalization of the discipline, the development of clinical standards and the expansion of thematic boundaries. Among the most notable figures are Aasim Pa-

[1] Daruach Atighetchi is Professor of Islamic Bioethics at the Faculty of Theology in Lugano, Switzerland, Second University of Naples (Naples, Italy).

dela, Mohammed Ghaly, Hassan Chamsi-Pasha, Mohammed Redi and Joseph Verheijde (Rady & Verheijde), among others. Their work focuses on both the theoretical aspects and practical applications of Islamic bioethics in the context of modern medical systems.

Among the key publications of Rady & Verheijde are: analysis of the moral code of Islam in the context of donation and death criteria — The moral code in Islam and organ donation in Western countries: reinterpreting religious scriptures to meet utilitarian medical objectives (2014) [44]; discussion of controversial end-of-life issues and Islamic approaches to the definition of death — Controversies in end-of-life care: Islamic perspectives (2010) [45]; and a critique of the concept of brain death and the need to revise the criteria of death to reflect religious and ethical norms — Brain dead patients are not cadavers: the need to revise the definition of death in Muslim communities (2013) [46].

In these works, the authors examine the problems of organ donation and the definition of death from the perspective of the Islamic moral code, identifying conflicts with the utilitarian approach of Western medicine. They analyze survey data from Muslims living in Western countries, religious barriers, and issues of ethical transparency in information campaigns about donation [44-46]. The geography of research centers is also expanding: Islamic bioethics is actively developing in North America, Western Europe, Southeast Asia, and the Middle East. Each region offers its own emphasis: in the United States and Canada, the emphasis is on integrating Islamic ethical norms into multicultural clinical practice; in Qatar, Malaysia, and Indonesia, on developing academic centers and educational programs that conform to both Islamic traditions and international standards.

Considerable attention is being paid to the translation of bioethical principles into different cultural and medical contexts. This requires both theological flexibility and practical adaptation: formulating fatwas, participating in ethics committees, and developing national standards of medical ethics. Thanks to the efforts of a new generation of scholars, Islamic bioethics is becoming part of the global ethical discourse while maintaining its theological identity.

CONCLUSION

1. Islamic bioethics has entered a phase of sustained institutional development. It has evolved from ideas rooted exclusively in fiqh and traditional fatwas to an interdisciplinary discourse open to dialogue with global bioethics and the academic community. Contemporary Islamic bioethics seeks to combine fidelity to religious tradition with the need to respond promptly to the ethical challenges of modern medicine.

2. Its future is linked to flexibility of thinking, the ability to adapt to cultural and technological changes, openness to interdisciplinary cooperation and formation of sustainable educational and expert platforms.

3. The historical legacy of Muslim medicine and ethics — from al-Ruhawi to Ibn Sina — continues to serve as a spiritual and methodological reference point. However, as A.I. Padela notes, a modern approach to Islamic medical ethics must go beyond historical and theological analysis and transform into practical decision-making models — guidelines and algorithms applicable in clinical and educational settings. In this context, Islamic bioethics becomes a bridge between tradition and modernity, spirituality and science, local identity and global responsibility [19].

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Original papers

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N.I. Pirogov and the importance of traditional spiritual and moral values for the medical community

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ABSTRACT. November 25th marks the 215th anniversary of the birth of N.I. Pirogov — a great Russian scientist, surgeon, and anatomist, educator and philosopher, citizen and patriot of his homeland, and a man of high moral character. His contemporaries were particularly impressed by the fact that, while being an anatomist, surgeon, and "tester of matter in human nature", he also became a champion of human spirituality, placing a high value on the recognition and development of human dignity. Many of Pirogov's moral reflections remain relevant today. Comprehension of traditional spiritual and moral values is relevant to modern medical practice in general and medical humanities education in particular. This article analyzes the views of this 19th-century thinker, as set forth in his manuscripts "Being a Surgeon: Notes of a Doctor", which helps members of the scientific and medical communities understand and develop a holistic picture of the world in the new biotechnological environment. The article examines such moral challenges in the work of a physician as active action and desire to alleviate the patient's suffering, the principle of "do no harm" consent to medical intervention, the "individualization" (according to Pirogov) of medical practice, and others. N.I. Pirogov was characterized by spiritual quests. The pages of his diary recount the stages of his spiritual development: from childhood religiosity to materialistic empiricism and the conscious acquisition of faith in the last years of his life. "I don't think", Nikolai Ivanovich believed, "that any thinking person has managed to remain guided by the same worldview throughout its entire life". N.I. Pirogov asserted that he professed the Christian faith precisely as it is expounded by the Orthodox Church. The Orthodox faith directed his entire life, all his professional medical achievements. He was firmly convinced that "faith should never conflict with scientific knowledge". Recognition of Dr. Pirogov's convictions is of great importance for achieving public consensus around fundamental spiritual and moral values and for supporting the initiative to canonize him as a saint of the Russian Orthodox Church.

KEYWORDS: N.I. Pirogov, spiritual and moral values, traditions, religion, bioethics, legislation

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Н.И. Пирогов и значение традиционных духовно-нравственных ценностей для медицинского сообщества

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РЕЗЮМЕ. 25 ноября исполняется 215 лет со дня рождения Н.И. Пирогова — величайшего отечественного ученого, хирурга и анатома, педагога и философа, гражданина и патриота своей Родины, человека высокой нравственности. Его современников особенно впечатляло то, что он, будучи анатомом, хирургом и «испытателем материи в природе человека», стал поборником его духовного начала, высоко ставящим признание и развитие достоинства человека. Многие нравственные рассуждения Пирогова и сегодня звучат достаточно актуально. Осмысление традиционных духовно-нравственных ценностей актуально для современной медицинской практики в целом и медицинского гуманитарного образования в частности. В статье дается анализ воззрений мыслителя XIX века, изложенных в рукописях «Быть хирургом. Записки врача», помогающий представителям научного и медицинского сообщества осознавать и формировать целостную картину мира в новых биотехнологических условиях. Рассматриваются такие нравственные затруднения в работе врача, как активное действие и желание облегчить страдания больного, принцип «не навреди», согласие на медицинское вмешательство, «индивидуализирование» (по Пирогову) медицинской практики и др. Н.И. Пирогову были свойственны духовные искания. Страницы его дневника повествуют об этапах духовного становления Н.И. Пирогова: от детской религиозности к материалистическому эмпиризму и к сознательному обретению веры в последние годы жизни. «Не думаю, — полагал Николай Иванович, — что кому-нибудь из мыслящих людей удалось в течение целой жизни руководствоваться одним и тем же мировоззрением». Н.И. Пирогов утверждал, что он исповедует христианскую веру именно так, как она излагается Православной церковью. Православная вера сопровождала всю его жизнь, все его профессиональные медицинские достижения. Он был твердо убежден в том, что «вера ни в коем случае не должна входить в конфликт с научным знанием». Большое значение для достижения общественного согласия вокруг фундаментальных духовно-нравственных ценностей и для поддержки инициативы о причислении доктора Пирогова к лику святых Русской Православной церкви, имеет признание его убеждений.

КЛЮЧЕВЫЕ СЛОВА: Н.И. Пирогов, духовно-нравственные ценности, традиции, религия, биоэтика, законодательство

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Human culture passes through a number of stages in its development. The modern period is characterized by the powerful development of science and technology, which is widely regarded as a form of progress and a defining feature of the era. The classical understanding of progress (from Latin *progressus* — forward movement, success) is based on the notion of irreversible positive movement from the past to the present and future, in particular at the level of growth of scientific knowledge, domination over nature and development of technology.

Nevertheless, by the end of the twentieth century, doubts began to be expressed about the unequivocally positive nature of civilizational progress. Many scholars have noted that despite significant medical advances, morbidity and mortality rates have not declined accordingly. Thus, in 1993, the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) included approximately 14,400 disease entities, and the ICD-11 in 2019 included already 55,000, many of which still lack effective or definitive treatments. Moreover, nowadays the concept of "progress" is more and more often correlated with the concept of moral regression associated with the erosion of stable criteria for distinguishing between good and evil. Recognition of the importance of the technicality of civilization is more associated with the comfortable existence of mankind, which has never been the "supreme" criterion of its well-being. "Technical progress is not equivalent to moral or spiritual progress" [1]. Fundamentally, human behavior and the choice of the right action are related to the practical responsibility of the real embodiment of knowledge based on the values of culture, verified by centuries of life experience. Therefore, the search for forms of human well-being and protection of life structure of modern society is not limited today to the positions of technocentricity, but turns to the principle of historical integrity of culture, tradition and morality. The adoption of the Decree of the President of the Russian Federation from 07.05.2024 No. 309 "On the national development goals of the Russian Federation for the period up to 2030 and in the perspective up to 2036" is not accidental. In this document the main objectives include "a) creation by 2030 of conditions for the education of a harmoniously developed, patriotic and socially responsible personality based on traditional Russian spiritual, moral, cultural and historical values"[1].

The cultural and historical traditions of Russian medicine, respect and veneration of its representatives have been preserved for many years. The medical professionals of St. Petersburg keep the memory of Pirogov's work as a professor at the Imperial Medical and Surgical Academy and his selfless work during the cholera scare in St. Petersburg in 1848. Recognition of the importance of the personality of N.I. Pirogov (1810–1881) as a purposeful scientist-anatomist, practicing surgeon and public figure, as a teacher devoted to the education of young people, determined that since 1956 the Moscow Medical University has been named after him. In 1991, during the period of "perestroika" there was an attempt to deprive the university of its name, but in 2011 the right to recognize the status of Pirogov Medical University was restored by Order of the Ministry of Health and Social Development of the Russian Federation No. 580 of 20.06.2011.

Hardly any of Pirogov's contemporaries or researchers of the history of medicine in our time could deny that Nikolai Ivanovich was a representative of scientists who recognized the importance of introducing new forms and methods of scientific work. This is convincingly evidenced by all his works. A special place among them is occupied by "Diary of an old doctor (1879–1881)" [2]. These are manuscripts written three years before his death. Here the history of many medical achievements and the essence of outlook traditions of our medicine, personal experience of their mental analysis, doubts, experiences and acceptance are revealed.

Under the influence of progressive modernism, the problem of cultural and value dimensions of medical practice on the basis of the study of the life experience of the "father of Russian surgery" acquires special significance for new generations.

Centuries later, it is useful to comprehend the original ideas of national culture and evaluate the possibilities of their connection with the tasks of modern science.

[1] Decree of the President of the Russian Federation dated 05.07.2024 No. 309 "On the National Development Goals of the Russian Federation for the period up to 2030 and for the future up to 2036". The official website of the President of Russia. Available at: http://www.kremlin.ru/acts/bank/50542 (accessed 17.09.2025).

YOUTH MORAL CHALLENGES

For N.I. Pirogov, among the tasks, the solution of which was especially important for the younger generation of doctors, was the question of the correlation between decisive action in medical practice and the assumption of unknown results of this action. This topic is also important for the modern generation of doctors, as it is the youth that is endowed with strength and temperament, inspired not only by the goal of helping, but also by faith in the effectiveness of knowledge and methods of its realization. It is on the edge of the possibility of action and the problematic nature of its results that Pirogov sees moral difficulties, which are especially important for new generations to comprehend.

What moral difficulties are we talking about? First of all, the existence of a hidden contradiction between the capacity for active action, on the one hand, and the desire to alleviate suffering, on the other. Instead of high estimates of the propensity for active action, Nikolai Ivanovich associates it with "vanity". What was understood by vanity in Pirogov's time? His contemporary, Vladimir Dahl, in his dictionary defined vanity as a human characteristic associated with temporary, worldly, nonsense, vain actions, opposing reasonable, moral, spiritual actions [3]. Today, "vanity" is most often understood as the pursuit of innovation for the sake of innovation itself, when an operation is done not because it is 'necessary' but because it is "possible".

In Pirogov's opinion, unfortunately, it is "vanity" that often becomes the motive for a doctor's actions. And its basis, paradoxically, is a deep devotion to their knowledge, art (technique), which, unfortunately, sometimes supersedes the importance of achieving their goal, i.e., the results of treatment and relief of human suffering.

"No matter how unlikely the success of an operation, no matter how life-threatening its production, *if it interests you as an art, you can no longer weigh the odds completely impartially and determine what is more likely in a given case: success or ruin"* [2].

"NE NOCEREM VERITUS"

According to Pirogov, the more zealous and younger a person is, the more committed he is to his art and skill, the easier it is for him to lose sight of their purpose and the more inclined he is to act "art for art alone", i.e., to rely on his skill for the sake of his skill. It is not surprising that Nikolai Ivanovich here recalls the great moral principle "ne nocerem veritus", which in Latin means: "fear to do harm!". According to Pirogov, it was this genuine moral sense that motivated Albrecht von Galler (1708–1777), the Swiss anatomist and "father of modern physiology", to profess and spread this norm in the medical community, including the prohibition to perform surgery on living people.

Galler's position was not simply a reflection of the specific features of medical practice in a particular historical era. It is filled with content, conditioned by the goals and objectives of medicine, regardless of the place and time of their realization. Its first formulation, which became known to the whole world as the moral maxim "Do no harm", is contained in the 'Oath' of Hippocrates: "I will direct the regime of the sick to their benefit in accordance with my strength and my reason, refraining from causing any harm and injustice" [4].

At the beginning of the XIX century, Professor and Dean of the Medical Faculty of Moscow University M.Y. Mudrov translated the "Oath" of Hippocrates into Russian with the aim to confirm in young doctors the ideas about "moral qualities of a doctor and especially about his piety", to make doctors "worthy of this important service". On the basis of the "Oath" of Hippocrates, M.Y. Mudrov creates the "Faculty Pledge of Russian Physicians", which for many years was accepted by domestic physicians. Obviously, Pirogov also accepted it. The principle of "do no harm" expressed the initial professional guarantee, which is regarded as a condition and basis for the recognition of the medical profession not only by society as a whole, but also by every person who entrusts the doctor with nothing less than his or her life. Today it is reproduced in almost every modern ethical document of medical communities, whether it is a "Declaration", "Oath", "Code", "Convention", etc., acquiring its own style and a special form of expression. At the same time, its direct connection is undoubtedly not only with the Old Testament norm "do not kill", which regulates human relations throughout the centuries-old history of mankind, but also with the Christian ethical norm of man to man — "love your neighbor as yourself" (Matthew 5, 44).

In his Diary, Pirogov analyzes and shares Galler's position, characterizing it as an expres-

sion of genuine moral feeling. But here he also remarks that "every surgeon *would have to proceed* to surgery with his 'ne nocerem veritus' ". The physician "ought to be", but is this "ought" always observed? Are there possible exceptions? If not, "it would mean to subordinate the interest of science and art entirely to the highest moral sense. Yes, that is the way it should be..." [2].

But the ideal "should" in practical reality always has dozens and hundreds of cases, as Pirogov testified, which complicate the ideal solution of the question. How to act in such cases? On the one hand, Pirogov is sure that "only the voice of one's own conscience can solve the question for everyone and of course for everyone to solve it in his own way" [3]. But, on the other hand, a surgeon cannot always rely on his own conscience! Why? Scientific, having nothing to do with morality, occupation, passion and love for his art act also on the conscience, tilting it, so to speak, on its side. And conscience becomes on the side of scientific prejudice [2]. And prejudice is a concept that in Pirogov's time meant "an erroneous opinion, a belief about a matter that you do not know, a reckless, unfounded confidence" [3]. What is to be done? One of the means against prejudice, according to Pirogov, can be considered statistics. And if, according to statistics, the disease left to itself leads to death in 60%, and from surgery — in 50% of cases, this can be considered as the basis of the decision in favor of surgical intervention. But there is another moral position, without the acceptance of which the decision of the professional question is unacceptable. Unfortunately, according to Pirogov, it has often been looked down upon by the younger generation.

AGREEMENT

Nikolai Ivanovich says that this position was defended and implemented by I. Rühl (1764–1846), a medical inspector of hospitals in St. Petersburg, where Pirogov worked. Young doctors joked with the inspector and gave him the nickname "goatherd". This was the name of a nocturnal bird, which, as a rule, is motionless, but in fact carefully observes what is happening and in case of danger takes off sharply. The basic principle of I. Rühl was the belief that one cannot operate against one's will, and no one but the patient has the right to his health, so one must ask his consent to treatment. At that time this principle was not legalized, and young people censured the old man who dared to interfere in the affairs of science and harm scientific interests. And it would seem that for themselves each of them understood the meaning of consent, but on the other hand, it was ironic that no one would have objected or been at fault for having saved his life without consent by subjecting him to a dangerous procedure.

Today's young doctors are not at all in for jokes, since the right of the patient to his health and to obtain his consent to treatment has been legalized. This human right has been transformed into the legal principle of voluntary informed consent recognized by modern healthcare, the content of which is detailed in the Federal Law of 21.11.2011 No. 323-FZ "On the Fundamentals of Health Protection of Citizens in the Russian Federation", in Article 2 "Informed voluntary consent to medical intervention and refusal of medical intervention"[1].

In the nineteenth century, there was still no talk of strict legal responsibility and penalties for violations of patients' rights. The focus of Pirogov's attention was not legal responsibility, but inevitable moral consequences for the doctor's state of mind, worries, discouragement and depression, which shows that following moral norms in the medical profession is a form of protection not only for the patient, but also for the well-being of the doctor's own personality.

The solution of moral difficulties in situations of confrontation of scientific interests and possible negative consequences of their realization according to Pirogov is difficult to solve using the patient's consent and statistics, because they are also something relative and changing. Pirogov sees the way out in "individualization" of medical practice. He predicts and forecasts the necessity of forming a new branch of knowledge, giving correct individual knowledge about each patient, which will not only increase the effectiveness but also the safety of the choice of medical measures. Pirogov's ideas about "individualization" of treatment are in line with modern approaches to personalized medicine, which is based on the principles of identifying predisposition to disease development, preventing or minimizing the risk of disease development on the basis of genomic

[1] Federal law from 21.11.2011 No. 323-FL "On the basis of health protection of citizens in the Russian Federation". Available at: https://minzdrav.gov.ru/documents/7025 (date of access 17.09.2025).

medicine, including genetic diagnosis, gene therapy, genome editing, regenerative medicine and tissue engineering.

THE MORAL CHALLENGES OF MODERN MEDICINE

At present, personalized medicine is seen as the basis of medicine of the future. But before it becomes the basis, it must pass the way of tests, experiments, the object of which cannot but be a human being, who is included in research processes even at the earliest embryonic stages of his development. Testing hypotheses, confirming or refuting assumptions, establishing cause-and-effect relationships, systematizing knowledge, deepening understanding of processes and phenomena, developing solutions on the basis of various methods of human research in different states — all this requires empirical material, including the beginning of human life at the embryonic level. This makes the Pyrogovian questions about moral difficulties in medicine relevant again. Research at the level of the termination of life and the developmental process of the human embryo or fetus was not conducted in Pirogov's time. The more significant is the scientist's meaningful position even in relation to animals at the end of his life: "Thirty years ago I would have considered everything I say now as empty phraseology; and I considered any pity for the suffering of a dog during vivisection, and even more affection for an animal, as ridiculous sentimentality. But time changes everything, and I, without any compassion for the agony (chloroform was not yet known then), who did dozens of vivisections every day, would not dare now to cut a dog with chloroform out of scientific curiosity" [2] and, we may add, out of noble goals of progressive development of scientific knowledge or out of "prejudice" in Pirogov's language.

One can draw various parallels, comparisons and differences between the suffering of dogs in vivisections and research on human embryos, calculating the time of the emergence of their ability to feel pain, but the moral connection between Pirogov's position and the attitudes of modern Russian medical legislation is obvious. The Federal Law of the Russian Federation of June 23, 2016, No. 180-FZ "On Biomedical Cell Products" clearly fixes "the inadmissibility of creating a human embryo for the purpose of production of biomedical cell products (Art. 3, para. 4) and the inadmissibility of using for the development, production and application of biomedical cell products biological material obtained by interrupting the development process of a human embryo or fetus or disrupting such a process (Art. 3, para. 5.)"[1].

Nevertheless, unfortunately, moral difficulties arise again and again. And no matter how unlikely the success of research is, no matter how dangerous it will be for human beings, if it interests the scientist primarily as confirmation or refutation of assumptions, as establishment of cause-and-effect relationships, as systematization of knowledge, as deepening the understanding of processes and phenomena, then he can no longer follow moral assessments in a completely impartial manner. For example, in 2019, Russia adopted the "Federal Scientific and Technical Program for the Development of Genetic Technologies for 2019–2027"[2]. The tenth paragraph of this document, "X. Possible Risks" identifies "regulatory prohibitions and ethical considerations" that result in restrictions on research as the main risks of the Program. In the authors' view, the impact of ethical considerations leads to incomplete achievement of the Program's objectives. Tendencies to revise the basic ethical coordinates for the development of new technologies, for example in medical genetics, have been discussed in the medical community at conferences, meetings, and informal gatherings.

The issue of moral difficulties remains relevant today. The adoption of normative principles and ethical rules is essential to human life at all levels. "Establishing a known 'modus vivendi'[3] is necessary not only for the harmony of families, societies and nations, but also for harmony with oneself; and this can only be achieved by a known and more or less known worldview." [2]. In addition to materialistic empiricism, Pirogov was characterized by a religious worldview. No matter what subject a man of science, he will not get away from the annoying question: what does he believe in,

[1] Federal Law of the Russian Federation from June 23, 2016 No. 180-FL "On biomedical cell products". Available at: http://kremlin.ru'acts/bank/40894 (date of access: 17.09.2025).

[2] Federal scientific and technical program for the development of genetic technologies for 2019–2027 Available from: http://static.government.ru (date of reference: 17.09.2025).

[3] A rule of life.

whether his beliefs agree with the convictions obtained by him through science or with the values of religion, society and people?

From the point of view of N.I. Pirogov, with regard to religious beliefs of all people of science can be divided into three categories: to one belong people who sincerely believe in God, many of them are convinced that it is faith helps them in solving difficult moral and scientific problems. The second category of scientists tries to reconcile their scientific and religious beliefs, but when they do not achieve reconciliation, they move to the third group of people who believe that "everything is allowed". From the point of view of N.I. Pirogov, "every person of science must decide the main question of life: to which of the three categories he attributes himself, what he believes in and what he recognizes?" [2]. Answering this question himself, he states: "From my worldview, frankly stated in this diary, I conclude that the existence of the Supreme Reason, and consequently the Supreme Creative Will, I consider the existence of the Supreme Mind, and consequently the Supreme Creative Will, a necessary and inescapable (fatal) requirement (postulate) of my own mind, so that if I would now like not to recognize the existence of God, I could not do it without going mad" [2].

N.I. Pirogov's vast experience of research work led him to the conclusion that the search for the purposes and causes of certain phenomena cannot be something isolated, unconnected with world life, with the recognition by our minds of the infinite and eternal Divine Mind that governs the ocean of life [2]. Pirogov's efforts to develop arguments, proofs of the integrity of the world order, on the necessity of Faith in God are unique. In his reasoning he is convinced and convinces that Faith opens up the possibility of seeing a truly holistic picture of the world, the perception of which is capable of forming a spiritually strong personality of a scientist, capable of moral responsibility for his work. At present, this applies both to work in the classical areas of medicine and biomedical technologies, the development of which is inextricably linked to the ideas of good and evil, with the ability to distinguish between good and harm. These ideas and abilities, aspirations to achieve public agreement on fundamental spiritual and moral values are extremely important in our time to solve the problems of forming a holistic picture of the world in the representatives of the scientific and medical community.

N.I. Pirogov's religious conviction, his steadfastness, perseverance, faithfulness and devotion in our days fulfill the mission of enlightenment and fruitful unification of religion and science. It is not surprising that the medical community has formed a position on the necessity of enlisting Pirogov in the countenance of righteous ascetics, even today fulfilling the Christian commandment of love for God and neighbors, selflessly serving people and his Fatherland [5].

"Go therefore, teach all nations, baptizing them in the name of the Father, and of the Son, and of the Holy Spirit, teaching them to observe all that I have commanded you; and behold, I am with you always, even to the end of the age" (Matthew 28, 19). And Nikolai Ivanovich went, wrote, worked, taught to observe what the Savior commanded, who destroyed the chaos of moral arbitrariness and showed mankind the straight path and the center of aspirations to the goal of salvation of life.

Consistent confession of the Orthodox faith, numerous works to teach the need for a pious God-pleasing life, undoubtedly attribute Pirogov to the image of a righteous ascetic in life and profession. He still serves the nation and its Church, exemplifying the recognition of the importance of traditional spiritual and moral values for the prosperous development of the individual and society.

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Furman Emmanuel Bernhardovich — Doctor of Medical Sciences, Professor, the founder of the Department of Children's Diseases at the Izhevsk State Medical Institute

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ABSTRACT. Emmanuel-Nikolai Berngardovich Furman (1874–1942) was a doctor of medical sciences, pediatrician, born in the noble family. His fate is tragic, as are the fates of millions of other people who suffered during wars, revolutions and under repressions in the first half of the XX century. He is a graduate of the St. Petersburg Military Medical Academy. In the pre-revolutionary period he worked as a doctor at the Alexandrinsky Maternity Hospital, the Elizabeth Noble Institute, and the Elizabeth Clinical Hospital for babies in St. Petersburg. As a military doctor, he took part in the Russian-Japanese War. He served as a doctor at the Imperial Public Library and a specialist in the area of pediatric diseases and smallpox vaccination at the Imperial Maternity Hospital. He was a member of the St. Petersburg Society of Pediatricians and an honorary member of the St. Petersburg Council of Orphanages. During the Soviet period he was appointed head of the somatic department of the L. Pasteur Clinical Hospital (until 1918 the Elizabeth Clinical Hospital). He also resumed work at the maternity hospital of Dr. K.I. Wiedeman (until 1918 the Alexandrinsky Maternity Hospital). Since 1923 he has been the head of the Department of Pediatric Diseases at the State Institute of Medical Knowledge. In 1930 he was arrested in the ranks of an "academic case" and sentenced to 10 years in prison to serve his sentence in a forced labor camp. After his early release in 1937 he headed the Department of Pediatric Diseases at Izhevsk State Medical Institute. In 1941 he was re-arrested and shot under Article 58, paragraph 6 of the Criminal Code of the RSFSR. He was rehabilitated posthumously 15 years later in 1957. He was the author of more than 40 scientific works. Izhevsk State Medical Academy honors the memory of the first head of the Department of Pediatric Diseases, Emmanuel Berngardovich Furman. His scientific and pedagogical legacy is alive and relevant to this day.

KEYWORDS: Furman Emmanuel Berngardovich, Alexandrinsky Maternity Hospital, Elizavetinskaya Clinical Hospital, State Institute of Medical Knowledge, Akademicheskoe Delo, "Vegerak" campsite, Belbaltlag, Izhevsk Medical Institute

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РЕЗЮМЕ. Эммануил-Николай Бернгардович Фурман (1874–1942) — доктор медицинских наук, врач-педиатр, родом из дворян. Его судьба трагична, как и судьбы миллионов других людей, пострадавших в ходе войн, революций и репрессий в первой половине XX столетия. Эммануил Бернгардович — выпускник Санкт-Петербургской военно-медицинской академии. В дореволюционный период работал врачом Александринского родовспомогательного приюта, Елизаветинского дворянского института, а также Елизаветинской клинической больницы для малолетних детей в Петербурге. В качестве военного врача принимал участие в Русско-японской войне. Состоял на должности врача Императорской публичной библиотеки и преподавателя по детским болезням и оспопрививанию в Императорском родовспомогательном заведении. Являлся членом Петербургского общества детских врачей и почетным членом Санкт-Петербургского Совета детских приютов. В советский период был принят на должность заведующего соматическим отделением Клинической больницы им. Л. Пастера (до 1918 года — Елизаветинская клиническая больница). Возобновил также работу в роддоме доктора К.И. Видемана (до 1918 года — Александринский приют). С 1923 года являлся заведующим кафедрой детских болезней Государственного института медицинских знаний. В 1930 году был арестован по «академическому делу» и приговорен к 10 годам заключения с отбыванием наказания в исправительно-трудовом лагере. После досрочного освобождения с 1937 года руководил кафедрой детских болезней Ижевского государственного медицинского института. В 1941 году повторно арестован и расстрелян по статье 58, пункту 6 УК РСФСР. Реабилитирован посмертно спустя 15 лет в 1957 году. Является автором более 40 научных трудов. Ижевская государственная медицинская академия чтит память о первом заведующем кафедрой детских болезней Эммануиле Бернгардовиче Фурмане. Его научно-педагогическое наследие живо и актуально по сей день.

КЛЮЧЕВЫЕ СЛОВА: Фурман Эммануил Бернгардович, Александринский родовспомогательный приют, Елизаветинская клиническая больница, Государственный институт медицинских знаний, «академическое дело», лагпункт «Вегеракша», Белбалтлаг, Ижевский медицинский институт

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Emmanuel-Nikolai Berngardovich Furman (German: Emanuel Nikolai Fuhrmann) was born into a noble family in St. Petersburg on September 12, 1874. His ancestors were Baltic Germans from the Governorate of Livonia (Livland) who practiced the Evangelical Lutheran faith [1, 2]. His father, Berngard (Bernhard) Christian Furman (1845–1922), worked as an assistant to the architect N.L. Benois. He is known as an architect whose designs, executed in the Eclectic and Art Nouveau (Modern) styles, led to the construction of numerous buildings in the northern capital. These include structures on the embankments of the Obvodny Canal and the Smolenka River, as well as on Vladimirsky, Ligovsky, and Smolny Prospects, and in Pevchesky, Shepyany, and Kustarny Lanes, among other locations. The building at 15 Smolyachkova Street (B.K. Furman's tenement house), constructed from his design, is recognized as an architectural monument. In addition to his career as a capital city architect, B.K. Furman was also successful in business. He served as Chairman of the Board of the Neva Suburban Horse-Drawn Railway, a member of the boards of the Primorsko-Sestroretskaya and Yugo-Vostochnaya (South-Eastern) Railways, and Director of the Partnership of Clay and Pottery Manufacturers in Borovichi (Novgorod Province). He was also a member of the Russian Oil-Producing Society. This society was founded in St. Petersburg in 1896 and owned oil fields in the Baku region [3].

Emmanuel Berngardovich Furman's mother was Katarina Barbara, née Assman (1846–1878) [1, 3, 4]. He was not the only child in the family; however, information about his siblings (sisters and brothers) is contradictory across different historical sources. It is known for certain that his birth mother died when he was four years old. Two years later, in 1880, his father remarried. His second wife was Maria Augusta Carolina (1838–1917), the niece of the architect L.L. Benois [1, 3, 4]. She took on the upbringing of young Emmanuel [1, 4–6]. It is presumed that children were also born from B.K. Furman's second marriage, but accounts about them vary in different sources. Emmanuel Berngardovich's father, Berngard Christian Furman, emigrated to Europe following the death of his second wife in December 1917 and died in Berlin in 1922 [1].

Emmanuel Berngardovich Furman received his secondary education at the school affiliated with the Lutheran Church of St. Anna [1, 4–9] (also known as the Annenschule), which was founded in St. Petersburg in 1736 for the education of children from the German community. During his studies there, the school was a highly prestigious institution comprising a boys' gymnasium, a girls' gymnasium, a Realschule (a secondary school with a focus on sciences and modern languages), and separate boys' and girls' elementary (primary) schools. The high status of the school is underscored by the fact that in 1893 it was awarded a gold medal at an industrial exhibition for its arched gymnasium hall, which was unequalled in Europe at the time [10].

In the same year, 1893, Emmanuel enrolled as a student at the St. Petersburg Imperial Military Medical Academy (now the S.M. Kirov Military Medical Academy). During his studies, E.B. Furman undertook specialization in the Department of Children's Diseases, which was headed by Professor N.P. Gundobin, who also served as the chief of the children's department at the Mikhailovskaya Clinical Hospital. He later specialized in the Department of Diagnostics and General Therapy under Professor M.V. Yanovsky. It was during these years that his interest in scientific work emerged. In 1897, while a fourth-year student, E.B. Furman co-authored two research papers with K.I. Krivoshein under the supervision of Professor M.V. Yanovsky. For this work, the young scientist was awarded the S.P. Botkin Prize [4, 7–9]. One paper, titled "Some Features of the Growth of the Plague Bacillus", was four pages long, while the other, "The Diagnostic Value of the Widal Reaction and Its Biological Aspect", extended to thirty-two pages [5, 6].

In 1898, E.B. Furman graduated with honors from the St. Petersburg Military Medical Academy, receiving the degree of lekar (physician). He was assigned to Brest-Litovsk, where he began service as a junior physician in the 7th Revel Infantry Regiment. After a short period, he transferred to the 6th Libava Infantry Regiment [1, 2, 4–6].

Two years later, in 1900, Emmanuel Berngardovich returned to St. Petersburg and was appointed as a physician at the Saint Petersburg Elizabeth Institute (the Elizavetinsky Institute for Daughters of the Nobility, Fig. 1). Located on Vasilievsky Island, it was considered one of the most prestigious educational institutions in the northern capital [1, 4–9].

Fig. 1. Saint Petersburg Elizabeth Institute

Рис. 1. Санкт-Петербургский Елизаветинский институт

Fig. 2. Alexandrinsky Maternity Hospital in Saint Petersburg

Рис. 2. Александринский родовспомогательный приют в г. Санкт-Петербурге

He combined this position with work at the Evangelical Maternity Shelter named after Alexandra (the Alexandrinsky Shelter, Fig. 2) [1, 2, 4–9], which had been built in 1899. The shelter's director and chief physician was K.G. Widemann. For its time, the shelter was equipped with the most modern facilities and maintained 80 beds for women in labor, pregnant women, and gynecological patients; it also operated an outpatient clinic. Women were admitted to the

shelter on both a paid and a charitable basis. Admission was granted without a passport, depending solely on bed availability, and was possible at any hour of the day or night [11]. Emmanuel Berngardovich worked at this medical institution for extended periods: from 1900 to 1904 and again from 1906 to 1918 [1, 5].

That same year, in 1900, E.B. Furman began writing his doctoral dissertation, "On the Reflexes of Infants", under the scientific supervision of Professor N.P. Gundobin. It is noteworthy in this context that N.P. Gundobin is considered the founder of the St. Petersburg pediatric school. Under his guidance, a scientific approach was developed which advocated for the study of the anatomical and physiological characteristics of children of all age groups to ensure correct diagnosis, appropriate treatment selection, and disease prevention. The research of Professor N.P. Gundobin and his students laid the foundation of pediatric science and enabled progress in the diagnosis, clinical management, and prevention of childhood diseases at a level advanced for its time. While working on his dissertation, Emmanuel Berngardovich pursued advanced training in leading clinics across Europe, notably in Germany, Austria, Switzerland, and France. In 1903, following the successful defense of his dissertation, E.B. Furman was awarded the higher doctoral degree of Doctor of Medicine. Having obtained this degree, he continued his work at the Alexandrinsky Maternity Shelter [1, 2, 4–9].

It is worth noting that two years prior, a significant event had taken place in E.B. Furman's life. He married Magda Volfridovna Anders, the daughter of a State Councillor (a senior civil service rank). Available records indicate that the couple had three sons: Boris, Georgy, and Vadim [1, 2].

With the outbreak of the Russo-Japanese War, Emmanuel Berngardovich was mobilized for frontline service and assigned to work in hospitals in Vladivostok and Harbin. He was awarded the medal "In Commemoration of the Russo-Japanese War", which was conferred upon military personnel, medical staff, clergy, and civilians who distinguished themselves during the conflict. His other decorations included the Orders of Saint Stanislaus (Third and Second Class) and the Order of Saint Anna (Third Class) [1, 2, 4–6].

Following the war's end in 1906, he returned to St. Petersburg and once again took up a position at the Alexandrinsky Maternity Shelter, this time as a resident physician (ordinatur) for

Fig. 3. Elizabeth Clinical Hospital for babies in Saint Petersburg

Рис. 3. Елизаветинская клиническая больница для малолетних детей в г. Санкт-Петербурге

childhood diseases. From 1908, E.B. Furman resumed his post as senior physician of the infirmary at the Elizavetinsky Institute, where he continued to work until its closure in 1918. He also served as a resident physician at the Elizabeth Clinical Hospital for Young Children (the Elizavetinskaya Hospital, Fig. 3), located on the Fontanka River embankment [4–9]. Founded in 1844, this hospital was one of the largest pediatric inpatient facilities in St. Petersburg [12]. E.B. Furman worked at this institution until the October Revolution [9].

The exact dates of E.B. Furman's employment at various medical institutions sometimes differ across sources; however, the available biographical data consistently reflect his remarkable capacity for work. From 1910 to 1918, he served as a physician at the Imperial Public Library (which became the Russian National Library in 1917) [4–6]. In 1910, he also fulfilled the duties of secretary for the Society of St. Petersburg Physicians [7, 8]; its chairman from 1906 to 1913 was I.P. Pavlov[1]. As a member of the St. Petersburg Society of Pediatricians, he participated in its meetings and presented reports, including "Three Cases of Congenital Intestinal Atresia" (April 13, 1905) and "On Congenital Pyloric Stenosis" (October 5, 1906) [5, 6].

Between 1910 and 1916, E.B. Furman held the position of lecturer in childhood diseases and smallpox vaccination at the Imperial Obstetrical Institute (now the D.O. Ott Research Institute of Obstetrics, Gynecology and Reproductology)[2] . During his service at the Imperial Obstetrical Institute, he was sent abroad twice on scientific missions [7, 8].

Emmanuel Berngardovich also held the position of honorary member of the St. Petersburg Council of Children's Shelters [1, 2, 14], which coordinated the work of over twenty children's shelters in the city. In his capacity as an Honorary Member, E.B. Furman made an annual monetary contribution to the Council. In return, he received the associated title, the right to wear a distinctive uniform of the VI class (indicating his honorary rank within the civil service hierarchy), and the prospect, after sufficient length of service, of being granted the high civil rank of State Councillor (Statskiy Sovetnik, Class V) [15]. He was himself formally awarded the senior civilian rank of Collegiate Councillor (Kollezhskiy Sovetnik, Class VI) in 1912 [2]. According to the imperial Table of Ranks, this rank was equivalent to the military ranks of Colonel (Army) and Captain First Rank (Navy), denoting a position of substantial authority.

In 1913, E.B. Furman was honored with the commemorative Jubilee Medal "In Memory of the 300th Anniversary of the Reign of the House of Romanov" [1, 2, 5, 6, 16]. This award of the Russian Empire was presented to, among others, civil servants and teachers employed in state higher, secondary, and primary educational institutions.

The Revolution and the Civil War were drawing near — a time of severe ordeal for the Russian people. This turning point in the history of the state affected the destinies of millions, uprooting them from their accustomed way of life and determining their future. Great suffering, loss, and hardship also befell Emmanuel Berngardovich, yet these misfortunes did not break this strong-willed man. He met the blows of fate with resilience, heeding the call of conscience and remaining steadfast in his vocation as a physician.

The Furman family faced the upheaval of the Revolution and Civil War in southern Russia. They first lived in Rostov-on-Don, then in Tuapse — cities that were at the time under the control of the White Army forces of General A.I. Denikin. In Tuapse, E.B. Furman worked in a hospital organized for the treatment of White Army soldiers and officers. With the advance of the Bolsheviks, E.B. Furman was conscripted into the Red Army and served in one of the units on the Caucasian Front. Some sources indicate that following the Red Army's capture of Tuapse in 1919, he was appointed chief physician of a brigade hospital [1, 2, 4–6]. For Emmanuel Berngardovich, this was an immensely difficult period: within a short span of time, he lost two loved ones. His wife, Magda Volfridovna, died after a prolonged illness on December 28, 1919, and his youngest son, Georgy, passed away on January 29, 1920 [1, 2].

[1] The Society's meetings were held in the building of the Pirogov Museum, which no longer exists, having been demolished during the construction of the Leningrad Hotel in 1969 [13].

[2] This institution comprised a Maternity Hospital with 40 beds and a Midwifery Institute. Graduates of the Institute received a Certificate of Completion from the Midwifery Institute and a diploma from the Medico-Surgical Academy conferring the qualification of midwife (povival'naya babka).

Despite the profound personal losses, Emmanuel Berngardovich Furman continued to carry out his medical duties, devoting himself entirely to his work. He received invaluable assistance in his hospital duties from Emilia Edmundovna Bandrovskaya, whom he later married. It is known of his second wife that she was a graduate of the Moscow Conservatory [1, 5, 6]. Emmanuel Berngardovich himself loved music and was a skilled pianist; consequently, at future family gatherings, the Furman couple would often play piano duets [1].

In 1921, E.B. Furman returned with his family to Petrograd. For a period, Emmanuel Berngardovich resided in a house on the 6th Line of Vasilievsky Island, which had been designed by his father [1, 2]. In September 1921, E.B. Furman once again became a father. However, the joy at the birth of his son, Edmund, was soon overshadowed by another tragedy. That same year, his son Vadim, born in 1906, died of tuberculosis. Two more children were born from Emmanuel Berngardovich's second marriage: a daughter, Emilia, in 1921, and another daughter, Gertruda, in 1928 [1, 2]. His wife, Emilia Edmundovna, had a daughter named Tatyana from a previous marriage.

Upon his return to Petrograd, E.B. Furman took charge of Children's Nursery No. 13 on Aleksandrovskaya Street and also worked as a physician at Maternity and Infant Welfare Center No. 15 [4–6], located at 6, 23rd Line, Vasilievsky Island. These centers typically consisted of a women's consultation clinic, an infant consultation clinic (for children under one year), a consultation clinic for children aged one to three, a social and legal department, a milk kitchen, and other units. Their functions included providing advisory services, conducting health education among mothers and pregnant women, offering social and legal support to single and unemployed mothers, performing preventive health monitoring of children, and addressing nutritional issues for children under three years of age [17].

In May 1921, Emmanuel Berngardovich was appointed head of the somatic department at the L. Pasteur Clinical Hospital (prior to 1918, the Elizavetinskaya Clinical Hospital), where he had already worked in the pre-revolutionary period [4, 5, 6, 14].

Starting in 1923, Emmanuel Berngardovich also resumed his work at the maternity hospital of Dr. K.I. Widemann [1] — the same Alexandrinsky Shelter. This maternity home for Lutheran women was situated at the corner of Bolshoy Prospect and 14th Line on Vasilievsky Island (now the Pirogov Clinic of High Medical Technologies at St. Petersburg State University). The K.I. Widemann Maternity Hospital (prior to 1918, the Alexandrinsky Shelter), outfitted with modern equipment, housed a pharmacy, residential quarters for staff, and an elevator with a lifting bed [11].

From 1922 onwards, E.B. Furman served as a senior assistant and later as a professor in the Department of Children's Diseases at the State Institute of Medical Knowledge, which was renamed in 1947 as the Leningrad Sanitary-Hygienic Medical Institute and is now The North-Western State Medical University named after I. I. Mechnikov. In 1923, Emmanuel Berngardovich was elected the third head of this department and led it until 1930 [4–6, 9, 14]. It is noteworthy that the Department of Children's Diseases was founded in 1914 by Professor E.E. Gartier, a student of Professor N.P. Gundobin. E.B. Furman had himself been a student of Gundobin during his studies at the Military Medical Academy and had defended his dissertation under his supervision [4–6, 9].

His tenure as head of the department was characterized by prolific research activity. According to scholars, Emmanuel Berngardovich authored more than forty scientific works; unfortunately, however, only a few of them have survived. One notable extant work is "The Study of Vitamins", a twenty-four-page publication issued in 1926 and 1927. E.B. Furman was an active participant in the meetings of the Leningrad Society of Pediatricians. Among the reports he presented were "On Vitamins" (November 11, 1921), "A Case of Miliary Tuberculosis" (November 30, 1921), "On Tuberculosis in Children Based on Data from the Pasteur Hospital" (February 12, 1922), "On the Significance of Colloidal Chemistry for Modern Medicine" (January 18, 1924), and "On Suboccipital Puncture" (March 1, 1926) [5, 6]. In 1927, E.B. Furman participated in the Fourth All-Union Congress of Pediatricians in Moscow [7, 8, 14].

On February 17, 1930, Emmanuel Berngardovich Furman was arrested alongside his eldest son from his first marriage, Boris, a student at the Academy of Arts. They were charged with belonging to the alleged counter-revolutionary

organization “The All-People’s Union for the Struggle for the Revival of Free Russia”, purportedly founded within the USSR Academy of Sciences with the goal of overthrowing the Soviet government and restoring the monarchy [4–8, 14]. The archive of the Directorate of the Federal Security Service (FSB) for St. Petersburg and Leningrad Oblast holds nineteen volumes of materials from the 1929–1931 “Academic Case” of the Joint State Political Directorate (OGPU). Currently, the Russian Academy of Sciences is publishing documents from this investigation, which implicated more than one hundred employees of the Academy of Sciences, the Russian Museum, the Central Archive, and various publishing houses. The majority of those implicated were scholars in the humanities, notably historians (including S.F. Platonov, E.V. Tarle, N.P. Likhachev, S.V. Rozhdestvensky, and others). The case also involved a group of clergymen, former Imperial Guards officers, and a so-called “German group” [18–20].

The official rulings on the extension of pre-trial detention for individuals suspected of belonging to the “All-People’s Union for the Struggle for the Revival of Free Russia” characterized Emmanuel Berngardovich Furman as follows: “...former nobleman and court councillor (nadvornyy sovetnik), former White emigrant and a serviceman in the German army after the Treaty of Brest-Litovsk, member of a parish council (dvadtsatka), non-party, married, with higher education, professor, no prior convictions, residing at 25, 6th Line, Vasilievsky Island, Apt. 3” [18].

The charges against E.B. Furman fell under the Russian Soviet Federative Socialist Republic (RSFSR) Criminal Code, Article 58, specifically paragraphs 2 (armed uprising), 3 (contact with a foreign state for counter-revolutionary purposes), 5 (inciting a foreign state to declare war or undertake armed intervention in the affairs of the USSR), 6 (espionage), 10 (anti-Soviet agitation and propaganda), and 11 (organizational counter-revolutionary activity) [18, 21]. Furthermore, there was a possibility that Professor E.B. Furman had been involved in consulting with Nicholas II and Alexandra Feodorovna regarding the illness of Tsarevich Alexei. This possibility stemmed from his status as an experienced clinician, his membership in the St. Petersburg Society of Pediatricians, and his work at prestigious pediatric institutions: the Alexandrinsky Maternity Shelter, the Elizavetinskaya Clinical Hospital for Young Children, and the Imperial Obstetrical Institute.

Citing his ethnic background and his involvement with the Lutheran-Evangelical Church of St. Catherine as a parishioner and parish council member, the court denounced E.B. Furman as a “permanent paid agent of the German secret service” and the “head of an independent intelligence network for reporting on the situation of Germans in the USSR” [4–8, 14]. The case was further prejudiced by the fact that his son, Boris, had been prosecuted in 1929 for belonging to a youth organization — an anti-Soviet student group [14].

In February 1931, father and son were sentenced to ten years of imprisonment to be served in a corrective labor camp. To serve his sentence, Professor E.B. Furman was assigned to the sanitary platoon of the Ninth Camp Unit, Vegeraksha, located in the northeastern part of the Pomor town of Kem in the Republic of Karelia [1, 2, 4–6]. The Vegeraksha concentration camp, covering an area of approximately a quarter of a square kilometer, was subordinate to the Administration of the Solovki Special Purpose Camps (SLON). Translated from Karelian, “Vegeraksha” means “witches’ swamp”. Literary sources, including the works of A.I. Solzhenitsyn, also refer to it as the “witches’ dwelling.” The setting was a swampy tract of land with a bleak landscape: a high barbed-wire fence reinforced with alarm systems, wooden watchtowers equipped with searchlights for the guards, long rows of log barracks, clinging mud underfoot, and narrow wooden walkways known as lineiki (“lines”). The central part of the camp housed the two-story barracks of a sewing factory. According to prisoners’ accounts, the factory’s high productivity was achieved through unlimited working hours, no days off, frequent beatings, and a high rate of attrition among the inmates. The prisoner population, which numbered around three thousand, was predominantly female. A portion of the prisoners worked at a furniture factory located outside the Vegeraksha camp unit, though it too was surrounded by barbed wire and watchtowers [22, 23]. The Vegeraksha camp unit was notorious for its exceptionally harsh living conditions, even compared to the Solovki camp [23].

Slightly more than a year later, E.B. Furman was transferred to the settlement of Medvezhya

Gora (from 1938, the town of Medvezhegorsk), the location of the OGPU administration for the Belbaltlag corrective labor camp. Belbaltlag had been established in 1931 to build and subsequently maintain the White Sea–Baltic Canal [4–6]. His son, Boris, also worked in this camp, assigned to its design bureau [1, 2]. In 1932, the population of Belbaltlag prisoners exceeded one hundred thousand [24]. Emmanuel Berngardovich practiced his medical profession in the camp but remained there only briefly; he and his son were both released in August 1934. Boris was allowed to return to Leningrad and resume his studies at the Academy of Arts, while Emmanuel Berngardovich was banned from residing in major cities [4–6]. He chose to stay in Medvezhya Gora, where he found employment as a civilian worker at the White Sea–Baltic Combine (Belomorsko-Baltiyskiy Kombinat, BBK)[1]. According to available records, during this period he worked as a doctor in one of the local hospitals, practicing both as a pediatrician and a pediatric surgeon, and also lectured on internal medicine at training courses for medical technicians [1, 2]. For his shock work, he was awarded the badge "To the Best Shock Worker of the White Sea–Baltic Canal OGPU" and received the "Shock Worker's Book of the Belbalt Combine" [2, 4–6].

In 1937, E.B. Furman relocated with his family to Izhevsk and was appointed to the faculty of the Izhevsk Medical Institute, which had been founded in 1933. Emmanuel Berngardovich (Fig. 4) became the inaugural head of the Department of Children's Diseases (present-day Department of Pediatrics and Neonatology at the Izhevsk State Medical Academy) and led it until 1941. Concurrently, for a period of two years, he also served as the acting head of the Department of Infectious Diseases, established that same year [1, 2]. Emmanuel Berngardovich entered the annals of the Izhevsk Medical Institute as

Рис. 4. Эммануил-Николай Бернгардович Фурман

Fig. 4. Emanuel-Nikolai Berngardovich Fuhrmann

one of its most distinguished lecturers, renowned for his exceptional pedagogical mastery. In his lectures, he made frequent reference to foreign authors. He particularly disapproved of a physician presenting a case by simply reading from the medical record, being profoundly convinced that a patient's history must be mentally "reasoned through", "suffered through", and deeply felt. These details are drawn from the memoirs of Professor A.I. Perevoshchikova, then an assistant in the pediatrics department, and Professor A.M. Zagrebin, a 1939 graduate of the Izhevsk State Medical Institute (ISMI) [2].

In 1938, ISMI formed a Bureau for Aiding the Rural Medical District of the Udmurt Autonomous Soviet Socialist Republic, whose membership included E.B. Furman among other professors. His list of achievements also encompasses his chairmanship of the Udmurt Society of Pediatricians [2].

Tragically, that same year witnessed the renewed arrest of Emmanuel Berngardovich's son, Boris, who by then had married and started a family of his own [1, 2]. His grandson, Ernest, was born shortly after the father's arrest. Charged under Article 58, paragraph 6 ("Espionage") of the RSFSR Criminal Code, B.E. Furman was sentenced to death. The sentence was

[1] It is noteworthy that the Combine was a vast self-financing enterprise comprising fourteen branches across the territory of Karelia, on the coast and islands of the White Sea, and on the Kola Peninsula. It oversaw several camp units as well as the White Sea–Baltic Canal (Belomorsko-Baltiyskiy Kanal, BBK), whose construction was completed in 1933. The BBK owned power stations, state farms, clothing and footwear factories, and plants for brickmaking, tar distilling, wood-tar production, canning, and smoking, among others [24].

carried out in Leningrad on July 9, 1938 [4–6]. Boris's wife, Vera, was soon also arrested and exiled to the city of Kalinin (renamed Tver in 1991). For a considerable time, she remained unaware of her husband's fate. Emmanuel Berngardovich and Emilia Edmundovna assumed the care and upbringing of their grandson [1, 2].

On June 28, 1941, Emmanuel Berngardovich was arrested for a second time. A search of his apartment revealed an extensive personal library, consisting of a multitude of books, many in foreign languages—including Japanese [2]. He had begun assembling this library at the very beginning of the twentieth century. He had command of German, French, English, Latin, Greek, Swedish, Spanish, and Norwegian, and possessed a basic speaking knowledge of Italian [1, 2, 14]. This linguistic proficiency enabled him to read European authors fluently in the original. E.B. Furman was a man of exceptional erudition. His intellectual curiosity extended far beyond medicine to encompass astronomy, geology, world history, and art history. During the search, two volumes of the Bible were confiscated and later destroyed. The case file also came to include the memoirs of the French writer François-René de Chateaubriand, Mémoires d'outre-tombe ("Memoirs from Beyond the Tomb"), first published in the mid-nineteenth century. The work comprises the author's recollections of his life set against the historical events unfolding in France and Europe from the late eighteenth to the first third of the nineteenth century. The investigation authorities construed the book as containing an appeal for counter-revolutionary propaganda. The interrogations, which were conducted at night, proved deeply exhausting and debilitating. His situation was further compounded by illness: Emmanuel Berngardovich was suffering from tuberculosis, most likely contracted during his earlier imprisonment in the labor camps. Nevertheless, despite his frail health and the severe nature of the charges, and while fully aware of the peril he faced, E.B. Furman maintained a steadfast demeanor during questioning. Confronted with demands to disclose his espionage activities against the USSR, he responded with conviction that he had never engaged in spying against the Soviet state and could offer no testimony on that subject [1, 2].

On October 1, 1941, Emmanuel Berngardovich Furman was sentenced to death under Article 58, paragraph 6 of the RSFSR Criminal Code. The sentence was carried out on January 7, 1942 [1, 2, 4–6, 9, 14]. All of the family's property, including their apartment, was confiscated. His wife, Emilia Edmundovna, sought her husband's rehabilitation but did not live to see it, passing away in 1955 [1, 2]. Professor E.B. Furman was posthumously rehabilitated on January 18, 1957, fifteen years after his death [2, 4–6, 14].

It is gratifying to note that the scientific and spiritual legacy of Emmanuel Berngardovich lives on in his descendants. His children worthily continued the medical dynasty. His wife Emilia Edmundovna's daughter from her first marriage, Tatyana (married name Ptitsyna), graduated from the First Leningrad Medical Institute and became a pediatrician. A survivor of the Siege of Leningrad, she was evacuated to the mainland with her seven-month-old son Alexey in February 1942 [25]. It was she who inherited her stepfather's library [16]. His son Edmund, after graduating from medical institute, worked as a therapist and radiologist at a district hospital in the town of Kinkur, Kirov Oblast. His daughter Emilia, who graduated with honors from the Izhevsk Medical Institute, worked as assigned at a children's osteoarticular tuberculosis sanatorium near Leningrad, and later at a tuberculosis hospital in Izhevsk. His daughter Gertruda graduated from the Choral Conducting programme of the Izhevsk Music College [1, 2]. One of E.B. Furman's grandsons, Nikolay, studied at the Izhevsk Medical Academy. Another grandson was Alexey Borisovich Ptitsyn (1941–2022), who spent his first months in besieged Leningrad. He graduated from Novosikirsk State University and defended his candidate and doctoral dissertations in geological and mineralogical sciences, later serving as Director of the Institute of Natural Resources, Ecology and Cryology of the Siberian Branch of the Russian Academy of Sciences (1998–2015) [25]. The family chronicle of the Furman lineage continues.

In 1997, the museum "The Germans in St. Petersburg and its Environs" [26] was opened in the building of one of the city's oldest schools, the Petrischule (St. Petersburg, Nevsky Prospect, 22–24). According to the museum's director, N.I. Ivanova, the first book to form the core of the museum's collection was a volume from the personal library of Professor of Medicine E.B. Furman, titled "Die Schoene Heimat

Fig. 5. The ex-libris of E.B. Furman library

Рис. 5. Экслибрис библиотеки Э.Б. Фурмана

Bilder aus Deutschland" ("An Album of Views of Germany"), published in 1916. Subsequently, the collection was enriched by volumes from other private collections donated to the museum. The book that laid the foundation for the museum's library and once belonged to Professor E.B. Furman was donated by his daughter, Tatyana Emmanuilovna Furman, who had inherited her father's library. Notably, she also became the custodian of the library of her husband, Boris Vladimirovich Ptitsyn (1903–1965) — an organic chemist, Doctor of Chemical Sciences, Professor, and Corresponding Member of the USSR Academy of Sciences [16, 26].

The catalogue of the first 100 books in the collection of the museum "The Germans in St. Petersburg and its Environs" lists two volumes from the library of Emmanuel Berngardovich. The second is a collection of poetry, Lenau N. Gedichte, published in 1896. Inside the front cover of both books is the bookplate "Buecherei. E. Fuhrmann" — a proprietary mark that identifies the book's owner, enhances its value, and renders it a collectible item. Subsequently, Tatyana Emmanuilovna donated a considerable number of books from the collections of her father and her husband to the museum [16].

A description of the museum's book collection is included in the first part of Volume 8 of the Handbuch deutscher historischer Buchbestände in Europa (Handbook of German Historical Book Collections in Europe), published in 2001 and dedicated to cataloguing German library holdings in Russia. A general description of the museum's collection appears on pages 259–260, while a specific mention of the books from E.B. Furman's collection, donated by his daughter T. Ptitsyna, is found on page 259 [27].

The museum of the Izhevsk State Medical Academy carefully preserves a book by the German biologist Karl Friedrich Hun (1852–1914) entitled Aus den Tiefen des Weltmeeres ("From the Depths of the Ocean"), published in 1900 [28]. For the museum, it holds high historical value not only because of its antiquity and rarity but, above all, because its former owner was Emmanuel Berngardovich Furman, as evidenced by the ex-libris of his library (Fig. 5). The book's content is non-medical. As noted earlier, Emmanuel Berngardovich, a man of broad erudition, had a great love of reading; his personal library contained many rare books of both scientific and artistic content, some of which remain family heirlooms to this day. K.F. Hun's "From the Depths of the Ocean", presented as a gift to the museum of the Izhevsk State Medical Academy by a grandson of E.B. Furman, is now among the museum's most rare exhibits.

This book is devoted to a detailed description of a German expedition under the command of Captain Albert Krech to the subantarctic waters of the Atlantic and Indian Oceans. The narrative opens with a description of the expedition vessel and an introduction of the full ship's crew. The voyage lasted nine months. During the expedition, the crew visited several islands, including one of the most remote islands in the world — Bouvet Island, which lies approximately 1,700 km from the nearest continental land, Antarctica. A map of the route through the Atlantic and Indian Oceans is provided at the end of the volume. The book is richly illustrated with landscapes and rare species of flora and fauna. In his capacity as a zoologist, Karl Hun paid special attention to marine life; the pages feature photographs and graphic illustrations of all species encountered, accompanied by detailed descriptions [28].

The Izhevsk State Medical Academy honors the memory of Emmanuel Berngardovich Furman, the first head of its Department of Children's Diseases, and carefully preserves the recollections of his students and followers. Materials related to E.B. Furman are exhibited both in the Academy's museum and within the Department of Pediatrics and Neonatology. The traditions and values he instilled, alongside the teaching principles and methodologies he advocated, continue to evolve and are reflected in the modern educational process. His scientific and pedagogical legacy remains alive and relevant to this day [29, 30].

In conclusion, it should be noted that the historical cataclysms that befell our country in the first half of the twentieth century claimed countless lives and shattered innumerable fates. "Epochs so replete with events and transformations are customarily considered interesting and significant, yet these same epochs prove calamitous for entire generations", wrote N. Berdyaev [31]. The pivotal milestones in a state's history act as a kind of millstone — ruthless and inexorable — grinding down whole generations and sparing no human person.

A study of E.B. Furman's biography inevitably leads to the realization that even the most detailed biographical narrative cannot fully convey the profound tragedy of his personal fate. Nevertheless, despite all life's adversities, misfortunes, and losses, E.B. Furman remained true to his calling until the very end. Having endured sanguinary wars and revolutions, upheavals of political order and civil strife, arrest and imprisonment in the camps, and having lost those dear to him in the crucible of historical events, he emerged unbroken. He continued to labor, to author scientific works, and to discharge his duty as a physician.

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Authors' contribution. All authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

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Центральный институт усовершенствования врачей во второй половине 1930-х годов

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РЕЗЮМЕ. В представленной статье рассмотрена деятельность Центрального института усовершенствования врачей (ЦИУ) в первые годы своего существования с позиции влияния внутренних (институциональных) и внешних (общеисторический контекст) преобразований второй половины 1930-х годов. Институт был основан в 1930 г. в связи с требованием времени на увеличение количества врачей высокой квалификации в условиях индустриализации и коллективизации и быстрого роста медицинских учреждений. Кроме того, расширение сети государственных институтов для усовершенствования врачей было продиктовано необходимостью дальнейших корректировок реформ здравоохранения и улучшения медицинского обслуживания растущего населения в Советском Союзе. Исследование основано на изучении печатных и архивных источников: использовались сведения из Российского государственного архива научно-технической документации (РГАНТД) и архива Российской медицинской академии непрерывного профессионального образования (РМАНПО), датируемые 1936–1941 гг. Значительная часть этих материалов впервые вводится в научный оборот. В исследуемый период (1936–1941) в ЦИУ произошли существенные изменения: в 1936 г. принят устав и появился факультет санитарной обороны (ФСО), в 1937 г. Институт перешел из Народного комиссариата здравоохранения (НКЗ) РСФСР в ведение НКЗ СССР, в течение короткого времени (1936–1938) сменилось пять директоров. Частая смена директоров и научно-педагогического персонала приводила к перебоям в работе ЦИУ. В 1938 г. на пост директора была назначена организатор отдела охраны материнства и младенчества в СССР В.П. Лебедева, при которой работа ЦИУ начинает меняться. С 1939 г. происходит дальнейшая унификация штатно-окладной системы с последующей установкой четких рабочих норм для профессоров, доцентов и ассистентов на кафедрах. Под влиянием ФСО происходило реформирование программ обучения. К 1939–1940 гг. в рамках военной подготовки врачей узкие хирургические специальности выступают на первый план. В 1941 г. (после начала войны) ЦИУ целиком переходит на ускоренную подготовку кадров.

КЛЮЧЕВЫЕ СЛОВА: история медицины, Центральный институт усовершенствования врачей, Лебедева В.П., штатно-окладная система, факультет санитарной обороны, последипломная подготовка

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The 1920s and 1930s in the USSR were a period of great achievements and tragic decisions. Radical transformations in political life, industrialization, collectivization, the centralization of economic management, and the associated shifts in the social structure of society inevitably affected the healthcare system, which was financed on a residual basis.

There was a noted increase in morbidity and mortality from hunger, infectious diseases, diseases of the digestive and respiratory systems (linked to mass migration and forced relocations), as well as oncological, nervous, and cardiovascular diseases. Approximately half of all deaths were attributed to six pathologies characteristic of that era: pulmonary tuberculosis, measles, dysentery, toxic dyspepsia and acute gastroenterocolitis in children under three, and pneumonias of various etiologies. In 1930–1931, the overall mortality rate in the USSR (27.0–28.0‰) was more than double the rates in the United States (11.1–11.3‰), England (11.4–12.5‰), and Germany (11.1–11.2‰), and it remained high ten years later. This decline in public health stemmed from a confluence of critical deficiencies within the healthcare system itself. Its medical and preventive institutions suffered from severe under-equipment and a lack of basic infrastructure, such as central heating and sewage systems. Furthermore, various types of free medical care remained inaccessible to the majority of citizens. Undoubtedly, the most decisive factor was the severe and nationwide shortage of qualified physicians.

In 1929–1930, People's Commissar M.F. Vladimirskii launched a series of healthcare reforms, subordinating them to the objectives of rapid industrial transformation. However, a flawed attempt to boost worker productivity through on-site medical interventions and reduced sick leave, without corresponding adequate funding for the healthcare system itself, led to a sharp decline in Soviet citizens' access to specialized medical care [1].

The period saw a significant increase in the number of medical students, rising from 26,000 in 1928 to 48,000 by early 1934. Furthermore, the number of medical faculties almost doubled; following the 1930 reform, they were reorganized into independent institutes, increasing from 25 to 49 between 1928 and 1937. Despite this expansion, the quality of physician training remained inadequate. This inadequacy prompted the reinstatement of a five-year curriculum with mandatory examinations in medical institutes in 1934 [1–3]. The standard of teaching in both fundamental sciences (such as normal and pathological anatomy, physiology, and biochemistry) and clinical disciplines failed to meet the requirements for training competent future specialists [3, 4]. Simultaneously, the tripling of the number of medical institutes since 1928 (reaching 72 by 1940) created an acute shortage of qualified faculty. Departments were increasingly staffed by recently promoted young assistants, many of whom lacked advanced academic degrees and sufficient pedagogical or clinical experience. This problem was compounded by the fact that most newly established institutes lacked proper facilities. They had no dedicated academic buildings, anatomical theaters, laboratories, research equipment, teaching aids, or scientific literature [1, 3, 5]. To compensate for the personnel shortage, the authorities enrolled industrial workers (whose quota among medical students was set by Party directives at up to 75% [6]), collective farmers (kolkhozniki), individual peasants (edinolichniki), and representatives of national minorities into preparatory workers' faculties (rabfaky) attached to medical institutes [7, 8]. The strategy of forced-output growth, borrowed from industrialization, was applied to medical education: from 1930, evening divisions were opened at medical institutes, admitting students from the aforementioned groups twice a year. As a result of the reforms under People's Commissars Vladimirskii and G.N. Kaminskii, the total number of physicians grew from 63,219 in 1928 to 122,796 by 1940 [6]. Yet, while thousands of these rapidly trained doctors were dispatched to work in insurance funds, industrial health posts, and sanitary services, hospitals and outpatient clinics faced a worsening staffing crisis. This resulted in extreme patient-to-doctor ratios — at times reaching 100 patients per physician — and significant delays in necessary hospitalizations.

Hospital construction and the quality of inpatient care also suffered significantly. Despite a steady increase in the number of hospitals (from approximately 5,700 to 13,700) and hospital beds (from 247,000 to 790,000) between 1928 and 1940 [1], this expansion failed to keep pace with the needs of the Soviet population. This shortfall was due to a multitude of factors, including population growth, poor hospital design, shortages of medicines, and unsanitary condi-

tions. The issue of sanitation pertained especially to the crèches (nurseries) established everywhere during this period. Their number grew from 62,000 to 854,000 over twelve years, and they were often situated in collective farmers' homes or placed near industrial enterprises [1, 9, 10]. The official policy to double the number of medical personnel — a goal framed by the political slogan of the "face to the countryside" (litsom k derevne) campaign in healthcare [10] — persisted despite meager state investment in education. This underfunding continued to negatively impact the quality of graduates.

Ultimately, the state's industrialization plan proved successful, achieving 93% collectivization of peasant farms, constructing large-scale enterprises, and developing new industries [1]. In stark contrast, the healthcare reforms of the same period failed to address one of the era's most critical needs: the mass training of highly qualified medical personnel.

The accelerated mass production of physicians, lacking a solid foundation in general medicine [3], resulted in an unprecedented increase in diagnostic and treatment errors. Numerous cases were documented in which underqualified doctors performed complex surgical interventions without adequate training, leading to severe patient harm, including fatalities. In outpatient clinics, clinical diagnoses were erroneous in 65% of cases. Furthermore, postmortem examinations in leading Moscow hospitals failed to confirm initial diagnoses in 14% to 42.8% of cases, depending on the disease. The overall sanitary condition of the country likely deteriorated, as morbidity rates by the end of the 1930s–1940s had risen by 56.3% compared to 1929, the year healthcare reforms began under M.F. Vladimirskii [1]. In a 1934 article addressing the reorganization of physician advanced training, E.I. Yeselevich underscored the fundamental inadequacy of the 1930s higher medical education system. He argued that it had failed to adapt to the demands of the large-scale state restructuring and was in urgent need of reform, stating: "A group of physicians, primarily recent graduates of medical institutes, who possess low qualifications in their chosen specialty. This group is a direct product [lit. flesh of the flesh] of that very medical education system which must be changed in the immediate future — a process already initiated by the People's Commissariat of Health. This group requires retraining" [11].

The expansion of the network of State Institutes for the Advanced Training of Physicians (Gosudarstvennye instituty dlya usovershenstvovaniya vrachey, GIDUV) was necessitated by the need for further correction of healthcare reforms and for improving medical care for the USSR's growing population, which rose from approximately 157 million in 1930 to 192 million by 1940. Graduates of medical institutes—serving as both urban and rural district physicians — were required to continuously upgrade their qualifications through various advanced training and specialization courses offered by the GIDUVs, making this a mandatory part of professional practice [2, 12]. By 1935, the country already had eleven such institutes: the Leningrad Institute (founded 1885; from 1924, the State Institute for the Advanced Training of Physicians in Leningrad), Kiev (1918), Kazan (1920), Kharkiv (1923), Odessa (1927), Novosibirsk (1927), Moscow (1930), Minsk (1931), Tashkent (1932), Tbilisi (1935), and Azerbaijan (Baku) (1935) [13–15]. In February 1931, the Moscow Institute was designated as the head institution within this system and was renamed the Central Institute for the Advanced Training of Physicians (Tsentral'nyy institut usovershenstvovaniya vrachey, TsIU) (now the Russian Medical Academy of Continuous Professional Education, RMACPE) [16]. However, this leadership role was not fully realized in the initial years. In a 1934 report, TsIU director D.V. Gorfin outlined a vision for the system. He argued that "the leading role should belong to the institutes for the advanced training of physicians," with the TsIU serving as "the primary educational, methodological, and organizational center for the entire periphery". This role involved organizing visiting professorships and 'medical weeks', supplying methodological materials, training teaching staff, and similar tasks [12]. At the same time, this state system for postgraduate medical education did not extend to the same degree to existing medical institutes, such as the 1st and 2nd Moscow Medical Institutes, the Leningrad Pediatric Medical Institute, and those in Saratov, Sverdlovsk, Rostov, Donetsk, Turkmenistan, among others. Dedicated faculties for physician advanced training at these traditional medical institutes began to be established only from the 1950s onward [12, 17, 18].

The TsIU underwent radical structural transformations from the outset. In the 1930–1931 period, it commenced operations with 23 depart-

ments. The teaching contingent consisted of approximately 80 individuals[1], and its first cohort of trainees graduated nearly 1,500 specialists. It was only after five years that the Institute established its first faculties [19].

A decree of the Presidium of the USSR Central Executive Committee (TsIK) on February 27, 1934, approved the model Charter for higher education in the USSR [20]. The Charter of the State Central Institute for the Advanced Training of Physicians (Tsentral'nyy institut usovershenstvovaniya vrachey, TsIU) was enacted on May 23, 1936. It stipulated an organization comprising 73 departments with their docentures, distributed across five faculties (Surgical, Therapeutic, Pediatric, Sanitary-Hygienic, and Civil Defense) as well as separate "groups of departments for theoretical disciplines" [21, 22]. By the 1940–1941 academic year, the number of active departments was 51, supported by a professorial and teaching staff of 414 people [19].

On July 20, 1936, a joint decree of the TsIK and the Sovnarkom of the USSR established the All-Union People's Commissariat of Public Health (NKZ USSR) [23]. Previously under the jurisdiction of the NKZ RSFSR, the TsIU was transferred to the control of the NKZ USSR in 1937[2]. This administrative shift prioritized a new mission: providing advanced training and specialization cycles for physicians from the national republics that lacked their own institutes for postgraduate medical education[3].

Within a brief span from 1936 to 1938, the Institute had five different directors. Information on Ya.L. Grossman is superficial. It is only known that before his tenure as TsIU director (March 8 to December 1, 1936), he concurrently served as deputy head of the Medical Education Administration and chaired the Department of Healthcare Organization at the TsIU in 1934. Subsequently, he fought in the Great Patriotic War, receiving the Order of the Patriotic War 1st Class and the Order of the Red Star. B.S. Ginsburg served as director until March 1937, when he was reassigned to the same position at the Kazan GIDUV. Details about S.Yu. Belen'kii (March 25 to June 14, 1937[4]) are also absent. It is documented that prior to 1936 he was deputy dean of the therapeutic faculty, and from 1938 he headed the TsIU's Department of Healthcare Organization (until 1939). Due to the political climate, M.S. Metallikov, deputy chief State Sanitary Inspector of the USSR Sovnarkom, held the post of TsIU director for no more than a month (June 14 to July 11, 1937). The Institute's youngest director (from October 1937), S.Ya. Shumarov, who at the time was a postgraduate student in the Department of Venereology[5], was transferred in March 1938 to the apparatus of the NKZ USSR [19, 24].

The final pivotal appointment came on March 11, 1938, when V.P. Lebedeva, a key organizer in the field of maternal and infant care, was named director of the TsIU — a post she would lead for more than two decades [25]. V.P. Lebedeva (née Livadonova) was born in Nizhny Novgorod in 1881, the daughter of a cook. She joined the Russian Social Democratic Labour Party (RSDLP) in 1907, becoming a Bolshevik. In 1910, she graduated from the Women's Medical Institute in St. Petersburg. She moved to Geneva to join her husband in 1912, working there until 1917 in an obstetrics and gynecology clinic. In 1918, tasked by the NKZ RSFSR, Lebedeva was appointed head of the Department for the Protection of Motherhood and Infancy, where she remained for eleven years. On her initiative together with G.N. Speransky, the State Scientific Institute for the Protection of Motherhood and Infancy (Gosudarstvennyi nauchnyi institut okhrany materinstva i mladenchestva, GNIOM&M) was founded in 1922. This institute, now the Federal State Autonomous Institution "National Medical Research Center for Children's Health" of the Ministry of Health of the Russian Federation, housed the Department of Social Hygiene of Mother and Child, which she herself chaired starting in 1925 (the department was transferred to the TsIU in 1931). An experienced Party functionary and a natural administrator, Lebedeva began her directorship by immediately tackling the institute's systemic flaws. Her successful overhaul of its entire operation paved the way for the recruitment of the nation's leading medical scientists to its departments, ultimately elevating the TsIU to a position of preeminence within the Soviet Union [19, 26].

[1] Russian State Archive of Scientific and Technical Documentation (RGANTD). F. 71. Op. 1–6. D. 1. L. 62–64v.

[2] Archive of the Russian Medical Academy of Continuous Professional Education (RMACPE). Historical Note on the Fond of the Central Order of Lenin Institute for the Advanced Training of Physicians of the USSR Ministry of Health. 1975.

[3] RGANTD. F. 71. Op. 1–6. D. 22. L. 50, 62.

[4] Ibid. L. 82, 101.

[5] Archive of RMACPE. F. R-9566. Op. 2. D. 21. L. 28–29.

In February 1938, the Sovnarkom of the USSR issued a decree implementing a formal staff-and-salary schedule at the TsIU. Henceforth, salaries were differentiated based on academic degree, departmental staffing levels, and other criteria. The teaching load nearly doubled, allocated as follows: professors, approximately 400 hours; associate professors, about 650 hours; and assistants, 700–800 hours per annum. A professor could receive a monthly salary of 1,500 rubles with a minimum of ten years of pedagogical experience and was permitted to hold a concurrent position at another institution, provided it did not interfere with primary duties. Staffing levels were to be calculated according to the production plan of the NKZ, as no uniform template existed yet[1]. A year later, the system underwent further standardization. Heads of clinical departments and professors receiving a clinical rate were required to work at least 3.5 hours daily, which included maintaining "absolute presence" within the department. Assistants and associate professors had 6- and 7-hour days, respectively, and were also required to perform clinical duty three times per month. Departure after a night shift was prohibited before 12:00 noon[2].

Beginning in 1939, the Institute's administration prioritized the reinforcement of labor discipline. Key measures included ensuring the punctual attendance and registration of departmental staff and trainees during instructional hours, preventing premature departure from work, and enforcing proper documentation procedures, among others. All infractions — such as tardiness, absences, or trainees and clinical residents leaving lectures or departments early—were reported to the deans' offices. A trainee arriving more than 15 minutes late to a lecture was recorded as an absence, an offense that could lead to expulsion from the training cycle. Assistants and residents faced reprimands of varying severity[3].

In 1936, to provide physician-trainees with foundational training in military medicine, the Faculty of Civil Defense (Fakul'tet sanitarnoi oborony, FSO) was established at the TsIU. This move implemented a decree of the USSR Sovnarkom "On the Training of Physicians and Students of Medical Institutes and Secondary Medical Schools in the Field of Military-Medical and Anti-Aircraft Chemical Defense". The immediate impetus for creating the FSO was a statement by I.V. Stalin warning of a growing center of military threat in the Far East [27]. Its first dean was most likely M.I. Baranov[4]. Addressing the TsIU Council on February 2, 1937, Baranov presented a report titled "Report on the Work of the Faculty of Civil Defense in 1936 and Its Objectives for 1937"[5]. In it, he sharply criticized the Institute's grossly inadequate level of military-medical preparedness, noting that "even highly qualified specialist surgeons... lacking sufficient familiarity with the combat situation, often become disoriented under specific conditions"[6]. He defined the faculty's paramount objective as ensuring that "every physician, regardless of specialty... must acquire a defined minimum of military-medical knowledge during peacetime"[7]. Over the years, the FSO curriculum encompassed several core disciplines taught by dedicated departments: organization and tactics of the medical service, military field surgery, military epidemiology, chemical defense, maxillofacial surgery, and blood transfusion[8]. The FSO's structure also encompassed the Department of Pathology, Clinical Practice, and Therapy of Toxic Agent Injuries, alongside the Department of Organization and Tactics of the Military Medical Service[9]. The duration of the training program varied by specialty, consisting of either one or two cycles spanning 15 to 20 working days[10]. M.I. Baranov highlighted a critical shortage of surgeons in light of impending hostilities, stating: "...It must be acknowledged that we lack surgeons even in peacetime. Their total number in the USSR is estimated at around 9,000, and not all of these are qualified surgeons. For instance, Burdenko provides the following estimate: he believes there are 200 highly qualified surgeons, approximately 2,000 competent independent surgeons, and as for the remaining 7,000, they represent a mixed pool of personnel..."[11]. During a session of the TsIU's governing "triangle" (the institute's administration, the Party committee, and the local trade union committee) in early March 1937,

1 RGANTD. F. 71. Op. 1–6. D. 37. L. 364–366.
2 Archive of RMACPE. F. 71. Op. 1. D. 11. L. 51, 73–74.
3 Ibid. L. 15–16, 32–33, 40–41, 50, 179.
4 Ibid. F. 71. Op. 1. D. 1. L. 149–150.
5 RGANTD. F. 71. Op. 1–6. D. 22. L. 1.
6 Ibid. L. 1v.–2.
7 Ibid. L. 3.
8 Ibid. L. 3–4v.
9 Ibid. D. 39. L. 21, 26.
10 Ibid. D. 22. L. 4v.
11 Ibid. L. 12.

a proposal was advanced for all staff to achieve "defense proficiency" by completing FSO courses[1]. Consequently, all programs and curricula for the 1939 training cycles were overhauled to prioritize defense objectives, with input from the FSO's departmental chairs[2] . Surgical specialties deemed most critical for national defense included maxillofacial surgery, surgical dentistry, traumatology and orthopedics, urology, thoracic ("pulmonary") surgery, general surgery (including oncological surgery), and neurosurgery[3]. However, V.V. Gorinevskaya and V.R. Braitsev pointed out a significant flaw: a 3.5-month surgical specialization for physician-trainees from diverse backgrounds (therapists, polyclinic and outpatient doctors) was profoundly inadequate for their retraining, especially given the additional month devoted to defense-related topics[4]. In response to these mounting concerns, an FSO conference in April 1941 resolved to integrate instruction in traumatology with the fundamentals of military field surgery across all surgical departments[5].

Within a comparatively brief timeframe, the TsIU achieved marked success in training physicians, outpacing other GIDUVs. On its core three- to five-month advanced training and specialization courses running from 1936 to 1941, the Institute's faculty trained 17,179 physicians[6]. This output significantly exceeded the results of the Kazan Institute (approximately 10,000) and the Leningrad Institute (approximately 8,000) for the same period [28, 29].

The TsIU remained operational until October 15, 1941. In that truncated academic year, it graduated 7,509 doctors, including 2,059 surgeons. This record-breaking overfulfillment of the plan — by more than 200% — was a direct consequence of the shift to short-term, defense-focused courses following the German invasion. In under four months alone, close to 6,000 physicians completed these accelerated wartime programs[7].

The TsIU's activities in the latter half of the 1930s took place against a backdrop of frequent personnel changes across the healthcare administration. By 1936, its structure had solidified into what became its standard form, with departments organized into distinct faculties. A key development that year was the ratification of the TsIU's charter by the NKZ RSFSR, which codified its statutes based on the model charter for Soviet higher education. The State Moscow Institute for the Advanced Training and Specialization of Physicians and Healthcare Administrators (Gosudarstvennyi institut usovershenstvovaniya i spetsializatsii vrachei i organizatorov zdravookhraneniya, GIUSVOZ) had received the "Central" designation as early as 1931. However, its substantive role as the educational and methodological guide for the peripheral USSR republics only crystallized around 1936–1937. The year 1938 marked a definitive turning point with the appointment of a new director, V.P. Lebedeva. Under her leadership, the Institute's core mission of physician training, its pedagogical methods, and its internal discipline all underwent profound changes. This article has placed particular emphasis on detailing the work of the Faculty of Civil Defense (FSO), reflecting the period's urgent need for military-medical preparedness in a deteriorating international climate. Due to the inherent limitations of the source material, a complete reconstruction of all the Institute's reforms and events is not feasible; the available archival records are fragmented and often inconsistent.

In summary, the establishment of a nationwide network of physician advanced training institutes alongside the existing medical schools was necessitated by the healthcare system's escalating demand for postgraduate qualification upgrades during the 1930s. During its formative years, the TsIU's structure was in a state of constant flux, solidifying into its final, stable form only in 1936. The ratification of the TsIU's charter by the NKZ RSFSR that year, coupled with its subsequent transfer to the jurisdiction of the NKZ USSR, definitively secured its status as the leading institution within this system. The year 1938 marked the beginning of a fundamental reorganization under the new director, V.P. Lebedeva. The period from 1938 to 1939 saw the implementation of stricter disciplinary policies and a standardized staff-and-salary schedule, which brought a new level of order and efficiency to the Institute's operations. Within this framework, the FSO played a pivotal role in training diverse categories of physicians. A particular strategic focus was placed on surgical specialties — including general surgery, traumatology, and neurosurgery — in direct

[1] Ibid. L. 38, 43v.
[2] RGANTD. F. 71. Op. 1–6. D. 45. L. 2v.
[3] Ibid. D. 49. L. 120–122v., 124v., 126, 128–131, 134.
[4] Ibid. L. 126–127, 134.
[5] Ibid. D. 85. L. 13–14.
[6] Ibid. D. 31. L. 34; D. 32. L. 1; D. 59. L. 32; D. 75. L. 20; D. 77. L. 1v.–2.
[7] Ibid. D. 77. L. 1; D. 102. L. 1, 8–9.

anticipation of the massive influx of casualties expected from the looming war. Consequently, equipping physicians from various backgrounds and practice settings (outpatient clinics, therapists, surgeons) with essential surgical skills, followed by systematic retraining, constituted a core and enduring mission of this faculty and its associated departments.

ADDITIONAL INFORMATION

Authors' contribution. All authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

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Architecture of Saint Petersburg hospitals: from petrovsky baroque on to hi-tech. Part VIII. Stalin's empire style

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ABSTRACT. The article continues the research project on the hospital architecture of St. Petersburg from a historical perspective: from Baroque to Hi-Tech. The eighth part of the series focuses on Stalin's Empire style, an architectural movement that combined the monumental and grandeur of classical architecture with innovative architectural forms of the 1930s and 1950s. Drawing on the classical order system, Soviet architects created structures that exuded grandeur, pomp, and grandiose scale. At the same time, hospital architecture, while developing within the ranks of this stylistic direction, has its own characteristics and is characterized by moderation, rationality, and a more restrained and organic solution for the facades of medical buildings. The architects who designed the medical facilities were given a task to transit from individual to a standardized design; from a low-rise pavilion-based construction system to a multistory centralized system that was compact and more efficient in terms of the land use. The advantages of these designs included reduced construction and operating costs for the hospital, improved internal hospital communication, more efficient use of equipment, and more clear patient and staff routing, which contributed to a more comfortable environmental conditions for patients. The volumetric, spatial, compositional, and architectural-artistic features of Stalinist Empire hospital buildings are examined using the following examples: the Kuznetsovsky Maternity Hospital, the Children's Hospital-Polyclinic in Kronstadt, the City Oncology Dispensary, the Medical Unit No. 1 of the Kalinin Factory, the Medical Unit No. 19 of the Metal Factory, the Hospital No. 2 of the Moscow District, the Children's Polyclinic No. 12, the First Naval Clinical Hospital, and others. The medical facilities built in the Stalinist Empire style were functional and ergonomic, which had a positive impact on the efficiency of healthcare in the second half of the 1930s and the mid-1950s. The monumental appearance of these buildings has made them an important part of St. Petersburg's historical and cultural heritage.

KEYWORDS: Saint Petersburg, hospital architecture; Stalin Empire style, the Kuznetsovsky Maternity Hospital, the Children's Hospital-Polyclinic in Kronstadt, the City Oncology Dispensary, the Medical Unit No. 1 of the Kalinin Factory, the Medical Unit No. 19 of the Metal Factory, the Hospital No. 2 of the Moscow District, the Children's Polyclinic No. 12, the First Naval Clinical Hospital

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Архитектура больниц Санкт-Петербурга: от петровского барокко к хай-теку. Часть VIII. Сталинский ампир

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РЕЗЮМЕ. Статья продолжает исследовательский проект о больничной архитектуре Санкт-Петербурга в историческом ракурсе: от барокко к хай-теку. Восьмая часть цикла посвящена сталинскому ампиру — архитектурному стилю, совместившему в себе монументальность и представительность классической архитектуры с новыми для 1930–1950-х гг. архитектурно-строительными формами. Опираясь на ордерную систему, советские зодчие создавали сооружения, отличающиеся величественностью, помпезностью, грандиозным масштабом. В то же время больничная архитектура, развиваясь в рамках этого стилистического направления, имеет свои особенности и характеризуется сдержанностью, рациональностью, более скромным и органичным для лечебных зданий решением фасадов. Перед архитекторами, разрабатывающими проекты медицинских учреждений, ставилась задача перехода от индивидуального проектирования к типовому, стандартизированному; от малоэтажной павильонной системы строительства к многоэтажной централизованной системе, отличающейся компактностью и более рациональной застройкой территории. Преимущества этих проектов: сокращение стоимости строительства и эксплуатации больницы, упорядочивание внутрибольничных связей, более рациональное использование оборудования, а также более четкая маршрутизация пациентов и персонала, способствующих созданию более комфортных условий для больных. Объемно-пространственные, композиционные и архитектурно-художественные особенности больничных зданий сталинского ампира рассмотрены на примерах следующих строений: Кузнецовский родильный дом, детская больница-поликлиника в Кронштадте, городской онкологический диспансер, медсанчасть № 1 завода им. М.И. Калинина, медсанчасть № 19 Металлического завода, больница № 2 Московского района, детская поликлиника № 12, Первый Военно-морской клинический госпиталь и др. Медицинские учреждения, построенные в стиле сталинского ампира, оказались функциональными и эргономичными, что положительно сказалось на эффективности здравоохранения второй половины 1930-х — середины 1950-х гг. Монументальный облик этих строений сделал их важной частью историко-культурного наследия Санкт-Петербурга.

КЛЮЧЕВЫЕ СЛОВА: Санкт-Петербург, больничная архитектура; сталинский ампир, Кузнецовский родильный дом, детская больница-поликлиника в Кронштадте, городской онкологический диспансер, Медсанчасть № 1 завода им. М.И. Калинина, Медсанчасть № 19 Металлического завода, больница № 2 Московского района, детская поликлиника № 12, Первый Военно-морской клинический госпиталь

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In the early 1930s, Soviet architecture underwent a fundamental revision of its aesthetic values and spatial-architectural concepts[1]. The bold experiments of Constructivism and other avant-garde movements gave way to a strict Soviet Neoclassicism, known as the Stalinist Empire style (also referred to as Stalin's Empire style)[2]. The formation of this new style is widely dated from April 23, 1932, when the Politburo of the Central Committee of the All-Union Communist Party (Bolsheviks) issued the resolution "On the Restructuring of Literary and Artistic Organizations". This decree mandated the dissolution of all independent artistic associations and their consolidation into unified, state-managed creative unions [9]. Following this policy, the Union of Soviet Architects (SSA) was established on July 4, 1932. Concurrently, all other existing architectural associations in the USSR — including the Association of Architect-Urbanists (ARU), the Leningrad Society of Architects (LOA), the Society of Contemporary Architects (OSA), the Association of New Architects (ASNOVA), and the All-Russian (All-Union) Society of Proletarian Architects (VOPRA) — were liquidated. The institutional transformation culminated on January 1, 1934, with the formation of the All-Union Academy of Architecture [10]. From that point forward, architecture was fully integrated into the ideological apparatus of the state, and Soviet architects were charged with embodying "the grandeur and beauty of the socialist era" [11].

The theoretical and practical pursuits of the architectural avant-garde came under sharp criticism for their "formalism," lack of monumentality, and ceremonial representativeness. The directive to master the classical heritage was formally issued on February 28, 1932, in a resolution by the Council for the Construction of the Palace of Soviets under the Presidium of the Central Executive Committee of the USSR, which awarded prizes to projects submitted to an open competition. It stated: "Without predetermining a specific style, the Construction Council believes that the search should be directed toward the use of both new and the best techniques of classical architecture, while simultaneously relying on the achievements of modern architectural and construction technology" [12]. By the mid-1930s, the principal trend in the formation of the Stalinist Empire style as the leading architectural movement had clearly emerged; it was oriented toward classical forms and imparting a monumental, heroic appearance to architecture [13–19]. Hospital architecture developed within the boundaries of this stylistic direction but possessed its own distinct features: simplicity, restraint, and a more modest and organic treatment of the facades of medical buildings.

During the years of the pre-war Five-Year Plans, the acute demand for medical institutions necessitated a shift towards reducing costs and shortening construction timelines for hospitals, polyclinics, outpatient clinics, etc., thereby laying the groundwork for standardized design. As early as 1929, the Council of People's Commissars of the RSFSR (Sovnarkom RSFSR, from the Russian Sovet Narodnykh Komissarov), the government of the Russian Soviet republic, had published the "Provisional Regulations for the Construction of Therapeutic, Preventive, and Sanitary Institutions" [20], which contained the first directives for the design of Soviet hospitals[3].

The principles of design and construction for medical facilities were actively debated in the pages of the journal "Architecture of the USSR"[4]. The discussion involved prominent medical authorities, including Professors M.I. Averbakh, N.N. Burdenko, B.S. Veisbrod, and others. Having analyzed the experience of clinic construction in the United States and Western European countries during the 1920s and 1930s, these experts advocated for a shift from a low-rise pavilion-based hospital system to a multistory centralized or mixed (semi-centralized) system [21–28]. They argued that the centralized system offered several key advantages:

a) it optimized the routing of patients and staff and simplified the delivery of various supplies, such as food, linen, and medicines;

[1] This article continues a series of publications on the architecture of Saint Petersburg hospitals published in previous issues of the journal Medicine and Health Care Organization [1–7].

[2] There is no consensus in Russian art history regarding the name of the Soviet architectural style that developed from the 1930s to the mid-1950s. Suggested terms include "Soviet classicism", "Stalinist classicism", "Stalinist monumentalism", "Soviet neoclassicism", "Stalinist eclecticism", "Stalinist Empire style", "Stalinist neo-Renaissance", "Soviet monumental historicism", and, to characterize the architecture of the postwar decade, the "'Triumph' style" [8].

[3] In 1931, 1935, 1937, and 1939, new regulations (normative documents) for the design and construction of treatment-and-prophylactic institutions were developed and approved. This frequent revision of standards was necessitated by the need to account for the rapid advancements in medicine and medical technology.

[4] "Architecture of the USSR" was an illustrated monthly journal published in the USSR from 1933 to 1992. It served as the official publication of the Union of Architects of the USSR and the State Committee for Civil Construction and Architecture (Gosgrazhdanstroi). The journal covered issues of urban planning, residential, industrial, and rural architecture, standardized design, as well as the history and theory of architecture and construction.

b) it enabled more efficient utilization of expensive equipment (e.g., X-ray and radium units, physiotherapy apparatus, central laboratories);
c) it addressed the challenge of rational building operation and patient care with a reduced number of medical, administrative, and auxiliary personnel;
d) it reduced the total linear footage of foundations, roofs, pipelines, and other infrastructure;
e) it required a smaller land plot, thereby creating the technical possibility of constructing multistory hospitals in major cities without the need for extensive clearance of existing structures from the construction site.

However, alongside its advantages, the centralized system also possesses a number of shortcomings. The principal drawback was identified as the "necessity to erect the entire building at once, precluding its phased commissioning" [21]. Additionally, a single-block design often offered limited potential for the hospital's future expansion.

A number of architects deemed the semi-centralized system the most suitable and practical for the USSR. This model was characterized by the fact that "all hospital departments are concentrated in a few large blocks interconnected by enclosed, heated corridors. This enables staged construction and subsequent expansion of the medical institution, while fully retaining the benefits of centralized ancillary services — such as X-ray, central laboratory, kitchen, etc. — shared by all or several blocks" [21].

The journal "Architecture of the USSR" explored questions regarding the limits of standardization and typification in medical facilities, as well as their individual components, and the specific design requirements for infectious disease and pediatric clinics. It emphasized that a Soviet hospital must be "both economical and well-appointed, yet at the same time functional and aesthetically pleasing" [21].

During the 1930s, the planning and design of medical buildings were carried out by specialized state design and planning institutes. These included Giprogor (the State Institute for the Design of Cities), Lenproekt (the Leningrad Design Institute), Gorstroiproekt (for municipal construction), Medsanproekt (specializing in medical and sanitary facilities), Gorzdravproekt (for municipal health care buildings), as well as the architectural-design workshops of the People's Commissariat of Health of the RSFSR (Narkomzdrav RSFSR). Their projects served as the basis for a nationwide campaign of mass construction of hospitals, polyclinics, maternity homes, medical institutes, and other healthcare facilities [29–37].

On June 27, 1936, the Central Executive Committee of the USSR (TsIK, from the Russian Tsentral'nyy Ispolnitel'nyy Komitet) and the Sovnarkom of the USSR adopted the decree: "On the Prohibition of Abortions, Increasing Material Assistance to Women in Childbirth, Establishing State Aid for Large Families, Expanding the Network of Maternity Homes, Nursery Schools, and Kindergartens, Strengthening Criminal Penalties for Non-Payment of Alimony, and on Certain Changes to Divorce Legislation." The section titled "On the Expansion of the Network of Maternity Homes" stipulated: "For the purpose of ensuring complete coverage of women in childbirth in cities, industrial centers, and district centers with specialized maternity care, construct and put into operation by January 1, 1939, an additional 11,000 maternity beds... For the purpose of increasing inpatient maternity care for women in childbirth in rural areas, construct and put into operation 32,000 maternity beds" [38].

On June 11, 1938, the Sovnarkom of the USSR (the Union-wide government) issued the decree "On Standardized Construction Designs for Nursery Schools and Maternity Homes", mandating the "approval of standard designs... ensuring significant simplification and reduction in construction costs" [39].

To implement these all-Union directives, a maternity hospital was constructed in Leningrad in 1938 based on Standard Design No. 2801. The design was developed by the 1st Architectural-Design Workshop of the Capital Construction Directorate (UKS, from the Russian Upravleniye Kapital'nogo Stroitel'stva) of the Narkomzdrav RSFSR[1] under architect V.N. Naumychev, and the building is located at 25 Kuznetsovskaya Street (Figs. 1–3) [40]. This two-story maternity hospital with a basement level features a floor plan closely resembling the Cyrillic letter "Ш". Its facade decoration incorporates classical elements: a rusticated[2] ground floor, a central projection (risalit)[3] and side wings accentuated by pilasters[4], and a simple, stepped cornice beneath the pitched roof. The architectural expression of the maternity hospital is deliberately restrained, as the primary focus during its design and construction was not on external aesthetics, but on adherence to sanitary and epidemiological regulations and overall cost efficiency.

[1] The Capital Construction Directorate (UKS, from the Russian Upravleniye Kapital'nogo Stroitel'stva) of the People's Commissariat of Health of the RSFSR.

[2] Rustication (rustovka) is a decorative treatment of a wall surface that resembles masonry made of large stones or consists of a series of horizontal bands of equal width, projecting in relief against the background.

[3] A risalit is a part of a building that projects beyond the main line of the facade across its entire height.

[4] A pilaster is a flat, vertical rectangular projection from a wall surface. It resembles a column in form and serves a decorative function.

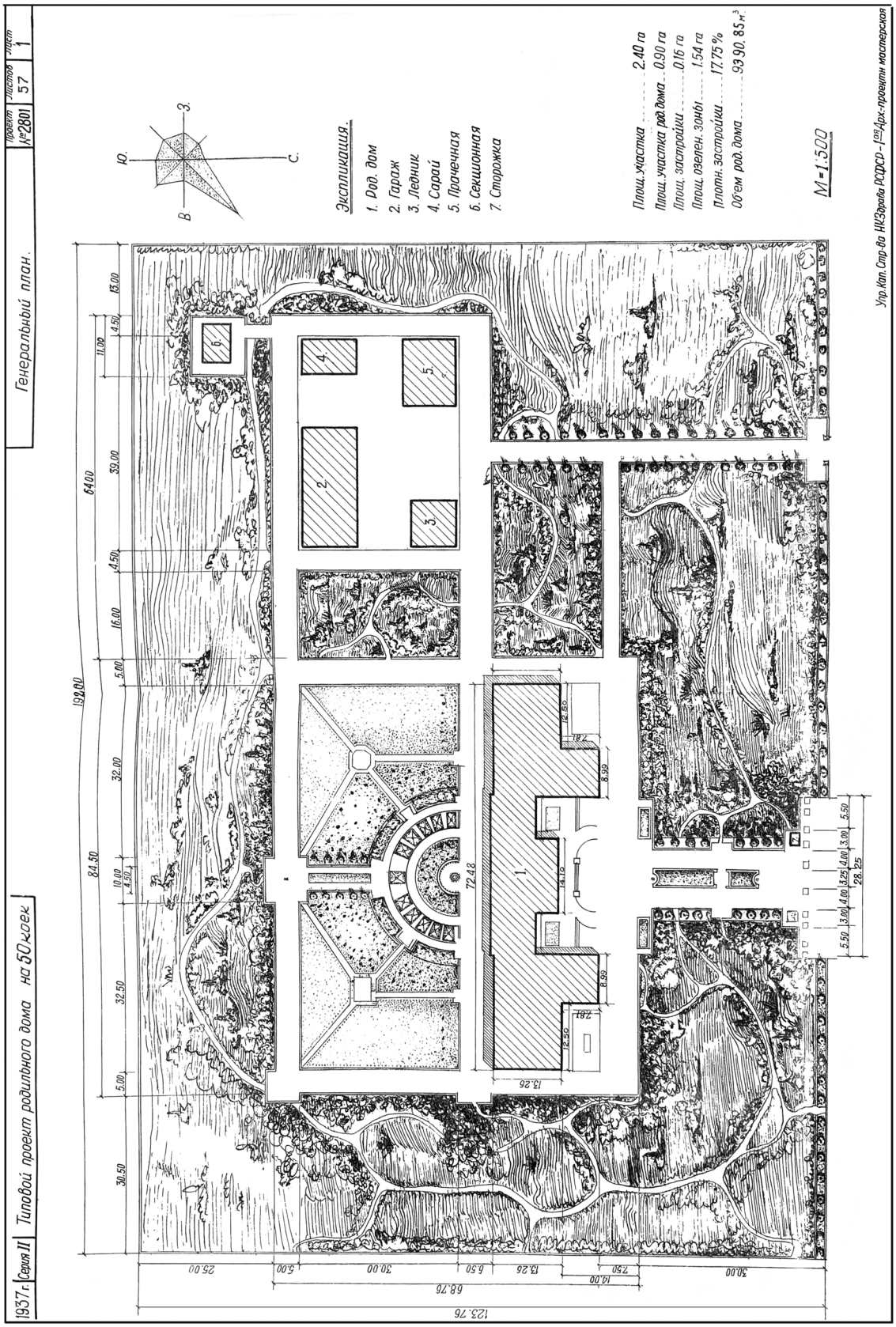

Fig. 1. Typical design of a maternity hospital for 50 beds (No. 2801). Master plan [40]

Рис. 1. Типовой проект родильного дома на 50 коек (№ 2801). Генеральный план [40]

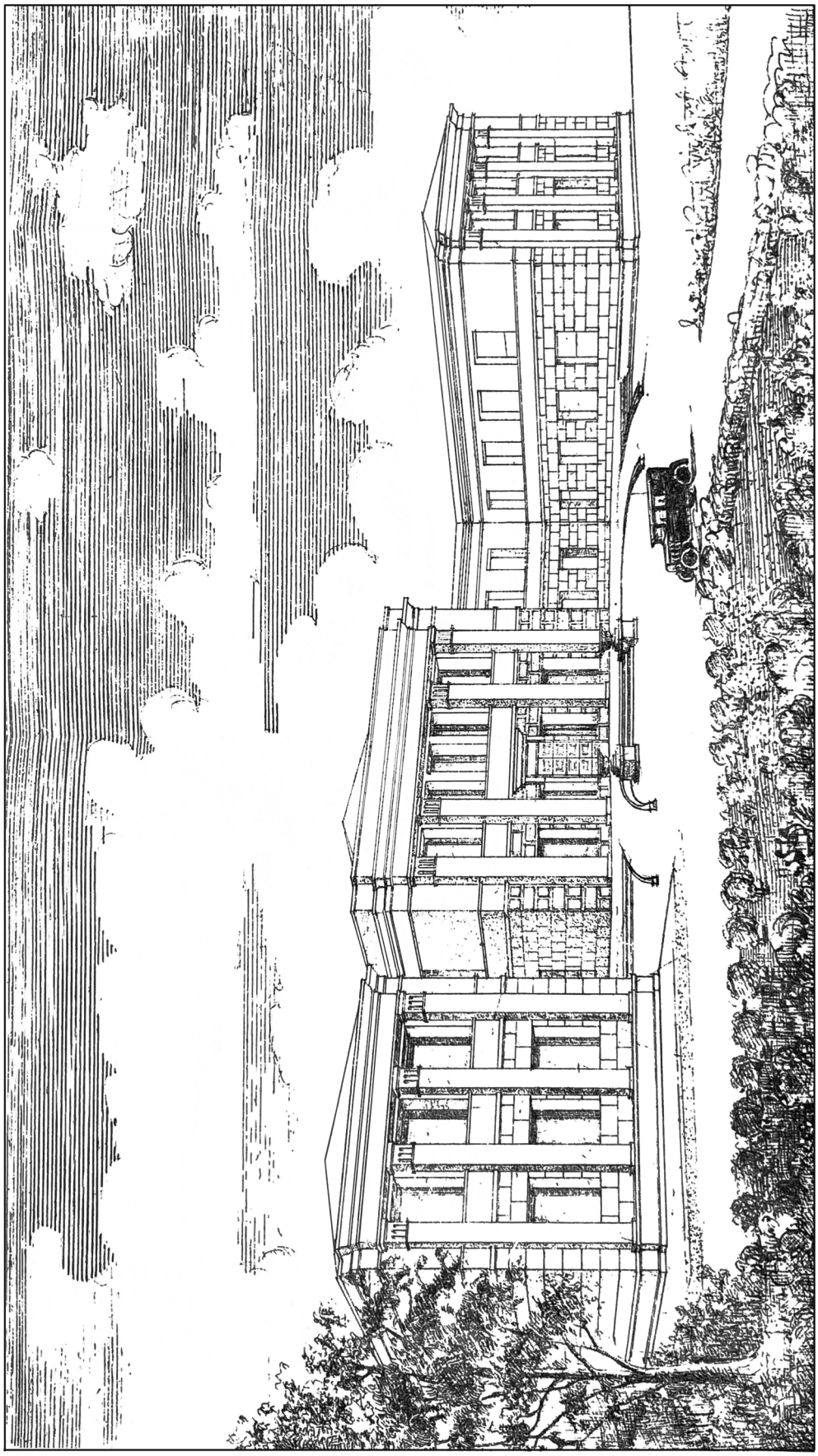

Fig. 2. Typical project of a maternity hospital with 50 beds (No. 2801). [40]

Рис. 2. Типовой проект родильного дома на 50 коек (№ 2801). Рисунок [40]

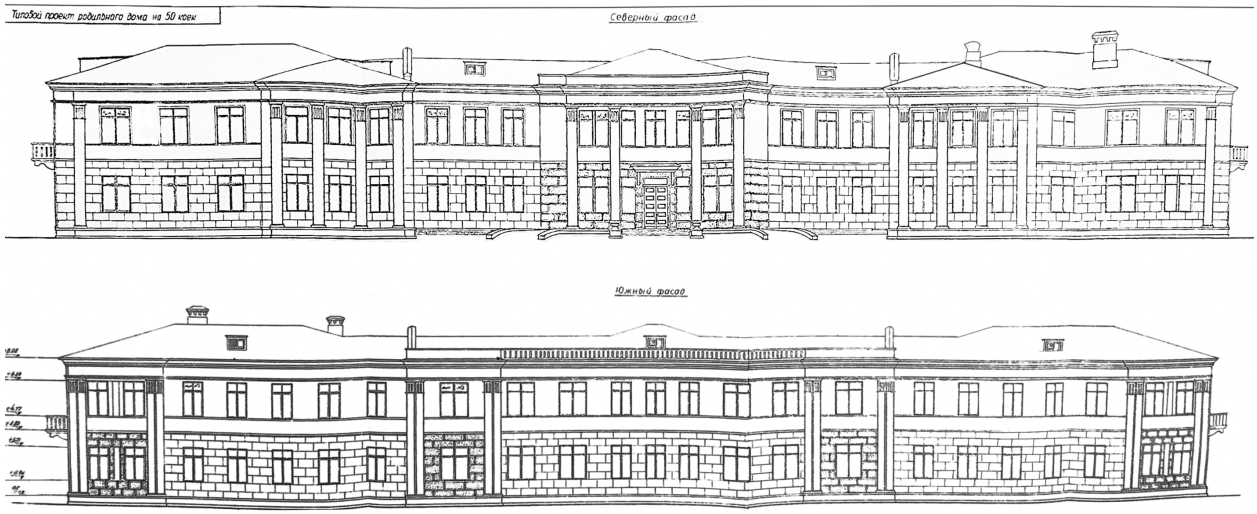

Fig. 3. Typical project of a maternity hospital for 50 beds (No. 2801). North and South facades [40]

Рис. 3. Типовой проект родильного дома на 50 коек (№ 2801). Северный и Южный фасад [40]

Fig. 4. The “Cardiology Clinic” building (former maternity hospital No. 9). Photo: L.N. Lisenkova

Рис. 4. Здание «Кардиоклиники» (бывший родильный дом № 9). Фото: Л.Н. Лисенкова

This maternity hospital was designed to accommodate fifty women in childbirth simultaneously and comprised the following departments: an admission and discharge unit, a delivery department with an operating suite, an observation ward for eight beds with a septic isolation room, a postpartum ward for 41 beds (including beds for pregnancy pathology), an administrative section, a kitchen with ancillary rooms, and a sanitization checkpoint. The floor plan followed a corridor-type layout. The basement was equipped with a boiler room and pump, a laundry, a machine room for the medical elevator, and a cloakroom[1].

[1] Standard Design No. 2801 did not see widespread adoption. At the IV Plenum of the Board of the Union of Soviet Architects of the USSR (December 25, 1938 — January 3, 1939, Moscow), dedicated to the construction of social facilities, V.N. Naumychev’s project came under sharp criticism and was recommended for fundamental revision.

Fig. 5. Saint Petersburg State Pediatric Medical University. Anatomical Building [41]

Рис. 5. Санкт-Петербургский государственный педиатрический медицинский университет. Анатомический корпус [41]

In 1940, the Kuznetsovsky Maternity Hospital was one of 19 obstetric care institutions in Leningrad. During the Great Patriotic War, the maternity hospital building served as a military hospital. In 1947, the maternity hospital resumed operations and was renamed “Maternity Hospital No. 9”. In 1983, it was relocated to a new, modern building at 47 Ordzhonikidze Street. The former maternity hospital building at 25 Kuznetsovskaya Street was transferred to the administration of Moscow Victory Park and now houses the “Cardiology Clinic” (Fig. 4).

The significant expansion of the network of therapeutic and preventive institutions in the pre-war decade, both in Leningrad and nationwide, necessitated an increase in the training and professional development of medical personnel.

The Leningrad Scientific-Practical Institute for the Protection of Maternity and Infancy (OMM, from the Russian Okhrana Materinstva i Mladenchestva), established in 1925 on the premises of the city children’s hospital on the Vyborg Side, began training physicians from the undergraduate level in both day and evening divisions in 1932, at which point it was redesignated as a Hospital-Medical Institute. In 1935, it was granted the status of a higher medical education institution and reorganized into the Leningrad Pediatric Medical Institute (LPMI).

The growing student body and the need to expand existing departments and clinics, as well as establish new ones, prompted the launch of new construction on the LPMI campus. Of particular note as an example of Soviet Neoclassicism is the Anatomical Building, erected in 1938 at 2 Litovskaya Street (Building N) (Fig. 5). This three-story structure, set on a high semi-basement, is asymmetrical and L-shaped in plan (Fig. 6). Its facade treatment is planar, featuring restrained ornamentation: paneled fields[1] and vertical articulation of the upper floors by means of pilaster strips[2]; a rusticated ground floor with windows crowned by fan-shaped keystones[3] ; and simple, unframed window openings on

[1] A panel (filyonka) is a decorative architectural element consisting of a recessed or framed section, most often rectangular in shape, set within a larger surface such as a door, wall, or piece of furniture.

[2] A pilaster strip (lopatka) is a vertical, ribbon-like projection from a wall surface, lacking a base and capital, which serves to divide or delineate the wall’s surface.

[3] A fan-shaped keystone (veernyy zamkovyy kamen’) is the crowning element of an opening’s lintel or a niche, formed by overlapping trapezoidal wedges.

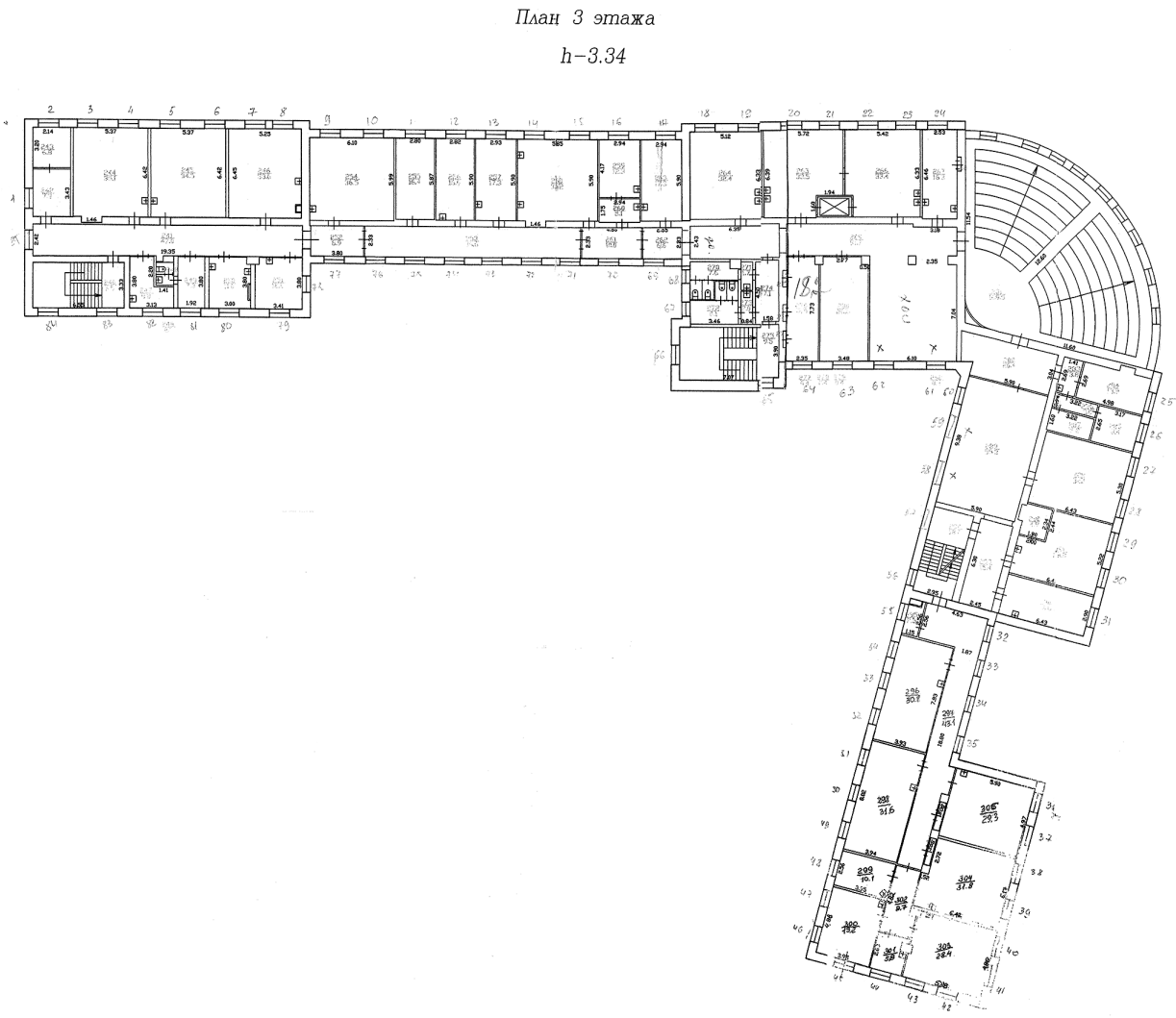

Fig. 6. Saint Petersburg State Pediatric Medical University. Anatomical Building. Third Floor Plan. SPbSPMU archives

Рис. 6. Санкт-Петербургский государственный педиатрический медицинский университет. Анатомический корпус. План третьего этажа. Архив СПбГПМУ

the remaining levels. The Anatomical Building conveys an impression of solidity and ponderous monumentality. Today, it houses several departments of the Saint Petersburg State Pediatric Medical University (SPbSPMU): Normal and Pathological Anatomy, Pathological Physiology, Histology, and Forensic Medicine, as well as an anatomical museum, modern laboratories and classrooms, and a lecture hall-amphitheater.

Several Leningrad buildings in the Stalinist Classical style were not originally designed for medical purposes but were later repurposed as healthcare facilities. One such example is School No. 29 at 18A Krestovsky Avenue, constructed in 1938 according to Typical Design Sh-A (by the Consolidated Workshop of “Lenproekt”, architects L.E. Ass and A.S. Gintsberg, under the direction of O.O. Muntz) with a capacity for 880 students (Fig. 7) [43]. This four-story, elongated building features a U-shaped plan, two symmetrically placed vestibules, a narrow recreation corridor flanked by classrooms, and a simple volumetric composition. Its design, characterized by emphasized axes in the side wings and a neutral facade treatment of the main block, is typical of school architecture from this period [42].

Following the outbreak of the Great Patriotic War and pursuant to an order from the Leningrad City Health Department dated September 24, 1941, Surgical Hospital No. 101 was established in the building. In 1944, it was reorganized into Hospital No. 9, a 210-bed facility specializing in therapeutic and dermatovenereological care. Since 2023, after

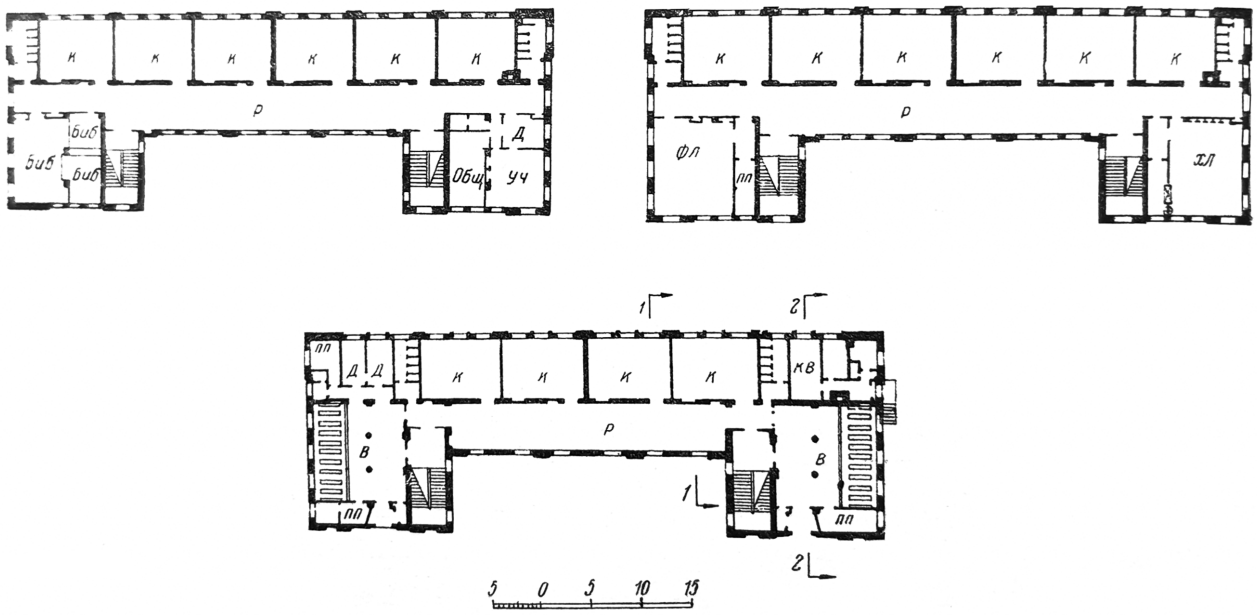

Fig. 7. Typical design of the Sh-A school. Plan of the first, third, and fourth floors. Architects L.E. Ass and A.S. Gintsberg, head O.O. Muntz [42]

Рис. 7. Типовой проект школы Ш-А. План первого, третьего и четвертого этажей. Архитекторы Л.Е. Асс и А.С. Гинцберг, руководитель О.О. Мунц [42]

Fig. 8. Medical College № 1. 18 A Krestovsky Avenue [44]

Рис. 8. Медицинский колледж № 1. Крестовский проспект, дом 18 А [44]

Fig. 9. The new school on Lev Tolstoy Street (Leningrad). Photo by S. Magaziner [45]

Рис. 9. Новая школа на ул. Льва Толстого (Ленинград). Фото С. Магазинера [45]

a major renovation, the building has housed a new campus of Medical College No. 1 (Fig. 8).

Of particular interest for its volumetric-spatial composition is School No. 8 in the Petrograd District, constructed in 1936 — a building whose future would also become tied to medicine (19 Lev Tolstoy Street / 20 Rentgena Street) (Fig. 9)[1]. The project authors were architects G.V. Askinazi and V.V. Popov (Workshop No. 1 of "Lenproekt", headed by architect D.P. Buryshkin) [43]. The four-story structure blends Soviet Neoclassicism with elements of Constructivism. Its architectural concept is based on the juxtaposition of three primary volumes: a central concave block and two symmetrically arranged rectangular side wings. A simplified classical order scheme is employed, where the regular rhythm of pilasters on the first and top floors imparts an Expressionist nuance to the building (Fig. 10).

In 1970, the school building was transferred to the First Leningrad Medical Institute named after I.P. Pavlov. It currently houses the Medical College of the First St. Petersburg State Medical University named after Academician I.P. Pavlov.

It is important to note that the facade's curved form plays a key role in shaping the space before the building — a public square that was named after Academician Fedor Uglov (1904–2008) in 2014. In 2016, a monument to the distinguished surgeon was unveiled here, created by People's Artist A.G. Dema, a former patient of F.G. Uglov (Fig. 11). The sculptural group depicts a generalized image of a physician, leaning attentively over a female patient. The pedestal is inscribed with the words of Academician F.G. Uglov: "The work of a physician is profoundly humane and noble". Within the same square, slightly closer to the medical college building, stands another monument dedicated to medical professionals: an art installation in the form of the ancient symbol of medicine — a serpent entwined around a bowl (Fig. 12).

During the years of the Great Patriotic War and the Siege of Leningrad, many of the city's medical institutions were destroyed or severely damaged as a result of artillery bombardments and air raids. The people of Leningrad demonstrated unparalleled heroism, courage, and strength of spirit, defending their beloved city; following the lifting of the blockade and the end of the war, they labored with incredible tenacity and self-sacrifice for its revival. Considerable attention was given

[1] In 1941, Leningrad introduced a unified city-wide numbering system for its general education schools. Prior to this, each district had maintained its own independent numbering sequence. Under this reorganization, the former School No. 8 of the Petrograd District was assigned the new city number 72.

Fig. 10. Medical College of the First St. Petersburg State Medical University named after academician I.P. Pavlov [46]

Рис. 10. Медицинское училище Первого Санкт-Петербургского государственного медицинского университета им. академика И.П. Павлова [46]

Fig. 11. Monument to Fyodor Grigoryevich Uglov [47]

Рис. 11. Памятник Федору Григорьевичу Углову [47]

Fig. 12. The Symbol of Medicine art object in Academician Fyodor Uglov Square [47]

Рис. 12. Арт-объект «Символ медицины» в сквере академика Федора Углова [47]

to restoring the destroyed medical facilities and to constructing new hospitals, polyclinics, and dispensaries, as well as to improving medical services for the population.

A joint initiative by the N.A. Semashko Institute of Health Organization and Medical History (SIOHM) and the Institute of General and Communal Hygiene of the USSR Academy of Medical Sciences, together with the Institute of Architecture of Public and Industrial Buildings of the USSR Academy of Architecture, conducted a survey of over 120 hospitals in 30 cities nationwide. This effort produced proposals to address shortcomings in hospital construction and formulated the fundamental principles for designing and equipping modern hospitals [48]. In 1951, the USSR Academy of Architecture convened a special meeting on the design of medical facilities. Criticizing the design practices of Giprozdraw (the State Institute for the Design of Health Care Facilities), the Leningrad Design Office of the RSFSR Ministry of Health, and other organizations — which were said to "lack the necessary principle in selecting the most rational and economical types of hospital complexes and underestimate the tasks of standardizing and industrializing

Fig. 13. Hospital in Kronstadt in the 1960s and 1970s. Photo [51]

Рис. 13. Больница в г. Кронштадте в 60–70-е гг. XX в. Фото [51]

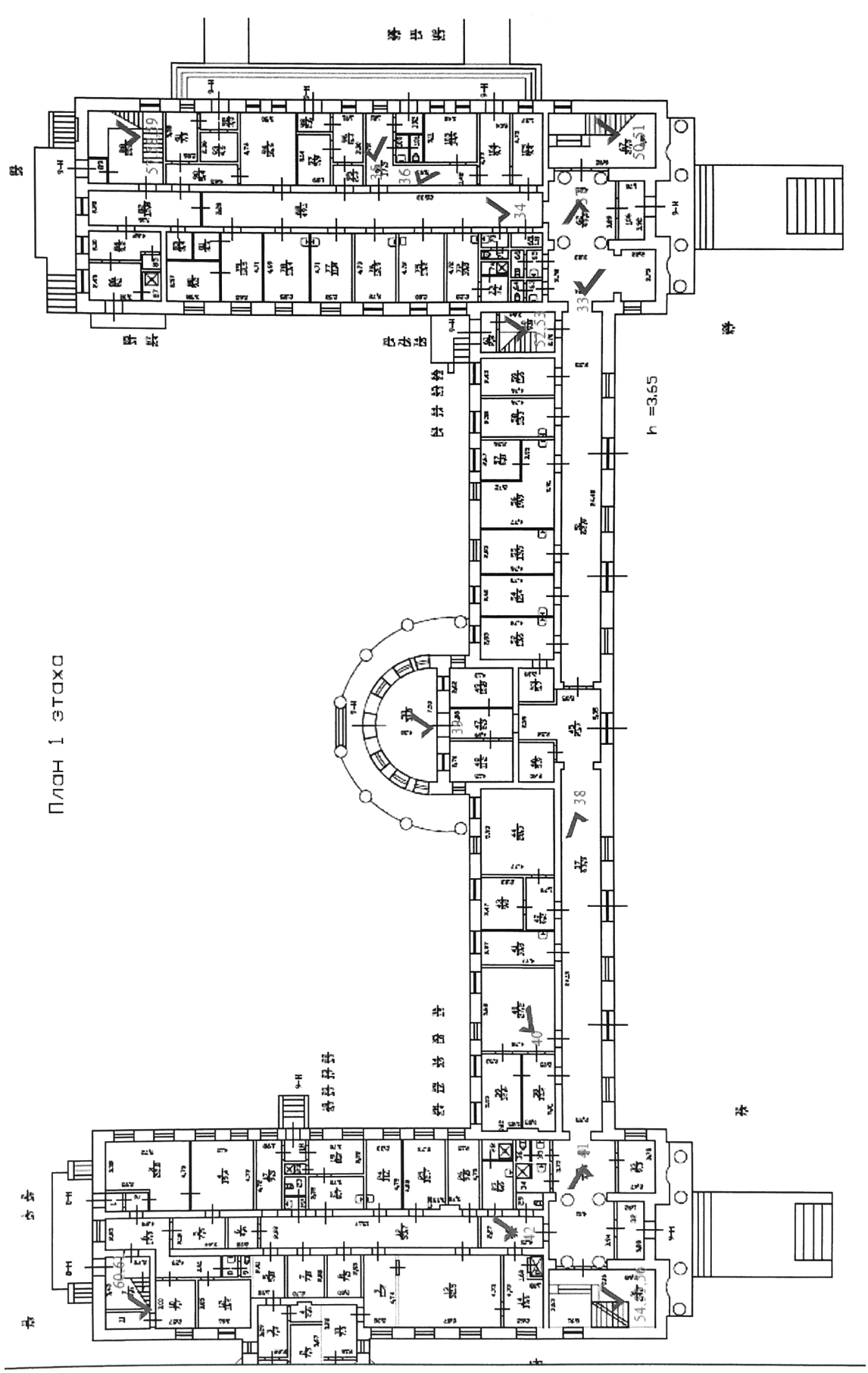

Fig. 14. Children's Hospital-Polyclinic in Kronstadt. First floor plan [51]

Рис. 14. Детская больница–поликлиника в г. Кронштадте. План первого этажа [51]

Fig. 15. Children's Hospital-Polyclinic in Kronstadt. Facade on Vladimirskaya Street. Fragment [51]

Рис. 15. Детская больница–поликлиника в г. Кронштадте. Фасад по Владимирской улице. Фрагмент [51]

Fig. 16. Children's Hospital-Polyclinic in Kronstadt. Facade on Vladimirskaya Street. Paneling with stucco relief. Photo: L.N. Lisenkova

Рис. 16. Детская больница–поликлиника в г. Кронштадте. Фасад по Владимирской улице. Филенки с лепным рельефом. Фото: Л.Н. Лисенкова

hospital construction" — the meeting adopted a set of key resolutions:

- to deem the centralized, single-block system the most rational hospital type for mass construction, and in certain cases, the mixed system (with the polyclinic housed separately);
- to prohibit the use of the uneconomical pavilion system in mass construction;
- to reduce the nomenclature of standard designs for urban hospitals from nine to four or five types;
- to organize serial design of standard hospitals, thereby minimizing the need for bespoke projects;
- to introduce prefabricated, standardized structural components into hospital construction;
- to intensify architects' work on the artistic expression of the Soviet hospital, ensuring it corresponds to the specific nature of this building type [49].

The postwar decade witnessed the zenith of the Stalinist Empire style, whose ceremonial and monumental forms embodied the heroism of victory in the Great Patriotic War and the pathos of peacetime labor. Soviet architects, employing the classical order system, created structures of grandiose scale and ostentation [13–17, 19, 50]. Yet the architecture of medical institutions remained more pragmatic, restrained, and severe.

Among the finest examples of postwar Stalinist Neoclassicism is the Children's Hospital-Polyclinic in Kronstadt, constructed from 1950 to 1953 to designs by architect V.V. Khazanov (8 Zosimova Street / 48 Vladimirskaya Street). The structure rises from a tall stylobate[1] with four descending staircases, follows a U-shaped plan, and features a cour d'honneur[2] between its wings at the southwestern courtyard elevation (Figs. 13, 14).

The principal northeastern facade (on Vladimirskaya Street) is punctuated by rectangular first-floor windows and rectangular doorways with balcony infills along axes 3, 5, 7, 9, and 11, arranged as porticos with Doric half-columns and metal railings. The second-floor windows are configured as rectangular, tripartite rectangular, and round-arched with semicircular crowns (Fig. 15). The intervening wall panels contain recessed fields with stucco reliefs of rosettes, framed by wreaths and cartouches (Fig. 16). A profiled string course separates the floors, surmounted

[1] A stylobate (stilobat) is an elevated platform or base upon which a building or part of a building is erected.

[2] A cour d'honneur (kurdoner) is a formal courtyard in front of a palace, mansion, or manor house, enclosed by the main building and symmetrical side wings.

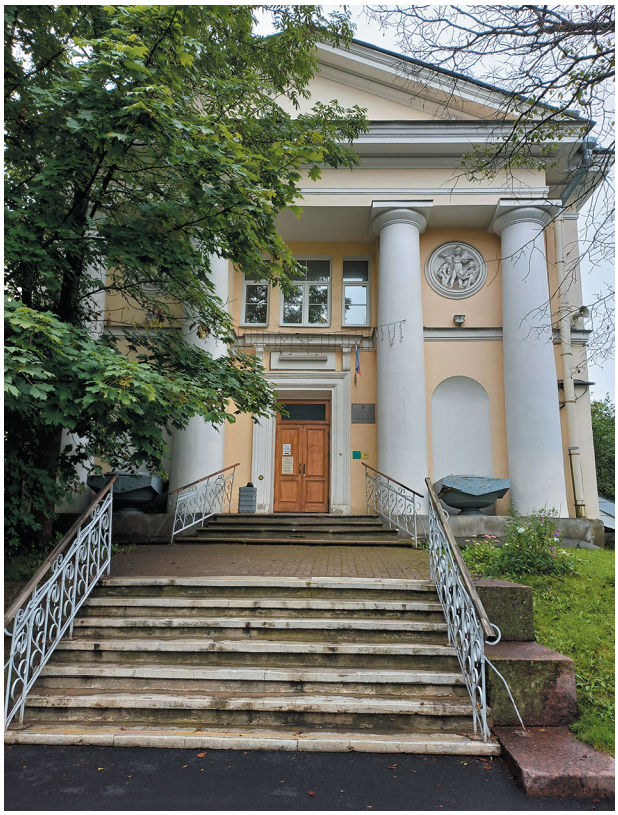

Fig. 17. Children's Hospital-Polyclinic in Kronstadt. Facade on Vladimirskaya Street. Western Portico. Photo: L.N. Lisenkova

Рис. 17. Детская больница–поликлиника в г. Кронштадте. Фасад по Владимирской улице. Западный портик. Фото: Л.Н. Лисенкова

by a frieze[1] emphasized by a plaster molding and decorated with medallions featuring rosettes. The facade is flanked[2] by two symmetrical, four-column Doric porticos[3], each carrying a full entablature[4] and a triangular pediment[5] (Fig. 17). At the second-floor level, medallions with stucco decoration depict three figures of putti[6] (Figs. 18, 19).

[1] A frieze (friz) is a wide band or border that runs along the top of a wall, or the section of an entablature between the cornice and the architrave.

[2] To flank (flankirovat') means to position architectural elements (such as wings, pavilions, projections, or columns) at the sides, or on the flanks, of a building's central section or composition.

[3] A portico (portik) is a roofed colonnade or gallery projecting from the facade of a building.

[4] An entablature (antablement) is the horizontal superstructure of a building, supported by pillars (piers), columns, or walls.

[5] A pediment (fronton) is the triangular, semicircular, segmental, or otherwise shaped crowning element of a cornice or door/window surround.

[6] Putti are decorative sculptural figures of children, often depicted playing or engaged in various activities.

Fig. 18. Children's Hospital-Polyclinic in Kronstadt. Facade on Vladimirskaya Street. Western Portico. Stucco Composition. Photo: L.N. Lisenkova

Рис. 18. Детская больница–поликлиника в Кронштадте. Фасад по Владимирской улице. Западный портик. Лепная композиция. Фото: Л.Н. Лисенкова

Fig. 19. Children's Hospital-Polyclinic in Kronstadt. Facade on Vladimirskaya Street. Eastern Portico. Stucco Composition. Photo: L.N. Lisenkova

Рис. 19. Детская больница–поликлиника в г. Кронштадте. Фасад по Владимирской улице. Восточный портик. Лепная композиции. Фото: Л.Н. Лисенкова

The primary northwestern facade (on Zosimova Street) is more restrained. Its rectangular windows and doorways are articulated as porticos featuring Doric pilasters and a plain stuccoed entablature (Fig. 20).

The southwestern facade, which opens onto the cour d'honneur (labeled "Courdonner Yard" in Fig. 21), is distinguished by a semicircular projection in plan — a semi-rotunda[7] comprising six Doric columns on pedestals, crowned by a full entablature (Fig. 21). The southeastern courtyard facade

[7] A semi-rotunda (polurotonda) is an architectural form consisting of an open, semicircular structure resembling an arch with a colonnade, often crowned by a rounded cornice or dome. Unlike a classic rotunda (a circular building surrounded by columns and topped by a dome), a semi-rotunda does not enclose a fully defined interior space.

Fig. 20. Children's Hospital-Polyclinic in Kronstadt. Facade on Zosimova Street. Fragment. Photo: L.N. Lisenkova

Рис. 20. Детская больница–поликлиника в г. Кронштадте. Фасад по улице Зосимова. Фрагмент. Фото: Л.Н. Лисенкова

Fig. 21. Children's Hospital-Polyclinic in Kronstadt. South-Western Facade, Courdonner Yard. Semi-Circular Rizalit. Photo: L.N. Lisenkova

Рис. 21. Детская больница–поликлиника в г. Кронштадте. Юго-западный фасад, двор-курдонер. Полуциркульный ризалит. Фото: Л.Н. Лисенкова

Fig. 22. Children's Hospital-Polyclinic in Kronstadt. South-Eastern Facade. Pentagonal Maneuvering Section Photo: L.N. Lisenkova

Рис. 22. Детская больница–поликлиника в г. Кронштадте. Юго-восточный фасад. Пятигранный ризалит. Фото: Л.Н. Лисенкова

Fig. 23. City Oncology Center. Photo: L.N. Lisenkova

Рис. 23. Городской онкологический диспансер. Фото: Л.Н. Лисенкова

Fig. 24. City Oncology Dispensary. Facade fragment. Photo: L.N. Lisenkova

Рис. 24. Городской онкологический диспансер. Фрагмент фасада. Фото: Л.Н. Лисенкова

is defined by a pentagonal risalit (identified as the "Pentagonal Maneuvering Section" in Fig. 22). The decorative scheme of several interior spaces also incorporates Doric columns and pilasters.

The Children's Hospital-Polyclinic in Kronstadt holds the distinction of being the only healthcare facility in St. Petersburg built in the Soviet Neoclassical style to be listed in the Unified State Register of Cultural Heritage Sites (historical and cultural monuments) of the Peoples of the Russian Federation [51]. The building currently accommodates the Tuberculosis (Phthisiatric) Department of the St. Petersburg State Budgetary Healthcare Institution "City Hospital of Saint Righteous John of Kronstadt".

Motifs of the post-war Stalinist Classical style are present in the exterior of the research institute building of the USSR Academy of Medical Sciences' Oncology Institute, erected on Kamenny Island in 1955–1956 to designs by architect Ya.M. Kovarsky (3–5 2-ya Berezovaya Alleya, Building E) (Fig. 23). This low, three-story asymmetrical structure features side wings of differing lengths. A rusticated basement floor with daylighting windows accentuates the smooth plastered surface of the walls above. The first-floor windows are embellished with linear cornices (sandrins)[1] on volute-shaped consoles[2].The window openings on the second and third floors are simpler, devoid of ornament. The two lower floors are demarcated from the top one by a narrow string course. The building's principal decorative feature is a uniform sequence of pilasters with Composite order capitals[3], spanning all three stories and lending the facades a pronounced sense of unity (Fig. 24). Since 1964, it has housed the City Oncology Dispensary (Tsentral'naya Gorodskaya Onkologicheskaya Bol'nitsa)[4].

Leningrad's healthcare facilities in the Soviet Neoclassical style also include the Medical and Sanitary Unit (Mediko-sanitarnaya chast', MSCh) No. 1 of the M.I. Kalinin Plant. For brevity and in accordance with its listing in this article's abstract, this institution will be referred to hereafter as the Medical Unit of the Kalinin Factory. It was constructed on Vasilyevsky Island in 1954–1957 to a design by architects A.K. Petrov and I.V. Golverk of Workshop No. 2 of the "Lenproekt" Institute (under the direction of architect B.M. Serebrovsky) and is located at 10 Odoyevskogo Street[5] , Building A (Fig. 25)[6].

This three-story building with a semi-basement is U-shaped in plan and features a cour d'honneur (kurdoner) facing A.I. Odoevskogo Street (Fig. 26). The first floor is separated by a profiled cornice and finished with banded rustication (lentochnyy rust)[7] (Fig. 27). The horizontal division is further emphasized by windows of differing configurations: the ground-floor window openings are arched with keystones decorated with acanthus

[1] A sandrink (sandrik) is a decorative architectural element in the form of a small cornice or pediment above a window or door opening. In Classical architecture, sandriks were primarily used in the form of a triangular pediment or a straight cornice supported by a console.

[2] Volute-shaped consoles (volyutoobraznyye kronshteyny) are brackets in the form of a spiral scroll with a central circular disk, known as a volute eye.

[3] The Composite order (kompozitnyy order) combines elements of the Ionic and Corinthian orders. The Composite capital incorporates the acanthus leaf tiers of the Corinthian order with the volutes of the Ionic order.

[4] Simultaneously with the main treatment building of the Oncology Institute, a morgue in the Soviet Neoclassical style was constructed to designs by architect Ya.M. Kovarsky (3–5 2-ya Berezovaya Alleya, Building K). This modest, single-story structure features a T-shaped plan; its main entrance is articulated by pilasters supporting a simple entablature and a triangular pediment.

[5] In 1962, Sazonovskaya Street was renamed in honor of the Decembrist poet A.I. Odoevsky (Aleksandr Ivanovich Odoevskiy).

[6] Despite the Resolution of the Central Committee of the Communist Party of the Soviet Union (CPSU) and the Council of Ministers of the USSR dated November 4, 1955, "On the Elimination of Excesses in Design and Construction," which led to reduced funding and simplified construction techniques, the architects succeeded in preserving the original design concept, creating a typical example of post-war Leningrad Neoclassicism.

[7] Banded rustication (French rustication, lentochnyy rust) is a type of rustication executed in continuous horizontal bands without vertical channelling.

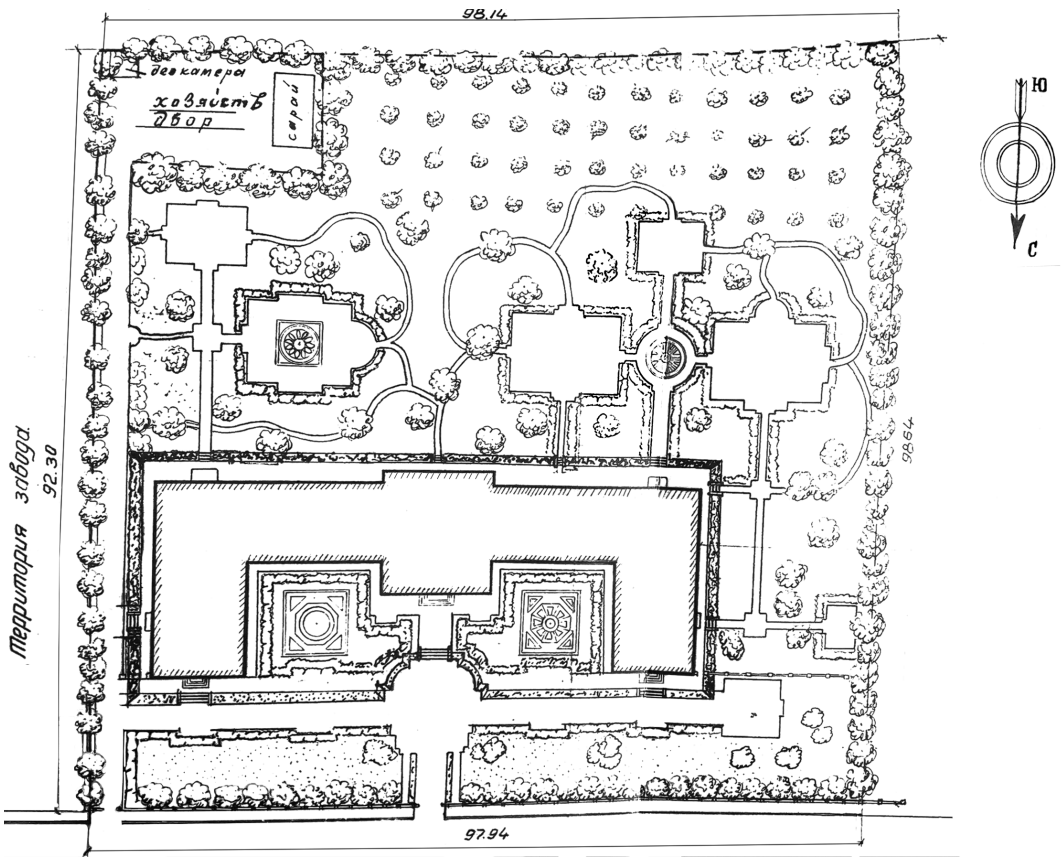

Fig. 25. Medical and Sanitary Unit No. 1 of the M.I. Kalinin Plant. Master Plan. First Draft. 1952. Lenproekt. Architectural and Design Workshop No. 2. Archive of the M.I. Kalinin Plant [52]

Рис. 25. Медико-санитарная часть № 1 завода имени М.И. Калинина. Генеральный план. Первый вариант проекта. 1952 г. Ленпроект. Архитектурно-проектная мастерская № 2. Архив завода им. М.И. Калинина [52]

leaves (Fig. 28), while the windows on the second and third floors are rectangular, spanned by concrete lintels. The spandrels beneath the third-floor windows contain recessed panels (filyonki) adorned with festoons — stucco garlands bound with ribbons (Fig. 29). The main entrance is marked by an arched opening with an open porch, surmounted by a magnificent portico with an irregular rhythm of eight paired columns of the Tuscan order[1] , echoed by a corresponding row of pilasters on the facade, a balcony, and a triangular pediment (Fig. 27). The side wings have separate entrances with arched openings and three-sided glazed stairwell bay windows (svetovyye erkeri), each framed by a pair of pilasters (Fig. 30)[2]. Medallions (medal'ony)[3] with the emblem of medicine — a cup with a snake — are placed on the lower sections of the third-floor bays and within a niche of the portico (Fig. 31). The courtyard facade features three slightly projecting small risalits (risality) (Fig. 32). A dentil course (poyas dentikul)[4] in the crowning cornice lends the entire structure a finished, harmonious appearance.

"The Palace of Medicine" — this is how the residents of Vasilyevsky Island called the building of the Medical Unit, which housed a polyclinic, a hospital, and a night prophylactorium (a health prevention facility) (Fig. 33). The polyclinic, designed for 200 patient visits per shift, contained 25 consulting rooms, including those for X-ray, electrocardiography, biochemical analysis, among others. The staff included physicians of all major specialties, and the rooms were equipped with modern apparatus. The inpatient department had a capacity of 60 beds,

[1] The Tuscan order (toskanskiy order) is a variant of the Doric order, distinguished from it by a smooth frieze, the presence of a base, and a column without fluting. It was developed by Roman architects at the turn of the 1st century BC and the 1st century AD.

[2] A bay window (erkyer) is a part of a building that projects beyond the plane of the facade, typically featuring windows. It serves to expand the interior space and improve its illumination.

[3] A medallion (medal'on) is a decorative element in the form of a round or oval panel, often adorned with carving, stuccowork, or painting. The interior of a medallion may contain an image, ornament, or symbol.

[4] Dentils (dentikuly) are a series of small, rectangular blocks arranged in an ornamental row on a building's cornice, serving a decorative function.

Fig. 26. Medical and Sanitary Unit No. 1 of the M.I. Kalinin Plant. Architectural photograph [53]

Рис. 26. Медико-санитарная часть № 1 завода имени М.И. Калинина. Архитектурная фотография [53]

Fig. 27. Medical and Sanitary Unit No. 1 of the M.I. Kalinin Plant. Facade fragment. Central risalit. Photo: L.N. Lisenkova

Рис. 27. Медико-санитарная часть № 1 завода имени М.И. Калинина. Фрагмент фасада. Центральный ризалит. Фото: Л.Н. Лисенкова

Fig. 28. Medical and Sanitary Unit No. 1 of the Kalinin Plant. Facade fragment. Ground floor window. Photo: L.N. Lisenkova

Рис. 28. Медико-санитарная часть № 1 завода имени М.И. Калинина. Фрагмент фасада. Окно первого этажа. Фото: Л.Н. Лисенкова

Fig. 29. Medical and Sanitary Unit No. 1 of the M.I. Kalinin Plant. Facade fragment. Window of the second and third floors. Photo: L.N. Lisenkova

Рис. 29. Медико-санитарная часть № 1 завода имени М.И. Калинина. Фрагмент фасада. Окно второго и третьего этажей. Фото: Л.Н. Лисенкова

Fig. 30. Medical and Sanitary Unit No. 1 of the M.I. Kalinin Plant. Facade fragment. Side risalit. Photo: L.N. Lisenkova

Рис. 30. Медико-санитарная часть № 1 завода имени М.И. Калинина. Фрагмент фасада. Боковой ризалит. Фото: Л.Н. Лисенкова

Fig. 31. Medical and Sanitary Unit No. 1 of the M.I. Kalinin Plant. Medallion with the emblem of medicine — a cup with a snake. Photo: L.N. Lisenkova

Рис. 31. Медико-санитарная часть № 1 завода имени М.И. Калинина. Медальон с эмблемой медицины — чаша со змеей. Фото: Л.Н. Лисенкова

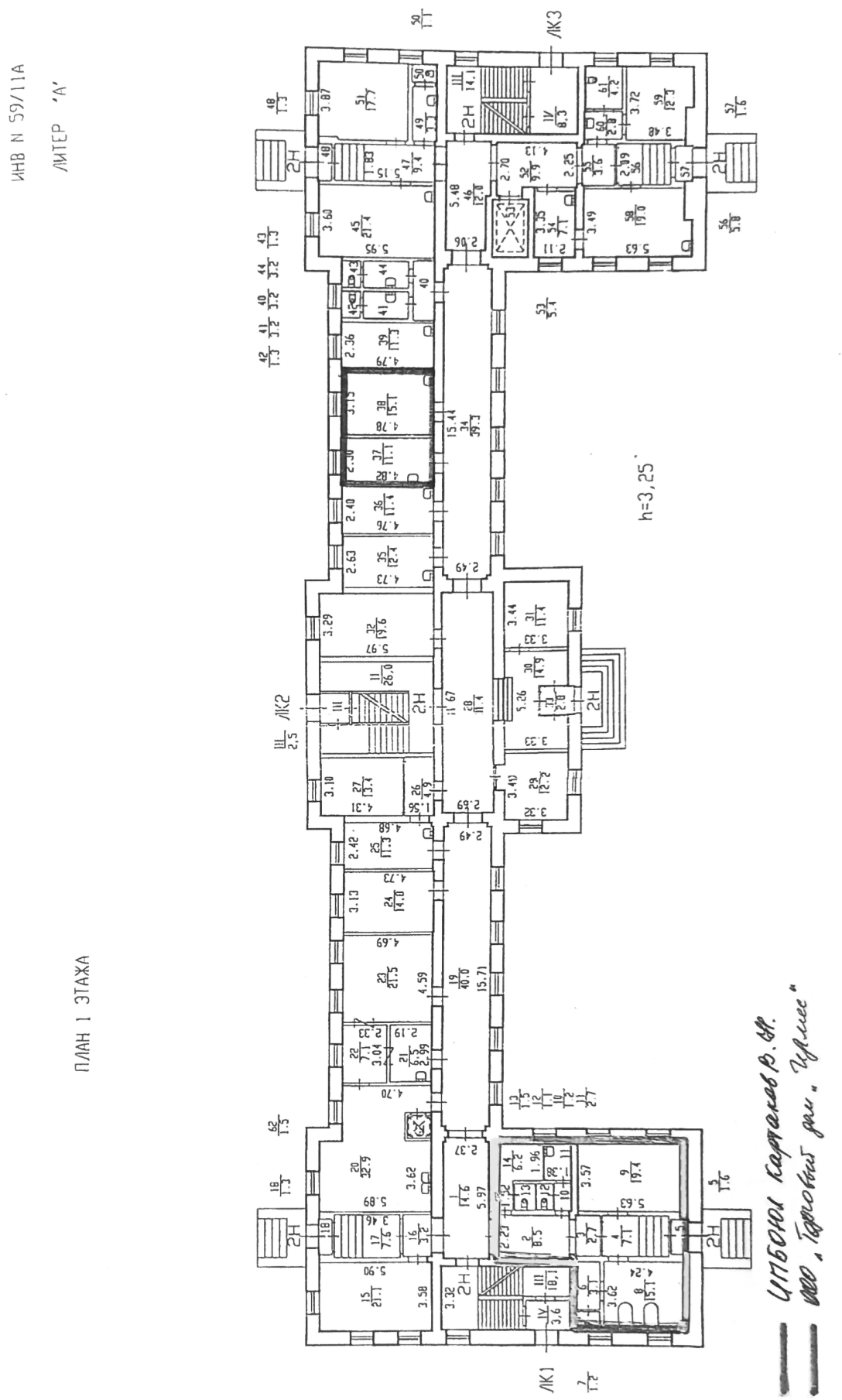

Fig. 32. Medical and Sanitary Unit No. 1 of the M.I. Kalinin Plant. First floor plan [54]

Рис. 32. Медико-санитарная часть № 1 завода имени М.И. Калинина. План первого этажа [54]

30 of which were designated for the treatment of gastric diseases. The plant provided additional payments to cover each patient's food and medication[1].

The Medical Unit served as the architectural and planning centerpiece of the social infrastructure complex for the M.I. Kalinin Plant. This complex included a formal garden, a boiler house with an integrated laundry, a sports club, a dormitory, a kindergarten, and a nursery, thereby forming a distinctive urban ensemble in the Neoclassical style characteristic of the mid-20th century[2].

In 2011, The Medical Unit was closed, and the building was sold to settle the plant's outstanding debts. Its premises were subsequently leased to various companies for small-scale industrial operations and warehousing. "The Palace of Medicine" fell into a profound state of neglect and disrepair. In 2015, the Medical and Sanitary Unit on Odoyevskogo Street was listed as a recognized cultural heritage site. However, in 2020, the Committee for State Control, Use, and Protection of Historical and Cultural Monuments (KGIOP) decided to revoke the protected status of Medical Unit No. 1 of the Kalinin Factory. This decision placed the building, regarded as one of the finest examples of post-war Leningrad Neoclassicism, under immediate threat of demolition [56, 57].

In the post-war years, the leading role in developing standardized designs for medical facilities belonged to the central scientific and design institute for healthcare and recreation facilities, "Giprozdraw"[3] (Figs. 34, 35) [59]. Between 1955 and 1958, the main building of Medical Unit (MSCh) No. 19 of the Leningrad Metal Works Turbine Manufacturing Association (architect G.S. Gelfond) was constructed at 12 Poljustrovsky Prospekt according to Typical Project 2-05-17. The four-story, U-shaped building in plan features a semi-rotunda oriented towards the park. Its rectangular, unframed windows and the ascetic plainness of the walls are relieved only by a cornice running between the second and third floors. The principal facade is accentuated by a severe, semi-circular portico with Tuscan columns supporting a broad balcony crowned by an elegant balustrade. This laconic, coolly restrained composition serves as a quintessential example of Soviet Neoclassicism (Fig. 36).

This Medical and Sanitary Unit comprised a 150-bed hospital and an outpatient clinic designed for 350 visits per shift. It housed departments equipped with the latest medical technology, including internal medicine, surgery, and neurology. For patient comfort, the outpatient clinic provided cozy lounges

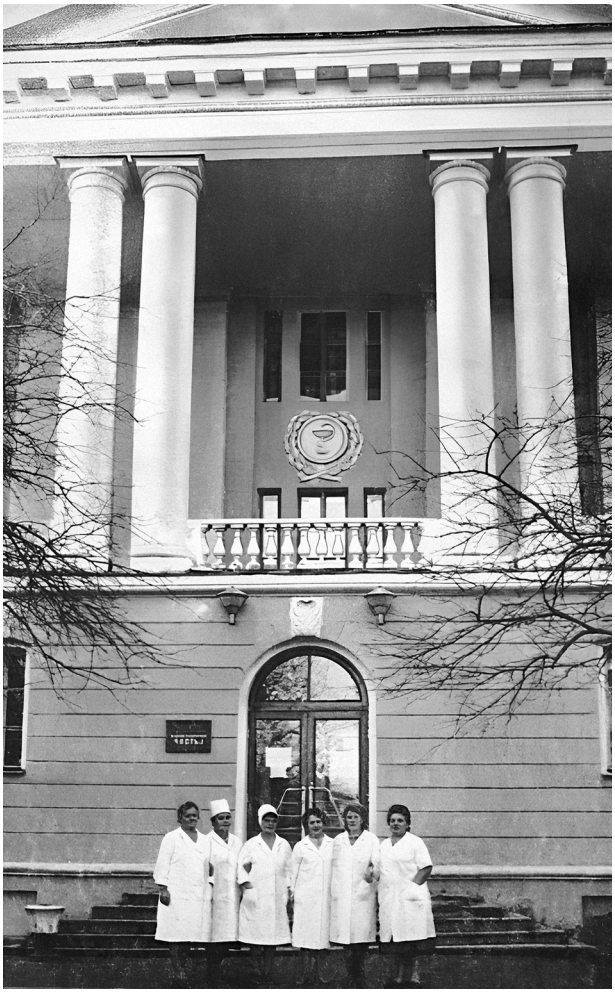

Fig. 33. Doctors at the entrance to the Medical Unit No. 1 of the M.I. Kalinin Plant. 1960s [55]

Рис. 33. Врачи у входа в Медсанчасть № 1 завода имени М.И. Калинина. 60-е гг. XX в. [55]

[1] The chief physician, L.S. Savchenko, recalled the opening of the MSCh: "N.A. Kal'chenko (the plant director) accommodated us in every way, was generous, introducing me to the heads of the plant's workshops with the instruction: 'Help her in her work in every possible way!'. And he gave me a strict admonition: 'If there is even one complaint, I will dismiss you!'". From the history of the Medical and Sanitary Unit (MSCh) of the M.I. Kalinin Plant [55].

[2] This conclusion was made by the architectural historian and member of the council of the National Committee of the International Council on Monuments and Sites (ICOMOS), A.V. Krechmer [52].

[3] The design office "Goszdravproekt" (Gosudarstvennoye proyektnoye byuro) was established by order of the People's Commissariat of Health of the USSR on June 3, 1937. By order of the Ministry of Health of the USSR on September 7, 1951, it was renamed the State Design Institute for the Design of Therapeutic and Preventive Institutions "Giprozdraw" (Gosudarstvennyy proyektnyy institut). By order of the Ministry of Health of the USSR on December 11, 1970, the institute was reorganized into the State Design and Research Institute for the Design of Healthcare Institutions "Giproniizdrav" (Gosudarstvennyy proyektnyy i nauchno-issledovatel'skiy institut).

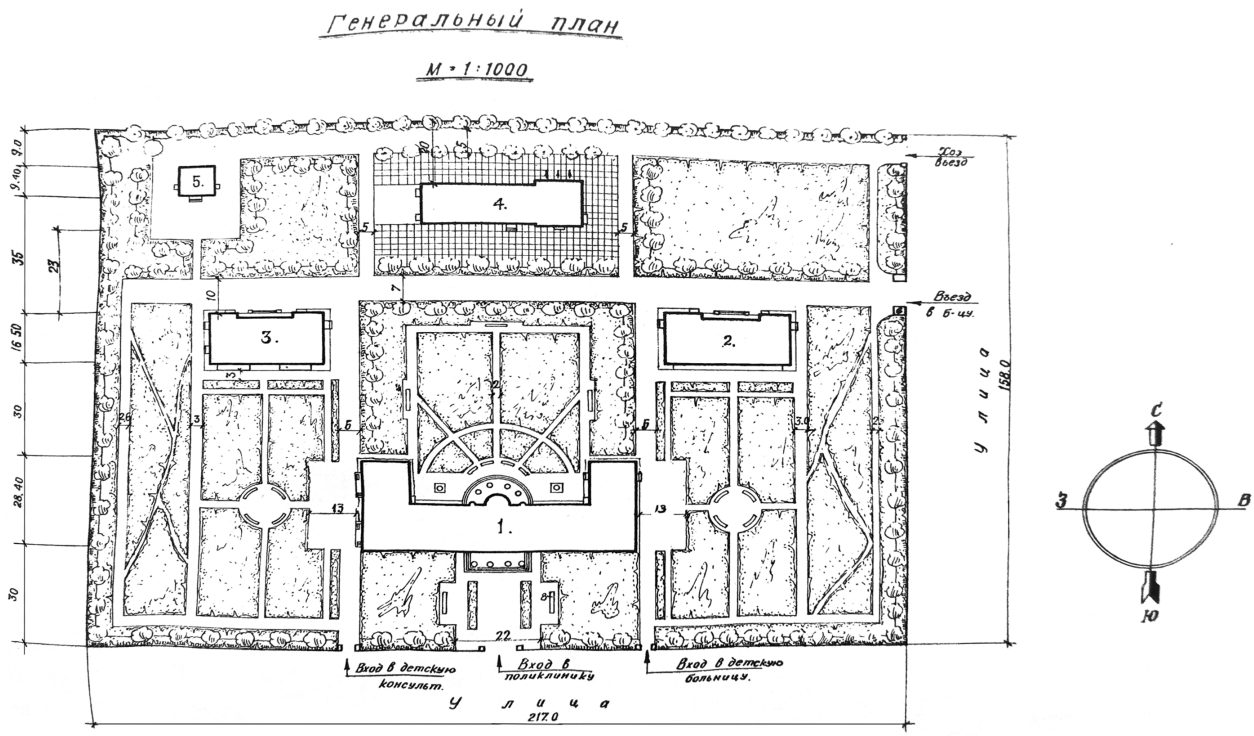

Fig. 34. Giprozdrav. Typical project 2-05-17 of a 200-bed hospital. Master plan [55]

Рис. 34. Гипроздрав. Типовой проект 2-05-17 больницы на 200 коек. Генеральный план [55]

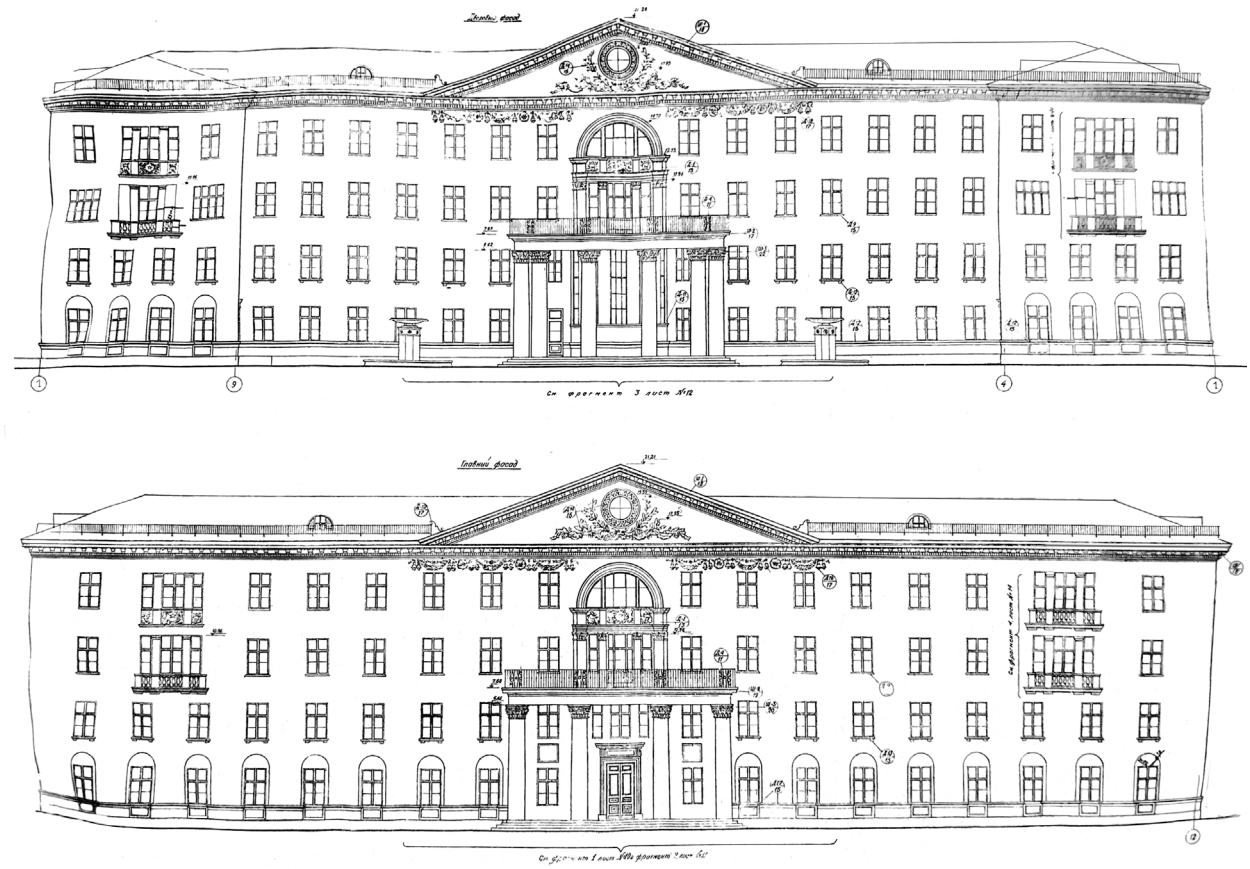

Fig. 35. Giprozdrav. Typical project 2-05-17 of a 200-bed hospital. Courtyard and main facade [55]

Рис. 35. Гипроздрав. Типовой проект 2-05-17 больницы на 200 коек. Дворовый и главный фасад [55]

[60]. Since the 1990s, the building has accommodated the Leningrad Regional Clinical Hospital and a cardiology center (a dispensary specializing in cardiology).

On November 1, 1958, United Hospital No. 2 of the Moscow District (21 Gastello Street) opened its doors to patients. The facility was built to a standard design developed by Giprozdraw, with Outpatient Clinic No. 42 opening concurrently on the same site. The Leningrad Branch of the Design Institute under the RSFSR Ministry of Health was responsible for the site adaptation of the standard project. The six-story structure, executed in the Stalinist Empire style, features a symmetrical composition that embodies the classical tripartite scheme. This scheme comprises a central risalit flanked by two side wings, each accentuated by projecting bay windows (Fig. 37). The facade treatment employs a giant order: severe, elongated pilasters arranged in two tiers and spanning three stories lend the building a pronounced vertical emphasis, creating an impression of height and graceful proportion (Fig. 38).

The new inpatient facility had a capacity of 300 beds, comprising two 50-bed therapeutic departments (with cardiology and gastroenterology

Fig. 36. Leningrad Regional Clinical Hospital, Cardiology Dispensary. Photo: L.N. Lisenkova

Рис. 36. Ленинградская областная клиническая больница, кардиодиспансер. Фото: Л.Н. Лисенкова

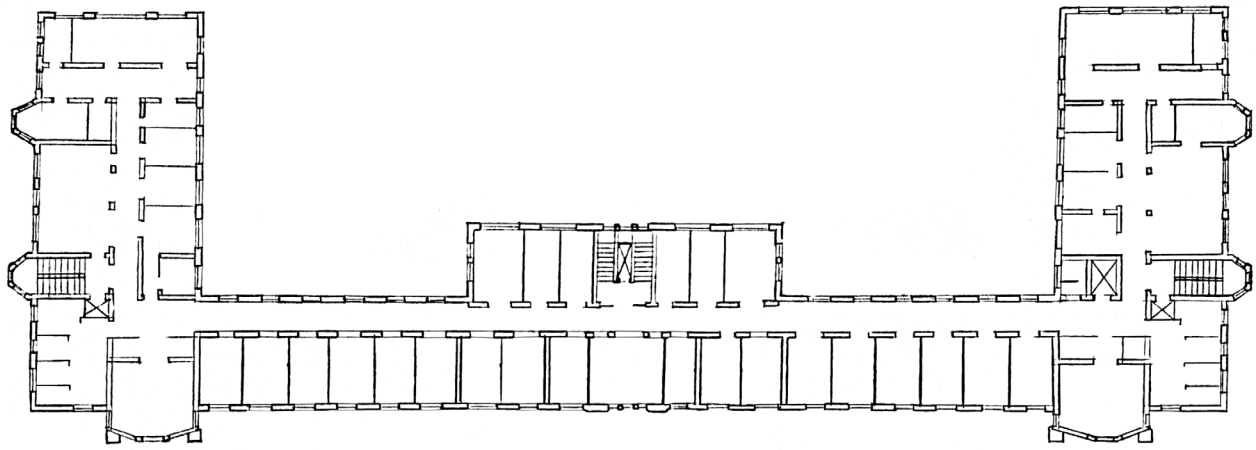

Fig. 37. United Hospital No. 2 of the Moscow District. Plan of the second floor [60]

Рис. 37. Объединенная больница № 2 Московского района. План второго этажа [60]

Fig. 38. United Hospital No. 2 of the Moscow District [61]

Рис. 38. Объединенная больница № 2 Московского района [61]

Fig. 39. City Hospital No. 20 [62]

Рис. 39. Городская больница № 20 [62]

Fig. 40. Children's Polyclinic No. 12 [63]

Рис. 40. Детская поликлиника № 12 [63]

specializations), two 50-bed surgical departments, and 50-bed neurological and otorhinolaryngological (ENT) departments. The medical staff favorably noted the abundance of natural light and the practicality of the three-patient wards. Additional comfort was provided by small, lounge-like common areas reminiscent of hotel lobbies [60]. In February 1970, the institution was renamed City Hospital No. 20 (Fig. 39).

Designed in the Soviet Neoclassical idiom, Children's Polyclinic No. 12 of the Frunzensky District[1] was built in 1958 to a design by architect B.I. Kozyrev (29 Zagorodny Prospekt). The five-story building with a semi-basement incorporates a rectangular carriageway in its left side, providing access to an interior courtyard (Fig. 40). The architectural articulation of the facade utilizes rectangular-section pilasters that visually integrate the two lower stories. The spandrel beneath the second-story windows is treated with a balustrade relief featuring balusters of austere and precise proportions. A simple, stepped interfloor cornice (between the second and third stories) establishes a distinct horizontal datum, accentuating the facade's compositional division. Above the third-story windows runs an arcature — a rhythmic series of blind decorative arches forming a stark, repetitive pattern. The substantial crowning cornice is ornamented with a course of stepped dentils. Despite its overtly monumental and somewhat ponderous character, the children's polyclinic building integrated seamlessly into the urban fabric of Zagorodny Prospekt. Its height aligned with the

[1] Today, the section of Zagorodny Prospekt from Vladimirskaya Square to Tekhnologicheskaya Square is part of the Central District of Saint Petersburg.

Fig. 41. First Naval Clinical Hospital [65]

Рис. 41. Первый Военно-морской клинический госпиталь [65]

existing street wall, and it contributed to a cohesive streetscape ensemble alongside its stylistically eclectic neighbors. These include the I.E. Kuznetsov tenement (Neoclassical, 1915–1916, architects B.M. Velikovsky, A.V. Rozenberg, D.P. Buryshkin) and the tenement of the Meshchansky (Burghers') Society (Art Nouveau, 1910, architect N.K. Pryanishnikov).

The Children's Polyclinic on Zagorodny Prospekt, boasting over 2,000 square meters of usable area, functioned as a new type of children's health center. It housed specialized departments for dentistry and radiology, a day hospital, and dedicated rooms for electrocardiography and physiotherapy, as well as for peloid therapy (mud treatment), hydrotherapy, and phototherapy [60]. Today, Polyclinic Department No. 12 (DPO) stands as the largest pediatric outpatient facility in Saint Petersburg's Central District. It delivers primary healthcare services to over 10,500 children within its catchment area and to more than 22,000 children and adolescents in educational institutions located in its service zone [64].

In 1958, adjacent to the original three-story structure of the First Naval Clinical Hospital[1], a new monumental treatment block was erected to a design by architect D.P. Buryshkin (2 Staro-Petergofsky Prospekt). The volumetric composition of the rectangular, four-story building on a pronounced plinth is defined by two symmetrical side risalits (Fig. 41). The ground floor, clad in classical rectilinear rustication, imparts an impression of solidity, reliability, and strength. The central bay of the facade, articulated by slender Composite-order pilasters that rise through the three upper stories, is crowned by a wide triangular pediment adorned with dentils and featuring a thermal window[2] within its tympanum[3].

[1] The main building of the Kalinkinsky Naval Hospital (formerly the Marine Barracks). Architect M.A. Pasynkin. 1848–1853, 1880. Style — Eclecticism with elements of Neo-Renaissance (2 Staro-Petergofsky Prospekt; 156 Fontanka River Embankment).

[2] A thermal window is a semicircular window subdivided by vertical mullions.

[3] A tympanum (timpan) is the triangular or segmental interior field of a pediment.

Within its tympanum. Its monumental austerity, restrained solemnity, and the severe beauty of its meticulously calibrated proportions establish this building of the First Naval Clinical Hospital as a quintessential exemplar of the Stalinist Empire style.

In 1954, at the All-Union Conference of Builders in Moscow, the prevailing "practice of ornamental excess" in architecture was subjected to severe criticism [66]. The conference resolutions called for the vigorous promotion of industrialized construction techniques and standardized design, an acceleration of building timelines, and a concerted drive for greater cost efficiency.

The definitive turning point came with the adoption of the Resolution of the Central Committee of the CPSU and the Council of Ministers of the USSR "On the Elimination of Excesses in Design and Construction" on November 4, 1955 [67]. This decree sharply condemned the disconnection of architecture's artistic and aesthetic concerns from its material and economic foundations. It effectively marked the conclusion of the Soviet Neoclassical era and initiated the transition towards a more rational and economical architectural language, commonly termed Functionalism or Soviet Modernism[1] [68–69].

In conclusion, the Soviet architecture of the 1930s to 1950s represents a synthesis of classical tradition and state ideology. Embodied in large-scale, ceremonial, and monumental forms that projected the perceived power and grandeur of the Soviet state, it stands as a unique and distinctly recognizable phenomenon within global architectural history. The edifices of the Stalinist Empire style, particularly hospital buildings and other healthcare facilities, have now entered the canon of Saint Petersburg's historical and cultural heritage. As such, they necessitate not only meticulous preservation and protection but also sustained, comprehensive scholarly investigation. The direct replication of standardized Soviet hospital blueprints is untenable today, given evolved medical standards, obsolete technologies, and dated materials. However, a critical analysis of their spatial organization, functional planning, and ergonomic principles can provide valuable insights to inform the creation of a new generation of hospitals. Such hospitals would be designed to meet the most contemporary demands for technological sophistication, safety, and comfort for both patients and healthcare professionals.

[1] Many buildings designed prior to the issuance of this decree were subsequently constructed with significant simplifications and, as a result, ended up far removed from the architects' original concepts.

ADDITIONAL INFORMATION

Authors' contribution. All authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published was agreed to be accountable for all aspects of the study.

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Вклад авторов. Все авторы внесли существенный вклад в разработку концепции, проведение исследования и подготовку статьи, прочли и одобрили финальную версию перед публикацией.

Конфликт интересов. Авторы декларируют отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.

Источник финансирования. Авторы заявляют об отсутствии внешнего финансирования при проведении исследования.

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ПРАВИЛА ДЛЯ АВТОРОВ

Утв. приказом и.о. ректора
ФГБОУ ВО СПбГПМУ Минздрава России от 05.04.24

НАСТОЯЩИЕ ПРАВИЛА ДЛЯ АВТОРОВ ЯВЛЯЮТСЯ ИЗДАТЕЛЬСКИМ ДОГОВОРОМ

Условия настоящего Договора (далее «Договор») являются публичной офертой в соответствии с п. 2 ст. 437 Гражданского кодекса Российской Федерации. Данный Договор определяет взаимоотношения между редакцией журнала «Medicine and Health Care Organization / Медицина и организация здравоохранения» (далее по тексту «Журнал»), зарегистрированного Управлением Федеральной службы по надзору в сфере связи, информационных технологий и массовых коммуникаций по Северо-Западному федеральному округу 17 мая 2016 года, свидетельство ПИ № ТУ78-01872, именуемой в дальнейшем «Редакция» и являющейся структурным подразделением ФГБОУ ВО СПбГПМУ Минздрава России, и автором и/или авторским коллективом (или иным правообладателем), именуемым в дальнейшем «Автор», принявшим публичное предложение (оферту) о заключении Договора.

Автор передает Редакции для издания авторский оригинал или рукопись. Указанный авторский оригинал должен соответствовать требованиям, указанным в разделах «Представление рукописи в журнал», «Оформление рукописи». При рассмотрении полученных авторских материалов Журнал руководствуется «Едиными требованиями к рукописям, представляемым в биомедицинские журналы» (Intern. committee of medical journal editors. Uniform requirements for manuscripts submitted to biomedical journals. Ann Intern Med. 1997;126:36–47).

В Журнале печатаются ранее не опубликованные работы по профилю Журнала.

Журнал не рассматривает работы, результаты которых по большей части уже были опубликованы или описаны в статьях, представленных или принятых для публикации в другие печатные или электронные средства массовой информации. Представляя статью, автор всегда должен ставить редакцию в известность обо всех направлениях этой статьи в печать и о предыдущих публикациях, которые могут рассматриваться как множественные или дублирующие публикации той же самой или очень близкой работы. Автор должен уведомить редакцию о том, содержит ли статья уже опубликованные материалы и предоставить ссылки на предыдущую, чтобы дать редакции возможность принять решение, как поступить в данной ситуации. Не принимаются к печати статьи, представляющие собой отдельные этапы незавершенных исследований, а также статьи с нарушением «Правил и норм гуманного обращения с биообъектами исследований».

Размещение публикаций возможно только после получения положительной рецензии.

Все статьи, в том числе статьи аспирантов и докторантов, публикуются бесплатно.

ПРЕДСТАВЛЕНИЕ РУКОПИСИ В ЖУРНАЛ

Авторский оригинал принимает редакция. Подписанная Автором рукопись должна быть отправлена в адрес редакции по электронной почте на адрес medorgspb@yandex.ru или lt2007@inbox.ru, а также через сайт https://ojs3.gpmu.org/index.php/medorg. Автор должен отправить конечную версию рукописи и дать файлу название, состоящее из фамилии первого автора и первых 2–3 сокращенных слов из названия статьи. Информацию об оформлении можно уточнить на сайте: http://www.gpmu.org/science/pediatrics-magazine/Medicine_organization.

СОПРОВОДИТЕЛЬНЫЕ ДОКУМЕНТЫ

К авторскому оригиналу необходимо приложить **экспертное заключение** о возможности опубликования в открытой печати (бланк можно

скачать на сайте https://www.gpmu.org/science/pediatrics-magazine/Medicine_organization/).

Рукопись считается поступившей в Редакцию, если она представлена комплектно и оформлена в соответствии с описанными требованиями. Предварительное рассмотрение рукописи, не заказанной Редакцией, не является фактом заключения между сторонами издательского Договора.

При представлении рукописи в Журнал Авторы несут ответственность за раскрытие своих финансовых и других конфликтных интересов, способных оказать влияние на их работу. ***В рукописи должны быть упомянуты все лица и организации, оказавшие финансовую поддержку (в виде грантов, оборудования, лекарств или всего этого вместе), а также другое финансовое или личное участие.***

АВТОРСКОЕ ПРАВО

Редакция отбирает, готовит к публикации и публикует переданные Авторами материалы. Авторское право на конкретную статью принадлежит авторам статьи. Авторский гонорар за публикации статей в Журнале не выплачивается. Автор передает, а Редакция принимает авторские материалы на следующих условиях:

1) Редакции передается право на оформление, издание, передачу Журнала с опубликованным материалом Автора для целей реферирования статей из него в Реферативном журнале ВИНИТИ, РНИЦ и базах данных, распространение Журнала/авторских материалов в печатных и электронных изданиях, включая размещение на выбранных либо созданных Редакцией сайтах в сети Интернет в целях доступа к публикации в интерактивном режиме любого заинтересованного лица из любого места и в любое время, а также на распространение Журнала с опубликованным материалом Автора по подписке;
2) территория, на которой разрешается использовать авторский материал, — Российская Федерация и сеть Интернет;
3) срок действия Договора — 5 лет. По истечении указанного срока Редакция оставляет за собой, а Автор подтверждает бессрочное право Редакции на продолжение размещения авторского материала в сети Интернет;
4) Редакция вправе по своему усмотрению без каких-либо согласований с Автором заключать договоры и соглашения с третьими лицами, направленные на дополнительные меры по защите авторских и издательских прав;
5) Автор гарантирует, что использование Редакцией предоставленного им по настоящему Договору авторского материала не нарушит прав третьих лиц;
6) Автор оставляет за собой право использовать предоставленный по настоящему Договору авторский материал самостоятельно, передавать права на него по договору третьим лицам, если это не противоречит настоящему Договору;
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8) при перепечатке статьи или ее части ссылка на первую публикацию в Журнале обязательна.

ПОРЯДОК ЗАКЛЮЧЕНИЯ ДОГОВОРА И ИЗМЕНЕНИЯ ЕГО УСЛОВИЙ

Заключением Договора со стороны Редакции является опубликование рукописи данного Автора в журнале «Medicine and Health Care Organization / Медицина и организация здравоохранения» и размещение его текста в сети Интернет. Заключением Договора со стороны Автора, т. е. полным и безоговорочным принятием Автором условий Договора, является передача Автором рукописи и экспертного заключения.

ОФОРМЛЕНИЕ РУКОПИСИ

Редакция журнала приветствует полностью двуязычные статьи.

Статья должна иметь (НА РУССКОМ И АНГЛИЙСКОМ ЯЗЫКАХ):

1. Заглавие (Title). Должно быть кратким (не более 120 знаков), точно отражающим содержание статьи.
2. Сведения об авторах (публикуются). Для каждого автора указываются: фамилия, имя и отчество, ученая степень, место работы, почтовый адрес места работы, e-mail, **ORCID, SPIN-код**. Фамилии авторов рекомендуется транслитерировать так же, как в предыдущих публикациях или по системе BGN (Board of Geographic Names), см. сайт http://www.translit.ru.
3. Резюме (Abstract) (1500–2000 знаков, или 200–250 слов) помещают перед текстом статьи. Резюме не требуется при публикации рецензий, отчетов о конференциях, информационных писем.

Авторское резюме к статье является основным источником информации в отечественных

и зарубежных информационных системах и базах данных, индексирующих журнал. Резюме доступно на сайте журнала «Medicine and Health Care Organization / Медицина и организация здравоохранения» и индексируется сетевыми поисковыми системами. Из аннотации должна быть понятна суть исследования, нужно ли обращаться к полному тексту статьи для получения более подробной, интересующей его информации. Резюме должно излагать только существенные факты работы.

Рекомендуемая структура аннотации: введение (Introduction), цели и задачи (Purposes and tasks), методы (Materials and methods), результаты (Results), выводы (Conclusion). Предмет, тему, цель работы нужно указывать, если они не ясны из заглавия статьи; метод или методологию проведения работы целесообразно описывать, если они отличаются новизной или представляют интерес с точки зрения данной работы. Объем текста авторского резюме определяется содержанием публикации (объемом сведений, их научной ценностью и/или практическим значением) и должен быть в пределах 200–250 слов (1500–2000 знаков).

4. Ключевые слова (Keywords) — от 3 до 10 ключевых слов или словосочетаний, которые будут способствовать правильному перекрестному индексированию статьи, помещаются под резюме с подзаголовком «ключевые слова». Предпочтительно использовать ключевые словосочетания из 2–4 слов, наиболее точно отражающих тему статьи. Используйте термины из списка медицинских предметных заголовков (Medical Subject Headings), приведенного в Index Medicus (если в этом списке еще отсутствуют подходящие обозначения для недавно введенных терминов, подберите наиболее близкие из имеющихся). Ключевые слова разделяются запятой.
5. Заголовки таблиц, подписи к рисункам, а также все тексты на рисунках и в таблицах должны быть на русском и английском языках.
6. Сокращений, кроме общеупотребительных, следует избегать. Сокращения в названии статьи, названиях таблиц и рисунков, в выводах недопустимы. Если аббревиатуры используются, то все они должны быть расшифрованы полностью при первом их упоминании в тексте (например: «Наряду с данными о РОН (резидуально-органической недостаточности), обусловливающей развитие ГКС (гиперкинетического синдрома), расширен диапазон исследований по эндогенной природе данного синдрома».
7. При представлении рукописи в Журнал Авторы несут ответственность за раскрытие своих финансовых и других конфликтных интересов, способных оказать влияние на их работу. В рукописи должны быть упомянуты все лица и организации, оказавшие финансовую поддержку (в виде грантов, оборудования, лекарств или всего этого вместе), а также другое финансовое или личное участие.

   В конце каждой статьи обязательно указываются вклад авторов в написание статьи, источники финансирования (если имеются), отсутствие конфликта интересов, наличие согласия на публикацию со стороны пациентов. Данная информация должна быть переведена на английский язык.
8. **ЛИТЕРАТУРА (REFERENCES).** Список литературы должен представлять полное библиографическое описание цитируемых работ в соответствии с NLM (National Library of Medicine) Author A.A., Author B.B., Author C.C. Title of article. Title of Journal. 2021;10(2):49–53. Фамилии и инициалы авторов в пристатейном списке приводятся **в порядке упоминания** [1, 2, 3 и т.д.]. В описании указываются ВСЕ авторы публикации. Библиографические ссылки в тексте статьи даются цифрой в квадратных скобках. Ссылки на неопубликованные работы не допускаются.

   В оригинальных статьях допускается цитирование, как правило, не более 30 источников, в обзорах литературы — не более 60, в лекциях и других материалах — до 15. Библиография должна содержать большинство публикаций за последние 5 лет.

   Книга:

   Юрьев В.К., Моисеева К.Е., Глущенко В.А. Основы общественного здоровья и здравоохранения. Учебник. СПб.: СпецЛит; 2019.

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   Глава из книги:

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   Карсанов А.М., Полунина Н.В., Гогичаев Т.К. Безопасность пациентов в хирургии. Часть 2: Программа менеджмента качества хирургического лечения. Медицинские технологии. Оценка и выбор. 2019;1(35):56–65. DOI: 10.31556/2219-0678.2019.35.1.056-065.

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Авилов А.Ю. Девиации полоролевой идентичности мужчин с умственной отсталостью в условиях психоневрологического интерната. Автореф. дис. … канд. психол. наук. СПб.; 2021.

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Патенты:

Баженов А.Н., Илюшина Л.В., Плесовская И.В., изобретатели; Баженов А.Н., Илюшина Л.В., Плесовская И.В., правопреемник. Методика лечения при ревматоидном артрите. Патент РФ RU 2268734. 27 января 2006 г.

Приказы:

Приказ Минздрава России от 20.10.2020 № 1130н «Об утверждении Порядка оказания медицинской помощи по профилю «акушерство и гинекология». Доступно по: https://docs.cntd.ru/document/566162019?ysclid=lo30ib3c8k800071923 (дата обращения: 23.04.2024).

Описание интернет-ресурса:

Естественное движение населения. Москва: Росстат. Доступен по: https://rosstat.gov.ru/folder/12781 (дата обращения: 23.10.2023).

Для всех статей необходимо указывать индекс DOI в конце библиографического описания, а также EDN при его наличии.

Примеры:

Саттаров А.Э., Карелина Н.Р. Особенности ростовых процессов у мальчиков и юношей различных пропорций и телосложения, проживающих в южной части Кыргызстана. Педиатр. 2018;9(5):47–52. DOI: 10.17816/PED9547-52. EDN: YRAEPZ.

Voropaeva E.E., Khaidukova Yu.V., Kazachkova E.A., et al. Perinatal outcomes and morphological examination of placentas in pregnant women with critical lung lesions in new COVID-19 coronavirus infection. Ural Medical Journal. 2023;22(2):109–121. (In Russian). DOI: 10.52420/2071-5943-2023-22-2-109-121. EDN: CXRCMN.

Перевод и транслитерация

Если публикация написана **на русском языке** (на кириллице) и существует официальный перевод на английский язык, нужно привести этот вариант. Если официального перевода нет, следует перевести название публикации на английский язык самостоятельно. В конце описания в скобках указать язык издания.

Если цитируемая статья написана **на английском** (немецком, испанском, итальянском, финском, датском и других языках, использующих романский алфавит), *ссылку на нее следует привести на оригинальном языке опубликования* и в списке литературы, и в References. Пример (статья в норвежском журнале на норвежском языке):

Ellingsen AE, Wilhelmsen I. Sykdomsangst blant medisinog jusstudenter. Tidsskr Nor Laegeforen. 2002;122(8):785–787. (In Norwegian).

Стандарт транслитерации. При транслитерации рекомендуется использовать систему BGN (Board of Geographic Names), см. сайт http://www.translit.ru

ФИО авторов, редакторов. Фамилии и инициалы всех авторов на латинице следует приводить в ссылке так, как они даны в оригинальной публикации. Если в оригинальной публикации уже были приведены на латинице ФИО авторов, в ссылке на статью следует указывать именно этот вариант (независимо от использованной системы транслитерации в первоисточнике). *Если в официальных источниках (на сайте журнала, в базах данных, в том числе в eLIBRARY) ФИО авторов на латинице не приведены, следует транслитерировать так же, как в предыдущих публикациях или по системе BGN.*

Название публикации. Если у цитируемой работы существует официальный перевод на английский язык или англоязычный вариант названия (его следует искать на сайте журнала, в базах данных, в том числе в eLIBRARY), следует указать именно его. *Если в официальных источниках название публикации на латинице не приведено, следует перевести на английский язык самостоятельно.*

Название издания (журнала). Некоторые неанглоязычные научные издания (журналы) имеют кроме названия на родном языке официальное «параллельное» название на английском (например, у журнала «Сахарный

диабет» есть официальное англоязычное название «Diabetes Mellitus»). Таким образом, для списка References в ссылке на статью из русскоязычного журнала следует указать либо транслитерированное название журнала, либо переводное. Переводное название журнала можно взять либо с официального сайта журнала (или использовать данные о правильном написании англоязычного названия из цитируемой статьи), либо проверить его наличие в базе данных, например в CAS Source Index, библиотеке WorldCat или каталоге Web of Science (ISI), каталоге названий базы данных MedLine (NLM Catalog), PubMed. *В случае, когда у журнала нет официального названия на английском языке, в References нужно приводить транслитерацию по системе BSI.* Не следует самостоятельно переводить названия журналов.

Место издания. Место издания в ссылках всегда следует указывать ***на английском языке и полностью***, то есть Moscow, а не «Moskva» и не «M.:», Saint Petersburg, а не «Sankt Peterburg» и не «SPb».

Название издательства/издателя. Название издательства для ссылок в References ***следует только транслитерировать*** (за исключением крайне редких случаев наличия у издателя параллельного официального англоязычного названия).

Приказы, указы, постановления и другие официальные документы, а также патенты транслитерируются.

Примеры перевода русскоязычных источников литературы для англоязычного блока статьи.

Книга:

Yuriev V.K., Moiseeva K.E., Glushchenko V.A. Fundamentals of public health and healthcare. Textbook. Saint Petersburg: SpetsLit; 2019. (In Russian).

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ОТВЕТСТВЕННОСТЬ ЗА ПРАВИЛЬНОСТЬ БИБЛИОГРАФИЧЕСКИХ ДАННЫХ НЕСЕТ АВТОР.

Остальные материалы предоставляются либо на русском, либо на английском языке, либо на обоих языках по желанию.

Структура основного текста статьи.

Введение, изложение основного материала, заключение, литература. Для оригинальных исследований — введение, методика, результаты исследования, обсуждение результатов, выводы, литература.

В разделе «Методика» обязательно указываются сведения о статистической обработке экспериментального или клинического материала. Единицы измерения даются в соответствии с Международной системой единиц — СИ. Фамилии иностранных авторов, цитируемые в тексте рукописи, приводятся в оригинальной транскрипции.

В конце каждой статьи обязательно указываются вклад авторов в написание статьи, источники финансирования (если имеются), отсутствие конфликта интересов, наличие согласия на публикацию со стороны пациентов.

Объем рукописей.

Объем рукописи обзора не должен превышать 25 стр. машинописного текста через два интервала, 12 кеглем (включая таблицы, список литературы, подписи к рисункам и резюме на английском языке), поля не менее 25 мм. Нумеруйте страницы последовательно, начиная с титульной. Объем рукописи статьи экспериментального характера не должен превышать 15 стр. машинописного текста; кратких сообщений (писем в редакцию) — 7 стр.; отчетов о конференциях — 3 стр.; рецензий на книги — 3 стр. Используйте колонтитул — сокращенный заголовок и нумерацию страниц, для помещения вверху или внизу всех страниц статьи.

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ИЗДАТЕЛЬСТВО ПЕДИАТРИЧЕСКОГО УНИВЕРСИТЕТА ПРЕДСТАВЛЯЕТ

ОРТОПЕДИЧЕСКАЯ СТОМАТОЛОГИЯ. ПРОТЕЗИРОВАНИЕ НЕСЪЁМНЫМИ КОНСТРУКЦИЯМИ ЗУБНЫХ ПРОТЕЗОВ

М. Ф. Сухарев, С. Б. Фищев, М. Г. Рожкова

Учебник соответствует программе Министерства здравоохранения Российской Федерации по ортопедической стоматологии, предназначен и будет полезным для преподавателей курсов и стоматологических кафедр, студентов стоматологических факультетов, ординаторов, аспирантов, врачей-стоматологов.

Авторы будут признательны за критические замечания и дополнения.

Твердый переплет, цветные иллюстрации, 464 страницы.

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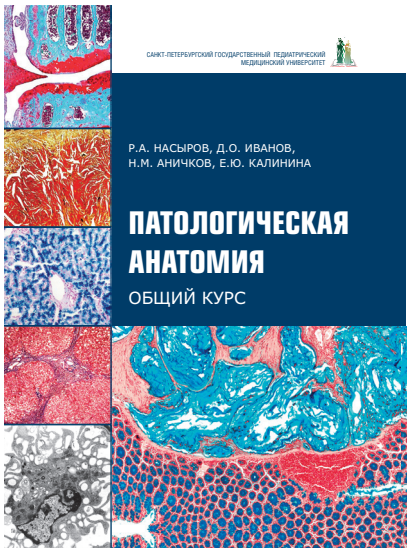
ПАТОЛОГИЧЕСКАЯ АНАТОМИЯ. ОБЩИЙ КУРС

Р.А. Насыров, Д.О. Иванов, Н.М. Аничков, Е.Ю. Калинина



В общем курсе патологической анатомии (клинической патоморфологии) рассмотрены вопросы общей патологической анатомии: методы исследования в патоморфологии, повреждение и гибель клеток и тканей, в том числе старение; нарушения кровообращения и иных сред организма, воспаление, репарация и регенерация, заживление ран, иммунная патология, адаптация, патология роста клеток и их дифференцировки, опухоли, генетические заболевания, учение о диагнозе в патологической анатомии, патология и факторы окружающей среды, патология, вызванная питанием, констатация смерти и др.

Учебник рассчитан на студентов-медиков всех факультетов, а также на врачей, интересующихся вопросами общей патологической анатомии.

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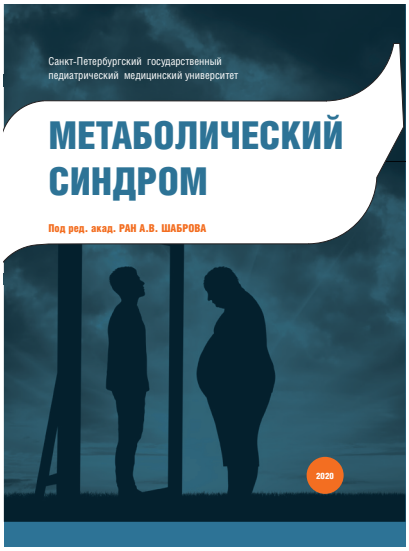
ИЗДАТЕЛЬСТВО ПЕДИАТРИЧЕСКОГО УНИВЕРСИТЕТА ПРЕДСТАВЛЯЕТ

МЕТАБОЛИЧЕСКИЙ СИНДРОМ

Под ред. акад. РАН А.В. Шаброва



Монография посвящена одной из ведущих проблем современного здравоохранения — метаболическому синдрому. Представлены исторические аспекты изучения метаболического синдрома и ассоциированных с ним заболеваний сердечно-сосудистой системы, критерии диагностики, эпидемиологические данные, проанализирована роль таких факторов, как микробиом кишечника, адипокины, оксидативный стресс, нарушение пищевого поведения в патогенезе метаболического синдрома. Рассмотрено влияние метаболического синдрома на бронхолегочную патологию, гастроэнтерологическую патологию, половые дисфункции. Описаны перспективные методы обследования пациентов с метаболическим синдромом, современные подходы к терапии. Монография будет интересна врачам терапевтических специальностей, научным работникам, преподавателям, аспирантам, студентам медицинских вузов.

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ГОЛОДАНИЕ В ДЕТСТВЕ И БОЛЕЗНИ В СТАРОСТИ

Л.П. Хорошинина, Д.О. Иванов

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