ANNUAL REPORT 2024
MOTOL UNIVERSITY HOSPITAL

CONTENTS

Introduction 3

Management of Motol University Hospital 4

Scientific Board of Motol University Hospital 5

Organizational Structure 7

Basic Details 9

List of Departments 10

Medical Preventive Care 15

Nursing Care 112

Hospital Ombudsman 116

Scientific Research Activities 117

Economic Activities 121

Human Resource Activities 125

Annual Report Pursuant to Act. 106/1999 Coll. 128

Donors and Foundations 129

Dear Friends,

The year 2024 was a period of intense work, professional challenges and important milestones for our hospital. However, all changes, investments and strategic considerations should aim at a single objective, and that is everyday work with the patient. Everything, from the construction of new pavilions to technological innovations, should support and be subordinate to this philosophy.

Despite the events that recently affected us, together we can certainly maintain the high quality of care, develop our professional teams and continue with projects that are crucial not only for our hospital, but in particular for patients from all over the Czech Republic.

One of these projects is the construction of the Motol Oncology Centre – a strategic project that has the ambition to become the leading oncology care centre in the Czech Republic. Although the current situation also affects this project, I believe that thanks to the expertise, determination and professionalism of our employees we will bring it to a successful conclusion.

I am aware that one of the biggest challenges before us is the issue of staff stability. Competition on the labour market, in particular in Prague, is considerable and is very likely to continue to grow. I believe that we will only succeed if we create a working environment that is not only professionally attractive, but also friendly and motivating in human terms, with efficient and transparent processes. The motivation is not only financial, it is also meaningful work, mutual respect and the feeling that we are part of something that is functional and has meaning. Our hospital provides top-quality care, and that is primarily thanks to the people who make it happen every day.

I thank all my colleagues for their everyday work, humanity and efforts. It is because of you that our hospital has a solid foundation and the patients' trust.

MUDr. Lucie Valentová Bartáková
Deputy Director for Medical Preventative Care

MANAGEMENT OF MOTOL UNIVERSITY HOSPITAL

Hospital Director	JUDr. Ing. Miloslav Ludvík, MBA
Deputy Director for Operations and Technical Matters	MUDr. Pavel Budinský, MD, Ph.D., MBA
Deputy Director for Medical Preventive Care	MUDr. Lucie Valentová Bartáková
Deputy Director for Nursing Care	Mgr. Jana Nováková, MBA
Deputy Director for Economics	Ing. Jiří Čihař
Deputy Director for Human Resources	Ing. Marie Románková
Deputy Director for Science and Research	prof. MUDr. Anna Šedivá, DSc.
Deputy Business Director	Ing. Jana Bašeová

HOSPITAL'S SCIENTIFIC BOARD

Prof. MUDr. Anna Šedivá, DSc. - Chair of the Scientific Board of Motol University Hospital
Department of Immunology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Doc. MUDr. Vladimír Beneš, Ph.D.
Department of Neurosurgery for Children and Adults, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Ondřej Cinek, Ph.D.
Department of Paediatrics, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Jan Bouček, Ph.D.
Department of Otorhinolaryngology and Head and Neck Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Pavel Dřevínek, Ph.D.
Department of Medical Microbiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Doc. MUDr. Lucie Šrámková, Ph.D.
Department of Paediatric Haematology and Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Senior Consultant MUDr. Markéta Havlovicová
Department of Biology and Medical Genetics, 2nd Faculty of Medicine, Charles University and Motol University Hospital

MUDr. Lucie Valentová-Bartáková
Deputy Director for Medical and Preventive Care at Motol University Hospital

Prof. MUDr. Jakub Hort, Ph.D.
Department of Neurology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Alan Stolz, Ph.D., MBA
Department of Surgery, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Tomáš Kalina, Ph.D.
Department of Paediatric Haematology and Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Radan Keil, Ph.D.
Department of Internal Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Doc. MUDr. Adam Klocperk, Ph.D.
Department of Immunology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Pavel Kršek, Ph.D.
Department of Paediatric Neurology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Zdeněk Šumník, Ph.D.
Department of Paediatrics, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Robert Lischke, Ph.D.
3rd Department of Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Štěpánka Průhová, Ph.D.
Department of Paediatrics, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Prof. MUDr. Josef Zámečník, Ph.D.
Department of Pathology and Molecular Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Doc. MUDr. Michal Zápotocký, Ph.D.
Department of Paediatric Haematology and Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

BASIC ORGANIZATIONAL STRUCTURE AS OF 31. 12. 2024

BASIC ORGANIZATIONAL STRUCTURE AS OF 31. 12. 2024

BASIC DETAILS AS AT 31. 12. 2024

Area of premises (m2)	**348 000**
Assets (in thous. CZK)	**17 202 833**
Total turnover (in thous. CZK)	**17 876 937**
Employees (natural persons)	**6 719**
Employees (converted numbers)	**5 887**

Beds **2 241**

	Children	Adults	Total
Acute standard	466	1,072	1,538
Acute intensive	137	217	354
Acute total	**603**	**1,289**	**1,892**
Aftercare intensive	4	10	14
Long-term	-	315	315
Long-term intensive	-	20	20
Beds total	**607**	**1,634**	**2,241**

Number of hospitalizations	**79 446**
Number of outpatient treatments	**894 614** [1]
Number of treatment days (+ Department of Long-term Treatment – Aftercare Centre)	**503 098**
Number of anaesthesiology procedures	**35 904**
Number of births	**1 748**
Death rate (+ Department of Long-term Treatment – Aftercare Centre)	**1,4**

[1] Since 2022 outpatient care has been recorded without complements

LIST OF DEPARTMENTS

Paediatric Inpatient Section

Children's Heart Centre, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head doc. MUDr. Ondřej Materna, Ph.D.

Department of Paediatric Psychiatry, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Michal Hrdlička, CSc.

Department of Paediatric Surgery, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Michal Rygl, Ph.D.

Department of Paediatric Haematology and Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head doc. MUDr. Lucie Šrámková, Ph.D.

- Bone Marrow Transplantation Unit
Senior Doctor MUDr. Renata Formánková, Ph.D.

Department of Paediatric Neurology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Pavel Kršek, Ph.D.

Department of ENT, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Zdeněk Čada, Ph.D.

Department of Paediatrics, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Zdeněk Šumník, Ph.D.

Adult Inpatient Section

Department of Surgery, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Alan Stolz, Ph.D. MBA

3rd Department of Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Robert Lischke, Ph.D.

Department of Internal Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Radan Keil, Ph.D.

Department of Cardiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Petr Ošťádal, Ph.D.

Department of Infectious Diseases and Travel Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head MUDr. Milan Trojánek, Ph.D.

Department of Cardiovascular Surgery, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head MUDr. Štěpán Černý, CSc, MBA

Department of Otorhinolaryngology and Head and Neck Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Jan Plzák, Ph.D.

Department of Nuclear Medicine and Endocrinology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Petr Vlček, CSc.

Department of Spinal Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Jan Štulík, CSc.

Department of Long-term Treatment – Aftercare Centre
Senior Consultant MUDr. Martina Nováková

Department of Neurology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Petr Marusič, Ph.D.

Department of Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Tomáš Büchler, Ph.D.

1st Department of Orthopaedics, 1st Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Ivan Landor, CSc.

Department of Pneumology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head doc. MUDr. Libor Fila, Ph.D.

Department of Urology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Marek Babjuk, CSc.

Common Inpatient Sites of Paediatric and Adult Sections

Department of Obstetrics and Gynaecology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Roman Chmel, Ph.D.

- Department of Neonatology
Senior Consultant prof. MUDr. Jan Janota, Ph.D.

Department of Anaesthesiology, Resuscitation and Intensive Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Tomáš Vymazal, Ph.D., MHA

- Department of Subsequent Intensive and Long-term Intensive Nursing Care
Senior Consultant MUDr. Kateřina Čadová

Department of Paediatric and Adult Orthopaedics and Traumatology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Vojtěch Havlas, Ph.D.

Department of Rehabilitation and Sports Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. PaedDr. Pavel Kolář, Ph.D.

- Department of Rehabilitation
Senior Consultant MUDr. Martina Kövári

- Department of Pain Research and Treatment
Senior Consultant MUDr. Jiří Kozák, Ph.D.

- Spinal Unit
Senior Consultant doc. MUDr. Jiří Kříž

- Department of Sports Medicine
Senior Consultant doc. MUDr. Jiří Radvanský, CSc.

Department of Ophthalmology for Children and Adults, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head MUDr. Martin Hložánek, Ph.D.

Department of Neurosurgery for Children and Adults, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head doc. MUDr. Vladimír Beneš, Ph.D.

Department of Stomatology for Children and Adults, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head MUDr. Petra Hliňáková, Ph.D., MBA

Common Examination and Therapeutic Units

Department of Radiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Lukáš Lambert, Ph.D., MBA

Department of Clinical Haematology
Senior Consultant MUDr. Jitka Segethová

Blood Bank Department
Senior Consultant MUDr. Eva Linhartová

Department of Clinical Psychology
Senior Consultant Mgr. Markéta Mohaplová

Department of Rheumatology for Children and Adults
Senior Consultant doc. MUDr. Rudolf Horváth, Ph.D.

Department of Transplantations and Tissue Bank
Chief Physician – Jan Burkert, MD, Ph.D.

Department of Biology and Medical Genetics, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Milan Macek, DrSc.

Department of Immunology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Jiřina Bartůňková, DrSc., MBA

Department of Medical Chemistry and Clinical Biochemistry, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Richard Průša, CSc.

Department of Medical Microbiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Pavel Dřevínek, Ph.D.

Department of Pathology and Molecular Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital
Head prof. MUDr. Josef Zámečník, Ph.D.

Outpatient Sector

Department of Paediatric Dermatology
Senior Consultant MUDr. Jana Čadová

Department of Dermatovenerology for Adults
Senior Consultant MUDr. Alena Machovcová, Ph.D., MBA

Department of Central Operating Theatres for Children
Head Nurse Bc. Alice Podařilová

Department of Central Operating Theatres for Adults
Senior Consultant MUDr. Zbyněk Jech

Primary Care Department
Senior Consultant MUDr. Jaroslava Kulhánková

Emergency Department and Medical First Aid Service for Children
Senior Consultant MUDr. Jitka Müllerová Dissou, MBA

Emergency Department and Medical First Aid Service for Adults
Senior Consultant MUDr. Jiří Karásek, Ph.D.

Department of Hospital Hygiene and Epidemiology
Senior Doctor MUDr. Jarmila Rážová, Ph.D.

Hospital Pharmacy
Senior Pharmacist PharmDr. Petr Horák

MEDICAL PREVENTIVE CARE

Paediatric Inpatient Section

Children's Heart Centre, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head MUDr. Ondřej Materna, Ph.D.
Senior Consultant of the Department of Cardiology doc. MUDr. Peter Kubuš, Ph.D.
Senior Consultant of Cardiovascular Surgery MUDr. Roman Gebauer
Head Nurse Mgr. Jana Matušíková

Basic description:

The Children's Heart Centre, 2nd Faculty of Medicine, Charles University and Motol University Hospital (Children's Heart Centre) is the only comprehensive cardiovascular centre for children in the Czech Republic caring for children nationwide. The centre focuses mainly on diagnostics and treatment of congenital heart defects in children and cooperates with other facilities in treating adult patients with congenital heart defects. The preference for non-invasive diagnostic procedures (ECHO, MRI, CT) and primary correction of defects at an early age is typical for this facility. **In 2024, 486 surgeries were performed (including 8 heart transplants and 2 heart-lung blocks in collaboration with the 3rd Department of Surgery) with a 30-day mortality rate of 1.1%, 57 surgeries were performed in cooperation with cardiac surgeons of the Children's Heart Centre and other departments of Motol University Hospital, 437 catheterizations were performed (of which 344 were interventional procedures), 967 patients were hospitalised (+619 accompanying persons) and 3,901 patients were treated in the outpatient service.**
The department takes part in a unique international quality control system for paediatric cardiac surgery within the European Congenital Heart Surgeons

Association (ECHSA) database, which collects data on hundreds of thousands of operations from around the world and monitors early mortality as related to the complexity of the surgery. **In this comparison, the Children's Heart Centre had an excellent early mortality rate of just 0.9% for the period 2012–2019.** The department is also a member of the **ERN GuardHeart** for rare cardiovascular diseases in childhood.
In 2024 we newly contributed to a foreign humanitarian and development mission in Zambia (Lusaka) organised by **MEDEVAC of the Ministry of the Interior CR** in cooperation with Motol University Hospital. A surgical team also participated in a charity mission in Fiji (Suva, Sanjeevani Hospital) and in Nicaragua (Managua, La Mascota Hospital) sponsored by the **Healing Little Hearts** organization. As a part of long-term cooperation, we also got involved in the treatment of patients in Kenya (Nairobi, Mater Hospital), organized by **SlovakAid and the Ministry of Foreign Affairs of the Slovak Republic**.

Specialized outpatient units:

- clinical cardiology
- electrophysiology and cardiac stimulation
- heart failures and transplantations
- prenatal cardiology
- connective tissue diseases

New methods and procedures:

- Continuation of the heart transplants programme (now also a beating heart transported in a special Transmedics transport box) and heart-lung transplants, including long term implantable mechanical heart support;
- Increase in the number of patients in the mechanical heart support programme and ECMO in cooperation with the Department of Anaesthesiology, Resuscitation and Intensive Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital;
- Tracheal plastics programme for congenital tracheal malformations in cooperation with the tracheal team at Motol University Hospital;
- Programme for molecular and genetic examination of families with the occurrence of hereditary arrhythmias and cardiomyopathies using the new generation sequencing method (NGS) in cooperation with Department of Biology and Medical Genetics, 2nd Faculty of Medicine, Charles University and Motol University Hospital;
- Programme of minimally invasive cardiac surgery including vascular ring surgery using the thoracoscopy technique;
- Foetal intervention programme for congenital heart disease in collaboration with the Department of Paediatric Cardiology at Kepler University Hospital in Linz.

Unique equipment:

- Thoratec CentriMag/PediVas centrifugal pump for short- and medium-term mechanical cardiac support.
- Ensite Precision 3D electrophysiology navigation and mapping system
- dual-projection angiography line enabling complex catheterization interventions in patients with congenital heart defects
- GE Voluson echography device for ultrasound examinations of a foetus' heart
- KIPS clinical information and planning system with related modules for catheterization (KatAp) and echocardiography (Echolog) connected to KIS Children's Crisis Centre.

Major events in 2024:

- In 2024, we celebrated the tenth anniversary of the transplantation programme. In total, 40 heart transplants were performed in 39 patients (1 re-transplantation). This year is a record year not only in the number of heart transplants (8), but also in the fact that two heart-lung block transplants were performed in cooperation with the 3rd Surgical Clinic of the 1st Faculty of Medicine, Charles University and Motol University Hospital. This operation had never before been performed on a child in the Czech Republic.
- Cooperation is continuing as a part of the Centre for Congenital Heart Defects in Adulthood of Motol University Hospital.

A total of 23 adult patients with a congenital heart defect were catheterized in the Children's Heart Centre catheterization room. In total, cardiac surgeons at Motol University Hospital performed a total of 1,009 operations on the heart and intrathoracic great vessels.

- A heart-lung block transplantation was performed in a child for the first time in the Czech Republic in 2024.
- The Children's Heart Centre participated in the exhibition Czech Brains Heal the World at the National Technical Museum.
- The Children's Heart Centre was redecorated thanks to the Zdeňka Žádníková Foundation Fund.

Publication activity: 14 articles with an IF:

- MARSHALL, Mayme; MALIK, Aneeq; SHAH, Maully; FISH, Frank A; ETHERIDGE, Susan P; AZIZ, Peter F; RUSSELL, Mark W; TISMA, Svjetlana; PFLAUMER, Andreas; SREERAM, Narayanswami; **KUBUŠ, Peter**; LAW, Ian H; KANTOCH, Michal J; KERTESZ, Naomi J; STRIEPER, Margaret; ERICKSON, Christopher C; MOORE, Jeremy P; NAKANO, Stephanie J; SINGH, Harinder R; CHANG, Philip; COHEN, Mitchell; FOURNIER, Anne; ILINA, Maria V; ZIMMERMANN, Frank; HORNDASCH, Michaela; LI, Walter; BATRA, Anjan S; LIBERMAN, Leonardo; HAMILTON, Robert; JANSON, Christopher M; SANATANI, Shubhayan; ZELTSER, Ilana; MCDANIEL, George; BLAUFOX, Andrew D; GARNREITER, Jason M; BALAJI, Seshadri (K). **Patterns of Electrocardiographic Abnormalities in Children with Hypertrophic Cardiomyopathy.** *Pediatric Cardiology.* 2024, 45(8), 1692-1701. ISSN 0172-0643. DOI: 10.1007/s00246-023-03252-4. **IF 1.5**
- LAMBA, Avani; ROSTON, Thomas M; PELTENBURG, Puck J; KALLAS, Dania; FRANCIOSI, Sonia; LIEVE, Krystien V V; KANNANKERIL, Prince J; HORIE, Minoru; OHNO, Seiko; BRUGADA, Ramon; AIBA, Takeshi; FISCHBACH, Peter; KNIGHT, Linda; TILL, Jan; KWOK, Sit-Yee; PROBST, Vincent; BACKHOFF, David; LAPAGE, Martin J; BATRA, Anjan S; DRAGO, Fabrizio; HAUGAA, Kristina; KRAHN, Andrew D; ROBYNS, Tomas; SWAN, Heikki; **TAVAČOVÁ, Terézia**; ATALLAH, Joseph; BORGGREFE, Martin; RUDIC, Boris; SARQUELLA-BRUGADA, Georgia; CHORIN, Ehud; HILL, Allison; KAMMERAAD, Janneke; KAMP, Anna; LAW, Ian; PERRY, James; ROBERTS, Jason D; TISMA-DUPANOVIC, Svjetlana; SEMSARIAN, Christopher; SKINNER, Jonathan R; TFELT-HANSEN, Jacob; DENJOY, Isabelle; LEENHARDT, Antoine; SCHWARTZ, Peter J; ACKERMAN, Michael J; WILDE, Arthur A M; VAN DER WERF, Christian; SANATANI, Shubhayan (K). **An international multicenter cohort study on implantable cardioverter-defibrillators for the treatment of symptomatic children with catecholaminergic polymorphic ventricular tachycardia.** *Heart Rhythm.* 2024, 21(10), 1767-1776. ISSN 1547-5271. DOI: 10.1016/j.hrthm.2024.04.006. **IF 5.6**
- SEEMAN, Tomáš (K); **GILÍK, Jiří**; VONDRÁK, Karel; FEBER, Janusz. **Stricter cumulative ambulatory blood pressure control is associated with regression of left ventricular hypertrophy in patients after kidney transplantation.** *Pediatric Nephrology.* 2024, 39(11), 3377-3378. ISSN 0931-041X. DOI: 10.1007/s00467-024-06439-w. **IF 2.6**
- LOŽEK, Miroslav (K); KOVANDA, Jan; KUBUŠ, Peter; VRBÍK, Michal; LHOTSKÁ, Lenka; LUMENS, Joost; DELHAAS, Tammo; JANOUŠEK, Jan. **How to assess and treat right ventricular electromechanical dyssynchrony in post-repair tetralogy of Fallot: insights from imaging, invasive studies, and computational modelling.** *Europace.* 2024, 26(2), euae024. ISSN 1099-5129. DOI: 10.1093/europace/euae024. **IF 7.9**
- TERMEROVÁ, Jana (K); KUBĚNA, Aleš; LIŠKA, Karel; **TOMEK, Viktor**; PLAVKA, Richard. **Association between patent ductus arteriosus flow and home oxygen therapy in extremely preterm infants.** *Pediatric Research.* 2024, 96(1), 208-215. ISSN 0031-3998. DOI: 10.1038/s41390-024-03120-8. **IF 3.1**
- KOUBSKÝ, Karel (K); GEBAUER, Roman; PORUBAN, Rudolf; VOJTOVIČ, Pavel; MATERNA, Ondřej; MELENOVSKÝ, Vojtěch; HOŠKOVÁ, Lenka; NETUKA, Ivan; BURKERT, Jan; JANOUŠEK, Jan. **Establishing a nationwide pediatric heart transplantation program with mid-term results comparable to worldwide data – The Czech experience.** *Pediatric Transplantation.* 2024, 28(1), e14626. ISSN 1397-3142. DOI: 10.1111/petr.14626. **IF 1.2**

- HAVOVA, Mariia (K); **GEBAUER, Roman**; ANTONOVÁ, Petra; ŠPATENKA, Jaroslav; BURKERT, Jan; FABIÁN, Ondřej; MODRÁK, Martin; ROHN, Vilém. **Clinical experience of reoperative right ventricular outflow tract reconstruction with valved conduits: risk factors for conduit failure in long-term follow-up.** *Cell and Tissue Banking.* 2024, 25(1), 87-98. ISSN 1389-9333. DOI: 10.1007/s10561-023-10088-y. **IF 1.4**
- KOUBSKÝ, Karel (K). **Pediatric Chronic Heart Failure: Age-Specific Considerations of Medical Therapy.** *Physiological Research.* 2024, 73(S2), S597-S613. ISSN 0862-8408. DOI: 10.33549/physiolres.935438. **IF 1.9**
- DEWITT, Elizabeth; **JANOUŠEK, Jan**; ETHERIDGE, Susan (K). **Implantable cardioverter defibrillators in paediatric patients: yet another example of healthcare divergence?.** *Europace*. 2024, 26(9), euae230. ISSN 1099-5129. DOI: 10.1093/europace/euae230. **IF 7.9**
- JANOUŠEK, Jan (K); KUBUŠ, Peter. **CRT in Pediatric and Congenital Heart Disease at the Doorsteps of the Hall of Fame.** *JACC: Clinical Electrophysiology*. 2024, 10(3), 551-553. ISSN 2405-500X. DOI: 10.1016/j.jacep.2023.12.014. **IF 8.0**
- URBANOVÁ, Veronika; MRAKAVA, Jakub; **KOUBSKÝ, Karel**; ALDHOON HAINEROVÁ, Irena; RÜCKLOVÁ, Kristina (K). **Traditional risk factors and chronic diseases associated with increased risk of coronary artery disease. Options for stratifying and reducing this risk from childhood.** *Cor et Vasa.* 2024, 66(3), 349-364. ISSN 0010-8650. DOI: 10.33678/cor.2023.100. **IF 0.2**
- HADŽIĆ, Tereza (K); IURCHENKO, Olena; KOVANDA, Jan; VRBÍK, Michal; LOŽEK, Miroslav; JANOUŠEK, Jan. **Non-invasive evaluation of myocardial work efficiency: from theory to practice.** *Cor et Vasa.* 2024, 66(4), 421-428. ISSN 0010-8650. DOI: 10.33678/cor.2024.030. **IF 0.2**
- LÍNKOVÁ, Hana; MAREK, Dan; MATES, Martin (K); BENEŠ, Jiří; MOKRÁČEK, Aleš; RUBÁČKOVÁ POPELOVÁ, Jana; **JANOUŠEK, Jan**; PALEČEK, Tomáš; PAZDERNÍK, Michal; ZATOČIL, Tomáš**. Practice recommended by the European Society of Cardiology for the treatment of endocarditis 2023** *Cor et Vasa.* 2024, 66(2), 112-168. ISSN 0010-8650. DOI: 10.33678/cor.2024.017. **IF 0.2**
- PERUŠIČOVÁ, Mariana (K); TOMEK, Viktor; CHALOUPECKÝ, Václav; JANOUŠEK, Jan. **Coarctation of the aorta in a newborn with a mitral and aortic valve anomaly.** *Cor et Vasa.* 2024, 66(5), 512-517. ISSN 0010-8650. DOI: 10.33678/cor.2024.050. **IF 0.2**

Department of Paediatric Psychiatry, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Michal Hrdlička, CSc.
Senior Consultant doc. MUDr. Iva Dudová, Ph.D.
Head Nurse Radka Raisová

Basic description:

The Department of Paediatric Psychiatry is the only independent clinical facility for paediatric and adolescent psychiatry in the CR. It is engaged in the diagnosis, treatment and prevention of mental health disorders in childhood and adolescence. It specializes in disorders on the autistic spectrum, eating disorders, psychotic disorders, and suicidal behaviour in children and adolescents. The department also operates as a undergraduate and postgraduate educational institution. **In 2024, the total number of hospital admissions was 565, of which more than 240 were acute admissions via the paediatric emergency admissions department or children's emergency department at Motol University Hospital. There were roughly 1,200 psychiatric consultations for adults, and 900 psychiatric consultations for children. There were roughly 200 psychiatric examinations for adult patients and roughly 1,000 psychiatric examinations for child patients. At the Emergency Department and Medical First Aid Service for Children there were nearly 1,000 children who underwent an acute psychiatric examination, the same as in the previous two years.**

The number of hospitalizations was higher than in recent years, although the department underwent a wide-ranging reconstruction in 2024 that temporarily reduced the number of beds. This shows that the pressure on acute paediatric inpatient psychiatric care remains enormous, with admissions via the paediatric urgent/emergency care pathway and transfers of patients following suicide attempts from paediatric wards being the most common. In comparison with 2023, the number of patients after suicidal attempts stabilised (2023 – 141, 2024 – 136), whereas the number of self-harming patients increased (2023 – 353, 2024 – 407).

Specialized outpatient units and centres:

- outpatient unit for child psychiatry
- outpatient unit for eating disorders
- family centre – centre for family therapy

New methods and procedures:

- Use of the Autism Diagnostic Observation Schedule (ADOS) as the gold standard method for diagnosing autism spectrum disorders;
- Comprehensive therapy and research into eating disorders – the department's activities have national significance in this field.
- The significance of diagnostics and comprehensive therapy of psychotic conditions also exceeds the regional level.

Unique equipment:

- Thymatron DG device for electroconvulsive therapy

Major events in 2024:

- The book "Děti v ohrožení" ("Children at Risk"), whose authors are MUDr. Michal Hrdlička, CSs., Department Head, as. MUDr. David Kolouch, chief doctor, and the reporter Agáta Pilátová (Vyšehrad, 2024) was published. The book responded to current trends in paedopsychiatry related to the Covid-19 pandemic and other crises.
- The Department of Paediatric Psychiatry underwent an overall reconstruction.

Publication activity with a total IF = 10:

- HRDLIČKA, Michal (K); URBANEK, Tomas; ROTREKLOVÁ, Adéla; KULTOVA, Aneta; VALEK, Ondrej; DUDOVÁ, Iva. Predictors of age at diagnosis in autism spectrum disorders: the use of multiple regression analyses and a classification tree on a clinical sample. *European Child and Adolescent Psychiatry.* 2024, 33(4), 1171-1177. ISSN 1018-8827. DOI: 10.1007/s00787-023-02189-6. **IF2023 = 6; (D1; D1; D1)**
- OCISKOVA, Marie; PRASKO, Jan (K); KANTOR, Kryštof; VANEK, Jakub; NESNIDAL, Vlastimil; BELOHRADOVA, Kamila. Structural Equation Modeling of Childhood Trauma and Self-Stigma in Adult Inpatients with Borderline Personality Disorder. *Psychology Research and Behavior Management.* 2024, 17(October), 3761-3777. ISSN 1179-1578. DOI: 10.2147/PRBM.S476768. **IF2023 = 2.8; (Q2; Q1)**
- KANTOR, Kryštof; PRASKO, Jan (K); OCISKOVA, Marie; VANEK, Jakub; HODNY, Frantisek; BELOHRADOVA, Kamila; KOLEK, Antonin; VISNOVSKY, Jozef; NESNÍDAL, Vlastimil. Childhood trauma and dissociation in patients with panic disorder, obsessive-compulsive disorder, and borderline personality disorder. Part 1: Relationships between demographic, clinical, and psychological factors. *Neuroendocrinology Letters.* 2024, 45(6), 365-378. ISSN 0172-780X. **IF2023 = 0.6; (Q4; Q4)**
  KANTOR, Kryštof; PRASKO, Jan (K); BELOHRADOVA, Kamila; VANEK, Jakub; HODNY, Frantisek; KOLEK, Antonin; OCISKOVA, Marie. Childhood trauma and dissociation in patients with panic disorder, obsessive-compulsive disorder, and borderline personality disorder. Part

2: Therapeutic effectiveness of combined cognitive behavioural therapy and pharmacotherapy in treatment-resistant inpatients. *Neuroendocrinology Letters.* 2024, 45(6), 379-392. ISSN 0172-780X. **IF2023 = 0.6; (Q4; Q4)**

Department of Paediatric Haematology and Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head Doc. MUDr. Lucie Šrámková Ph.D.
Senior Consultant MUDr. Petra Keslová Ph.D.
Head Nurse Bc. Jitka Wintnerová

Basic description:

The department focuses on diagnostics, treatment and research of tumorous diseases in children, benign blood disorders, such as anaemias, bleeding disorders and congenital coagulation disorders (haemophilia). Allogeneic and autologous transplantation of haemopoietic stem cells in the treatment of high-risk leukaemias, selected solid tumours, congenital immunity disorders and metabolic defects is carried out at the transplantation unit.
The department is the largest of its kind in the Czech Republic, caring for approximately 2/3 of paediatric haematology and oncology patients in the CR, either completely or by sharing with other centres. It provides consultation examinations of patients for Bohemia and, in the framework of certain diagnoses and medical procedures, for the entire Czech Republic and for other countries (Slovakia, Croatia, Poland, ...).
In 2024, there were 17,044 examinations and treatments performed in specialist outpatient units. A total of 4,379 patients were hospitalised.
198 children with malignant solid tumours and tumours of uncertain behaviour, as well as 46 children with leukaemia and myelodysplastic syndrome were newly diagnosed and comprehensively treated. An additional 36 patients were treated in cooperation with other centres, including those abroad. Five patients were administered CAR T cell treatment.
24 allogeneic bone marrow transplantations were carried out, of which 18 patients received bone marrow from unrelated donors from registers, 5 received it from sibling donors and there was 1 haploidentical transplantation. Patients at the department received autologous grafts 19 times.

Specialized outpatient units:

- oncology outpatient unit and daycare centre
- outpatient unit for late consequences
- outpatient unit for haemangiomas and lymphangiomas
- neuro-oncology outpatient unit
- outpatient unit for Langerhans cell histiocytosis
- haematologic outpatient unit
- haematologic daycare centre
- outpatient unit for congenital coagulation defects and bleeding disorders
- outpatient unit for patients after bone marrow transplantation

New methods and procedures:

- The Paediatric Neuro-oncology Centre (in cooperation with the Department of Neurosurgery and other MUH departments) provided a full range of cutting-edge comprehensive diagnostics and treatment for children with CNS tumours. In 2024, 54 children from the CR and additional patients from other countries (Slovakia, Poland and Croatia) were diagnosed and/or treated for CNS cancer.
- International trials were opened for the treatment of acute myeloid leukaemia and neutropenia in children.
- We took another 4 Ukrainian paediatric cancer patients with refugee status into care in 2024.

Unique equipment:

- Thanks to support from an internal MUH grant, we obtained a QIAcube Connect MDx automatic nucleic acid analyser.

Major events in 2024:

- The academic title of professor was obtained by doc. MUDr. Eva Froňková Ph.D.
- **Prof. MUDr. Jan Trka won an Education & Mentoring Award from the European Hematology Association (EHA) for excellent guidance of PhD students and their support during research.**
- MUDr. Michaela Reiterová and prof. MUDr. Tomáš Kalina received an honorary mention from the Minister of Health for a completed Czech Health Research Council grant that concerned research into myeloid cells. The result of the grant was 6 publications with an aggregate impact factor of 40.814 (1 publication in D1, 1 in Q1 and 4 in Q2). The research findings will help improve the diagnosis of bone marrow failure and myeloid malignancies.
- We published the “Children’s Haematology” monograph in collaboration with departments in Brno, Olomouc and Plzeň
- 2 doctors at the department successfully completed their Ph.D. studies.

Publication activity:

- We published 75 articles in journals with an IF (10 of them first or last author from our department), total **IF of 649**.

Department of Paediatric Surgery, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Michal Rygl, Ph.D.
Senior Consultant MUDr. Luboš Zeman
Head Nurse Mgr. Ilona Mayerová, Mgr. Zuzana Kratinová

Basic description:

The Department of Paediatric Surgery is a leading European site for paediatric surgery, providing comprehensive diagnostic and therapeutic care for children from immature newborns to adolescents. The department’s specializations – surgery for newborns, chest surgery, surgical oncology, proctology, urology, surgery of liver and bile ducts, congenital developmental defects and polytraumas in children – ensures

care for young patients from the entire Czech Republic and for patients from abroad through the process of medical consultation. The Department of Paediatric Surgery has the highest accreditation for specialization training in the field of paediatric surgery in the Czech Republic and is the only facility in the Czech Republic with European UEMS accreditation for specialization training in paediatric surgery. The Department of Paediatric Surgery is a centre for highly specialized care in the European ERNICA network for rare diseases.
A total of 2,579 patients were hospitalised at the department in 2024. Of the total number, 185 were newborns and infants treated at the surgical unit for intensive care for newborns. Surgeries were performed on a total of 1,954 children. 23,085 children were treated in specialised outpatient units.

Specialized outpatient units:

- chest surgery
- surgery of liver, bile ducts and pancreas
- surgery for newborns, congenital developmental defects
- urology
- proctology
- paediatrics
- advisory centre for home parenteral nutrition
- prenatal consultations
- ostomy consultation

New methods and procedures:

- ICG fluorescence of minimally invasive surgeries
- SILS (single port) MiniACE
- Malone appendicostomy
- Anoplasty with dorsal rectal mobilization
- Perineum sparing repair of vestibular fistula
- Percutaneous laparoscopic endoscopic jejunostomy (PLEJ**)**
- Urethroplasty of sub-coronary hypospadias according to Maceda
- “Nursing – wash-out” in patients with Hirschsprung’s disease
- Primary laparoscopic procedures in patients with Hirschsprung’s disease
- Single incision minimally invasive surgery

Unique equipment:

- laparoscopic equipment for minimally invasive surgical procedures and with the option of ICG imaging (fluorescence using Verdye dye)
- mini surgical instrument set for thoracoscopic and laparoscopic surgery on the smallest children (newborns, infants)
- equipment for minimally invasive surgery with 3D images audiovisual instrumentation in the operating room – online conferencing
- laparoscopic simulators for training and simulation of minimally invasive surgery

Major events in 2024:

- The Department of Paediatric Surgery arranged an international workshop under the leadership of prof. Cuckow (UK) and MUDr. J. Trachta (CZ): Reconstruction of proximal hypospadias using a two-stage technique.

- The Department of Paediatric Surgery arranged under the leadership of prof. Marc Levitt (USA) and MUDr. L. Poš (CZ) – International proctology workshop focused on surgery on patients with anorectal malformations and Hirschsprung's disease with the participation of the CTO team (Colorectal Team Overseas).
- Prof. MUDr. Jiří Šnajdauf, DrSc. won the Purple Heart Award of the Czech Neonatal Society of the Czech Medical Association of J.E. Purkyně for outstanding services in care for newborns with serious surgical diseases.
- MUDr. Barbora Kučerová, Ph.D. successfully defended her habilitation thesis "Necrotizing Pneumonia in Children" and was appointed Associate Professor of Surgery at Charles University.
- Doc. MUDr. Barbora Kučerová, Ph.D. was elected a member of the Scientific Office of EUPSA (European Paediatric Surgeons' Association).
- MUDr. Lucie Poš, Ph.D. was elected a member of the Steering Committee of the European network caring for children with anorectal malformations, ARM-NET.
- MUDr. Vojtěch Dotlačil successfully completed the GA UK No.: 512120 grant, focused on the tissue level of biologics in IBD treatment.
- Charge nurse Ivana Nečasová successfully completed her studies in Management in Healthcare.
- MUDr. Dagmar Sovadinová and MUDr. Miloš Doucha successfully passed the attestation exam in the field of paediatric surgery and MUDr. Barbora Trojanová the attestation exam in neonatology.
- There was a generational change in the post of head nurse at the department. The long-term key worker Mgr. Ilona Mayerová was replaced by the winner of the selection procedure, Mgr. Zuzana Kratinová.

Publication and education activities:

5 publications in journals with an IF
4 publications in a local journal
1 chapter in a monograph
52 expert lectures

Department of Paediatric Neurology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Pavel Kršek, Ph.D.
Senior Consultant doc. MUDr. Jana Haberlová, Ph.D.
Head Nurse Gabriela Pavlová

Basic description:

The Department of Paediatric Neurology (DPN) is a reference super consultation site for all neurological diagnoses in children throughout the CR and provides care for patients from abroad in certain diagnostic and therapeutic programmes (such as surgical treatment of epilepsy). We now have two fully reconstructed inpatient units with a total of 40 beds, including 6 beds for lower level intensive care and 6 beds with video/EEG and polygraphic monitoring. The department includes a polyclinic with the following specialized outpatient units, a fully equipped Electrophysiology Laboratory and a Neurogenetics Laboratory offering molecular genetic diagnostics

for some neurological diseases of childhood. The Department of Paediatric Neurology is also an undergraduate and postgraduate educational facility and a scientific and research centre involved in many interdisciplinary and international projects.
In 2024, the department hospitalized 1,166 children, with total hospitalization accounts coming to 1,362. A total of 20,912 outpatient examinations were performed on 8,326 patients (unique personal ID numbers). A total of 5,397 procedures were performed in the electrophysiological laboratory.
35 resection surgeries, 6 long-term intracranial video/EEG studies, 2 primo-implantations and 2 reimplantations of a vagus nerve stimulator were performed under the epilepsy surgery programme. The Neurogenetics Laboratory processed 897 samples received (unique personal ID numbers). The neuromuscular centre performed 4,342 outpatient exams.

Specialized outpatient units/advisory clinics/centres:

- epileptological advisory centre
- outpatient unit for sleep disorders in children
- outpatient unit for high-risk newborns and infants
- advisory centre for neuromuscular diseases
- outpatient unit for botulinum toxin application
- advisory centre for neurocutaneous disorders
- advisory centre for inflammatory and demyelinating diseases
- neuro-oncology outpatient unit
- neuro-genetic outpatient unit
- outpatient unit for hereditary neurometabolic and neurodegenerative diseases
- psychological and neuropsychological advisory centre

Centres with international certification/recognised by Ministry of Health of the CR/other:

- Centre for Highly Specialized Care for Pharmacoresistant Epilepsies
- Centre for Highly Specialized Care for Multiple Sclerosis and Neuromyelitis Optica
- ERN for rare and complex epilepsies (ERN EpiCARE)
- ERN for rare neuromuscular diseases (ERN NMD)
- Centre for hereditary ataxias (under ERN RND)
- Centre for sleep disorders in children
- Epilepsy Research Centre Prague (EpiReC) – a consortium of the 2nd Faculty of Medicine, Charles University, Motol University Hospital, the Czech Academy of Sciences and the Czech Technical University in the field of translational epileptology research

New methods and procedures:

- New methods introduced by the Neurogenetics Laboratory:
    - re-analysis of all patients after performance of NGS (roughly 1,500 patients)
    - analysis of mitochondrial DNA
    - detection of the expansion of repetitive sequences
    - DNA sequencing from intracranial SEEG electrodes and cerebrospinal fluid in epilepsy-surgery patients

- A new method of the Neuromuscular Centre to clarify the pathogenesis of diseases linked to the MYBC1 gene (collaboration with the University of Maryland research center in Baltimore, USA);
- New methods of the Centre for Hereditary Ataxias:
  - start of treatment of patients with Friedreich's ataxia (FA) using omaveloxolone – the first approved drug for FA
  - cerebellar transcranial direct cerebral stimulation (ctDCS) – a non-invasive neuromodulation method for FA
  - OCT examination (ophthalmological monitoring of patients with FA)

Unique equipment:

- Applied Biosystems 3500 Dx Series Genetic Analyzer at the Neurogenetic Laboratory for Sanger sequencing and fragmentation analysis
- new diagnostic tools: Redenlab DesktopTM (quantification of speech disorders in ataxia)

Major events in 2024:

- Holding of a significant international neuromuscular congress in Prague. Doc. Jana Haberlová was president of the largest ever international neuromuscular congress: 29th Annual Congress of the World Muscle Society (WMS 2024), Congress Centre Prague, 8-12 October 2024, 1,666 attendees from 70 countries (https://www.wms2024.com).
- The Jan Marcus Marci Award for the best epileptology publication went to Ing. Lucie Sedláčková for 2023 (Sedlackova L, Sterbova K, Vlckova M, Seeman P, Zarubova J, Marusic P, Krsek P, Krijtova H, Musilova A, Lassuthova P. Yield of exome sequencing in patients with developmental and epileptic encephalopathies and inconclusive targeted gene panel. Eur J Paediatr Neurol. 2024 Jan:48:17-29. doi: 10.1016/j.ejpn.2023.10.006).
- Honorary commemorative medal of the Czech Medical Association of JE Purkyně for prof. Vladimír Komárek, awarded by the Czech Medical Association of Jan Evangelista Purkyně.
- Habilitation theses were successfully defended in 2024 by MUDr. Zuzana Libá, Ph.D. (habilitation thesis "Immune protection and inadequate immune responses in the central nervous system in children") and MUDr. Barbora Straka, Ph.D. (habilitation thesis "Implementation of genetic diagnosis in patients with cortical malformations and its role in epilepsy surgery").
- New grant project. In 2024 the Department of Paediatric Neurology obtained grant NW24-04-00349 "A multiomics approach in combination with systematic data collection to clarify pathomechanisms in hereditary sensory neuropathy" (principal investigator: doc. Petra Laššuthová).
- International UNIFAI study (evaluation of quantitative biomarkers of natural progression of FA using the mFARS scale, as a part of the FA Global Clinical Consortium's Pediatric WG);
- An international MEABET-FA study with the world's most important centre for FA at the Children's Hospital of Philadelphia for research into the activity of mitochondrial enzymes);

Publication activity:

- 24 primary publications in journals **with a cumulative IF of 117.29**, 7x first and 8x last authors of a paper; 2 publications in peer-reviewed journals

Department of ENT, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Zdeněk Čada, Ph.D.
Senior Consultant MUDr. Petra Dytrych, Ph.D., MBA
Head Nurse Adriana Laudátová

Basic description:

The facility focuses on diagnostics, conservative and surgical treatment of ENT diseases in paediatric patients from birth to 19 years of age. The department operates as a medical super consultation facility, providing care for children with poorly diagnosable or treatable diseases from all over the CR. The department arranges surgeries on newborns with a facial cleft with interdisciplinary cooperation as one of the two facilities of this kind in the CR. The facility is part of the laryngotracheal centre at Motol University Hospital and is the Implantation Hearing Centre at Motol University Hospital. The department includes the **Phoniatrics Outpatient Unit**. In 2024, our Phoniatrics Outpatient Unit successfully contributed to the diagnosis and treatment of hearing problems. In the past year, over 2,000 examinations of patients with a hearing problem were performed. Regular checks on patients with cochlear implants was an integral part of this care. These patients are carefully monitored by a team of specialized engineers, who ensure correct setup and optimization of an implant's functioning. Thanks to their specialist care, approximately 2,500 procedures focused on checking and setting up cochlear implants were performed in 2024. In addition, the implantation of a stem neuroprosthesis was performed in the 2nd paediatric patient in the Czech Republic in 2024.
A total of 2,463 patients were hospitalised at the department in 2024 and 2,340 surgeries (including consultations) were performed. The number of SSEP procedures was 124. The number of outpatient examinations was 31,186, of which there were 14,316 unique personal ID numbers. These results reflect our long-term attempt to provide high-quality and comprehensive medical care and confirm the effectiveness of our services

Specialized outpatient units/advisory clinics/centres:

- otosurgical outpatient unit
- otoneurology outpatient unit
- audiology outpatient unit
- outpatient unit assessing candidates for cochlear implants and rehabilitation centre after cochlear implantation and after bone conduction implantation (BCI)
- outpatient unit for addressing developmental defects in the neck and head
- outpatient unit for monitoring nodular swelling
- phoniatrics outpatient unit
- thyroidology outpatient unit
- oncological outpatient unit for treating lymphangiomas and haemangiomas of the head and neck
- outpatient unit for GERD diagnostics
- outpatient unit of plastic surgery
- outpatient unit for swallowing defects
- somnology outpatient unit

- USG outpatient unit
- rhinology outpatient unit

Unique equipment:

- plasma generator – plasma coblation
- Aeris balloon catheter – used for gentler dilation of stenosis of the respiratory tract in children
- 24h pH impedance meter
- microinstrumentarium for laryngeal surgery in children
- microinstrumentarium for FESS in children
- high-frequency tympanometer Maico MI 34
- Neo Laser with microfibre
- Bien-Air high-revolution bone cutter
- cochleaScann based on DPOAE – new objective audiometry technology
- wireless unit for perioperative measurement of impedance and NRT in perioperative measurement of the CI function, second generation
- harmonic scalpel – gentle tissue preparation, ultrasound principle, low temperatures
- EndoCameleon – optics with variable angle
- shaver – microdebrider, technique suitable in laryngeal microsurgery and rhinology
- three-channel perioperative monitor of peripheral nerves NeuroStim 3
- VEMP module
- Lumify Phillips diagnostic ultrasound system – portable ultrasound device
- Synapsys VHIT Evolution – SY.VHITIII_EVOLUTION Instrument for measuring the vestibular system by the vHIT Ulmer method in young children (version allows complete examination of all 6 semicircular canals).
- ICS Impulse Mono. Ocu. Ltd., Lateral Head Imp, LARP/RALP Head Imp, Mono. Pos., Tors for examination of the vestibular system by the vHIT method using glasses – contains all examination modules (video frenzel, oculomotor Limited, Lateral Head Impulse, LARP/RALP Head Impulse, monocular positional, torsional module).
- Saegeling Medizintechnik's polygraphic system for sleep monitoring in apneics (PSG)
- 2 X of 70*, 4 mm, 18 cm optics worth CZK 124,792 and a clinical audiometer with free field accessories and VRA support from the ENT Foundation

Major events in 2024:

Grants:

Ministry of Health project for the conceptual development of a research organization

Charles University Grant Agency No. 196123, Charles University Grant Agency No. 192121, Charles University Grant Agency No. 194123, Czech Health Research Council 5399, NU21-01-00448 ;

Prof. MUDr. Zdeněk Čada – Institutional support of Modern Therapy No. 9774 "Vestibular rehabilitation using virtual reality";

MUDr. Michal Jurovčík – Internal grant No.6023 – Improvement of accurate and timely diagnosis and comprehensive rehabilitation of children with severe congenital and acquired hearing loss

- Academic ranks and titles: appointed processor – 1x, completed PhD studies –1x, MBA title –1x.

Publication activity:

- **Periodical with IF; (WOS: Article, Review, Letter)**
- KOŽEJOVÁ JAKLOVÁ, Lenka (K); KOČANDRLOVÁ, Karolina; DUPEJ, Ján; BORSKÝ, Jiří; ČERNÝ, Miloš; VELEMÍNSKÁ, Jana. **Morphometric Assessment of Facial Morphology in Infants with Orofacial Clefts up to two Years of Age: A Three-Dimensional Cross-Sectional Study.** *The Cleft Palate-Craniofacial Journal.* 2024, 61(8), 1283-1293. ISSN 1055-6656. DOI: 10.1177/10556656231163970. **IF2023 = 1.2; (Q3; Q3)**
- MURGAŠOVÁ, Lenka; HŮLKOVÁ, Helena; BAREŠOVÁ, Veronika; JUROVČÍK, Michal; STŘÍTESKÝ, Jan; JURICKOVA, Katarina; MAGNER, Martin; SIKORA, Jakub (K). **Adenotonsillar pathology in mucopolysaccharidoses – lysosomal storage predominates in paracortical CD63+ cells.** *Virchows Archiv.* 2024, 484(1), 135-140. ISSN 0945-6317. DOI: 10.1007/s00428-023-03662-y.
  IF2023 = 3,4; (Q1)
- HOLÝ, Richard (K); KALFEŘT, David; VAŠINA, Libor; VOROBIOV, Oleksii; DYTRYCH, Petra; JANOUŠKOVÁ, Karla; AUGSTE, Eva; KASHIRI, Shahriar; PASTORKOVÁ, Nikola; MAMIŇÁK, Kristýna; HLOŽEK, Jiří; KOVÁŘ, Daniel; VODIČKA, Jan; ASTL, Jaromír. **Olfactory event-related potentials (OERPs) and trigeminal event-related potentials (TERPs) in subjects after Covid-19 infection: single-center prospective study.** *Journal of Applied Biomedicine.* 2024, 22(3), 149-154. ISSN 1214-021X. DOI: 10.32725/jab.2024.020. **IF2023 = 2; (Q3; Q3)**
- MASTNÍKOVÁ, Karolína (K); BULÁNOVÁ PEKOVÁ, Barbora; KUKLÍKOVÁ, Vlasta; VÁCLAVÍKOVÁ, Eliška; ČARKOVÁ, Jitka; KATRA, Rami; FIALOVÁ, Lucie; VLČEK, Petr; KODETOVÁ, Daniela; CHOVANEC, Martin; DROZENOVÁ, Jana; MATĚJ, Radoslav; PAČESOVÁ, Petra; NOVÁK, Zdeněk; PROCYKOVÁ, Kristýna; VČELÁK, Josef; BENDLOVÁ, Běla. **DICER1 Variants in Pediatric and Young Adult Thyroid Nodules.** *Thyroid.* 2024, 34(10), 1225-1233. ISSN 1050-7256. DOI: 10.1089/thy.2024.0188. **IF2023 = 6; (Q1)**
- Bonaventurová M, Balatková Z, Červený K, Černý R, Bandúrová V, Koucký V, Peterková L, Fík Z, Komarc M, Mrázková E, Plzák J, Čada Z. The comparison between intratympanic gentamicin prehabilitation and postoperative virtual reality exposure to standard vestibular training in patients with vestibular schwannoma. Eur Arch Otorhinolaryngol. 2025 Jan;282(1):79-89. doi: 10.1007/s00405-024-08891-8. Epub 2024 Aug 10.PMID: 39127800
  IF2023 = 1,9, Q2

Paediatric Department, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Zdeněk Šumník, Ph.D.
Senior Consultant prof. MUDr. Štěpánka Průhová, Ph.D.
Head Nurse Mgr. Jana Boháčová

Basic description:

The Paediatric Department provides diagnostics, treatment and follow-up care for paediatric patients from various places in the Czech Republic in almost all internal medicine specializations. The department has 6 inpatient stations, each of which has its own specialized focus. The department also has an elimination methods section and two research laboratories. **A total of 8,821 patients were hospitalized and we carried out 43,620 outpatient examinations at the department in 2024.** The teams are part of European Reference Networks (EU-ERN) (ERKNet, Endo-ERN, ERN BOND, ERN LUNG and ERN RARE LIVER).

Specialized outpatient units/advisory clinics/centres:

- In the outpatient part the department has **21 specialized facilities**, including an outpatient unit for children after kidney, lung and liver transplants.

- The Nephrology Work Group provides comprehensive care for children with kidney failure and other nephrological diseases, including peritoneal dialysis of the smallest children. 11 children have successfully undergone renal Tx, 10 children are on home peritoneal dialysis. The team provides elimination methods (plasmapheresis, immunoadsorption, etc.) to paediatric patients in all specialties at Motol University Hospital. In 2024, it participated in kidney transplants for patients from Slovakia. Biological treatment of complexly ill children with progressive renal impairment is being intensively developed. The team provides 24-hour super consultation services for the entire Czech Republic.
- The **pneumology team** provides superspecialized care for patients with i) cystic fibrosis including modulator therapy targeted according to in vitro functional studies of the CFTR channel, ii) primary ciliary dyskinesia – currently the only facility in the Czech Republic with a comprehensive diagnostic spectrum, (iii) interstitial lung diseases in childhood (one of 2 national centres in the Czech Republic), (iv) the need for long-term ventilatory support (invasive and non-invasive), in particular neuromuscular diseases and respiratory disorders, (v) after lung transplantation, (vi) congenital developmental defects of the respiratory tract, (vii) pulmonary hypertension and (viii) complicated pneumonia. The facility provides bronchoscopy examinations using a flexible device for children from the whole of MUH. It is involved in the management of post-resection complications (bronchopleural fistulas), uses the technique of closing them with own blood or tissue glue and the method of transbronchial cryobiopsy of lung tissue samples. The pulmonary function diagnosis laboratory is the only site in Central Europe that performs examinations of children of all ages.
- The **gastroenterological team** is successfully continuing the intensive endoscopy programme, including the introduction of percutaneous endoscopic gastrostomies combined with jejunal nutrition (PEG-J), and performs endoscopic balloon dilatations of oesophageal and small bowel strictures. It also cares for 9 patients using home parenteral nutrition. It is the only institution in the Czech Republic that uses Revestive, which currently helps treat 16 paediatric patients with short bowel syndrome. The department runs an intensive paediatric liver transplantation programme, in which we provide pre-operative preparation and long-term monitoring of patients. Furthermore, cooperation with a foreign centre is continuing, where patients with portal hypertension can undergo surgical treatment with a Meso-Rex bypass.
- The **diabetes and endocrinology team** successfully launched the Betty Type 1 (DM1) diabetes population screening pilot project in 2024. During the year, 7,811 blood samples were received for testing from 198 sites across the country with autoantibodies detected in 49 samples, of which 19 were diagnosed with early stage diabetes. We continued to introduce modern technology into the treatment of DM1, with research into the aetiology of growth disorders and the effect of growth hormone treatment, and organized regular national meetings of paediatric endocrinologists. In the SWEET

comparison of centres of excellence for paediatric diabetes treatment, the facility is among the top 3 centres in the world and participates in the SYPOVO project supported by the Ministry of Health of the Czech Republic, which focuses on comprehensive care for rare skeletal diseases. In 2024, we defended our status as an ERN centre for both endocrinology and osteology (ENDO-ERN and ERN-BOND).

- The **Infant Unit** admits children up to two years of age and provides them with both ordinary paediatric and highly specialized care intended for seriously ill newborns and infants. Care includes non-invasive ventilatory support, diagnosis and treatment of metabolic disorders including glycaemic monitoring, resolution of nutritional problems, swallowing disorders and parenteral nutrition. It cares for newborns with congenital developmental defects, syndromes and multi-organ problems. In 2024, in collaboration with the Dental Department at Královské Vinohrady University Hospital, we introduced a new method of resolving HCD obstruction in patients with the Pierre-Robin sequence using a Tübingen palatal plate.
- The Intensive Care Unit cares for children with severe disintegrating pneumonia (on chest drainage), organ failure, autoimmune diseases and multi-organ failure. These patients required non-invasive artificial lung ventilation, elimination methods, intensive monitoring of vital functions, etc. Children are also admitted to the unit after extensive spondylosurgery procedures and other surgical interventions.
- **The Věra Vávrová Laboratory of the Paediatric Department, 2nd Faculty of Medicine, Charles University and Motol University Hospital** is a research site focused on detecting the mechanisms by which rare chronic diseases arise in children.
- The **Laboratory of Molecular Genetics of the Paediatric Department** is the only one in the Czech Republic that deals with molecular genetic research into hereditary forms of diabetes and hyperinsulinism. It administers the national register of such diseases.

Unique equipment:

- The gastroenterology and pneumology team is currently equipped with the latest technology, including endoscopes for examining children in the lowest weight categories.
- The gastroenterology team acquired a sonography machine to investigate patients with IBD and a high-resolution manometer to investigate patients with bowel motility disorders.
- The Paediatric Department is the only paediatric unit in the Czech Republic equipped with a simulator for endoscopic operations in the field of gastroenterology and pneumology

New methods and procedures:

- endoscopic closure of bronchopleural fistula (tissue glue, own blood)
- transbronchial cryobiopsy of the lungs
- extension of the spectrum of immunofluorescence testing for primary ciliary dyskinesia (in collaboration with the Department of Histology and Embryology, 2nd Faculty of Medicine, Charles University)
- CF laboratory: Ussing chamber for electrophysiological measurement of potential differences at the respiratory cell membrane

- Introduction of new IBD therapies into ordinary clinical practice – upadacitinib and risankizumab

Major events in 2024:

- Grant for 2024–2027 “Whole genome sequencing as a tool for finding new variants causing monogenic diabetes and hyperinsulinism”.
- MUDr. Žofia Varenyiová, Ph.D., M.Sc. obtained the Albert Schweitzer Prize, first place
- Prof. MUDr. Štěpánka Průhová, Ph.D., was appointed professor of paediatrics by the President of the Republic
- Completed postgraduate education: MUDr. Žofia Varenyiová, M.Sc., MUDr. Eva Fürstová, MUDR. Shenali Amaratunga – defence of doctoral thesis (Ph.D.)

Publication activity: (Lancet Diabetes Endocrinol. 2025 Jan;13(1):47-56, Eur Respir J. 2024 Aug 15;64(2):2302160, Paediatr Drugs. 2024 Nov;26(6):659-672, Eur J Pediatr. 2024 Oct;183(10):4243-4251, Pediatr Res. 2024 Oct;96(5):1283-1291, Genet Med. 2024 Nov 20;27(2):101332, Diabetologia. 2024 Jan;67(1):113-123, J Clin Endocrinol Metab. 2024 Oct 15;109(11):e2009-e2015, JCI Insight. 2024 Jun 10;9(11):e175278 and others).

Common Inpatient Sites of Paediatric and Adult Sections

Department of Anaesthesiology, Resuscitation and Intensive Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Tomáš Vymazal, Ph.D., MHA
Senior Consultant for the adult section MUDr. Radka Klozová
Senior Consultant for the children’s section MUDr. Jana Pavlíčková
Senior Consultant for cardiac anaesthesia MUDr. František Mošna, MHA
Head Nurse for the adult section Mgr. Taťána Maňasová
Head Nurse for the children’s section Mgr. Ing. Lenka Malíková, MBA
Head Nurse for cardiac anaesthesia Mgr. Petr Šťastný

Basic description:

The department provides anaesthesiologic and resuscitation care in the paediatric and adult sections of the hospital in accordance with the needs and requirements of Motol University Hospital. As regards the number of physicians and other employees, as well as the extent of medical activities provided, our department is the largest facility of its kind in the Czech Republic. The department ensures specialized care for medical facilities of a lower level throughout the Czech Republic upon request. It is the managing and coordinating facility for postgraduate education of physicians and nurses and ensures tuition for anaesthesiologists and physicians with other specializations. The facility has been repeatedly granted type II accreditation.

The departmental head holds the position of Chairman of the Accreditation Commission at the Ministry of Health CR and Head of the AIM Department at the Institute for Postgraduate Medical Education (IPME). The Department of Anaesthesiology, Resuscitation and Intensive Medicine provides tuition to students of medicine and students in bachelor's programs at the 2nd Faculty of Medicine, Charles University to an extent greater than 1,800 hours/year also as a part of IFMSA and ERASMUS international educational and research projects.
In 2024, 1,247 patients requiring resuscitation care were admitted to the department's acute beds, of whom 674 were adults and 573 were children. In 2024, the FIC/LINC department admitted 66 patients, despite a dramatic reduction in the number of beds due to the reconstruction of MUH. In 2024, anaesthesia was administered to 39,535 patients, of whom 13,616 were children. ECMO support was provided to 125 critically ill adult and 8 child patients, and anaesthesia and intensive care was provided to 70 patients as part of the national lung transplant programme. More than 250 children received one type of long-term peripheral vascular access, making our department a leader in the Czech and Slovak Republics

New methods and procedures:

- In 2024, the ECMO centre at Motol University Hospital for adult and paediatric patients was significantly strengthened, and we have the status of an ECLS centre with registration in the European database.
- The Department of Anaesthesiology, Resuscitation and Intensive Medicine is one of 3 centres in the e-CPR project in the Czech Republic, including registration in the European database
- We succeeded in creating a mobile ECMO team that provides urgent care in the Czech Republic and Slovakia.
- Introduction of emergency thoracotomy procedures in primary treatment of major chest trauma, including organization of educational courses.
- With a unique PFA device for functional platelet analysis – part of the robust implant research at the department – we provide service to all Motol University Hospital units.
- Simulation Medicine Laboratory – we train doctors and nurses at Motol University Hospital and hold elective courses for undergraduate students; in 2024 the laboratory will be expanded to include additional high-fidelity models.
- In cooperation with the Department of Surgery, 2nd Faculty of Medicine, Charles University and Motol University Hospital, consistent application of ERAS procedures in large abdominal procedures with a clear impact on the quality of hospital admissions including publication of the results in the form of papers and workshops was introduced.
- In 2024, a record 70 lung transplant patients were admitted to the Department of Anaesthesiology, Resuscitation and Intensive Medicine, virtually all with organ-supported ECMO and no 30-day mortality.
- Extended application of regional anaesthesia with routine use of sonographic navigation;
- Routine use of the Target Temperature Management technology – targeted cooling in patients after circulation failure;
- Routine bedside coagulation examination – TEG, ROTEM for early diagnosis of coagulopathy, changes in the management of bleeding disorders with significant savings of blood derivatives; financial savings in the hundreds of

thousands of CZK per year, procedures also implemented in the Motol University Hospital internal rules;
- Modernization of the equipment in anaesthesiology theatres, including the use of the latest anaesthetics, is ongoing.
- Use of sonography for early diagnosis of bleeding into cavities in traumatized patients;
- Use of the latest video laryngoscopic techniques in the case of difficult intubation, including disposable intubation aids and instruments;
- Use of combined neuroaxial blocks in large joint replacements (hip, knee), including training for staff at specialized facilities;
- Use of peripheral blocks in paediatric and adult patients with ultrasound navigation;
- Routine use of the possibility of reliable reversal of the neuromuscular block following anaesthesia;
- Use of non-invasive ventilation techniques in the treatment of respiratory insufficiency in children and adults;
- Routine monitoring of cerebral oximetry and brain perfusion during surgeries on children and adults not only in the case of extracorporeal circulation using deep hypothermia;
- Comprehensive treatment protocol for the management of diastolic heart failure.

Major events in 2024:

- All CRRT (continuous renal replacement therapy) and ECMO technologies are becoming part of routine therapy in the paediatric resuscitation unit
- The comprehensive ECLS centre with registration in the European database is consolidating its position within the country.
- At the Department of Anaesthesiology, Resuscitation and Intensive Medicine there is 1 ongoing grant, 3 local academic studies (all approved by the MUH Ethics Committee) and 3 multicentre international studies organized by the ESA (European Society of Anaesthesiology).
- Defence of dissertation by 1 physician;
- Organization of pre-testing and core course including relevant examinations;

Publication activity:

- 1 monograph was published and Department of Anaesthesiology, Resuscitation and Intensive Medicine doctors were given as co-authors in three more;
- 11 original papers were published in peer-reviewed (3) and impact journals (8) and countless articles appeared in other professional journals;
- Upgraded texts for medical students including English language version published

The department includes:

Department of Subsequent Intensive and Long-term Intensive Nursing Care

Senior Consultant MUDr. Kateřina Čadová
Head Nurse Mgr. Soňa Hájková

The facility is one of the most modern in the country and provides medical and nursing services of the highest possible quality. The interest in admissions significantly exceeds the unit's capabilities and capacity. **In 2024 we admitted 66 patients for hospitalization.**

Major events in 2024:

- A very sad event was the death of the first lady of intensive medicine, the founder and a tireless promoter of subsequent care, doc. MUDr. Jarmila Drábková, CSc., the founder and long-standing senior consultant at the Department of Chronic, Resuscitation and Intensive Care at Motol University Hospital.

Department of Rehabilitation and Sports Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. PaedDr. Pavel Kolář, Ph.D.
Senior Physiotherapist Mgr. Kateřina Míková

The department includes the **Department of Rehabilitation – Adult and Paediatric Sections, Spinal Unit, Department of Pain Research and Treatment, Department of Sports Medicine**

1. Department of Rehabilitation

Senior Consultant MUDr. Martina Kövári, Ph.D., MHA (adult section)
Senior Consultant MUDr. Olga Dyrhonová (children's section)
Head Nurse Mgr. Hana Jirků

Basic description:

The Department of Rehabilitation provides physiotherapy and therapeutic rehabilitation to adults and children across all medical fields. We provide care to outpatients (adults' and children's section) and hospitalized patients (at individual departments and units of the hospital's sections for adults and children). The department includes a section for acute inpatient rehabilitation care, both adult and paediatric. **During 2024, a total of 837 patients were admitted to the department's inpatient section, a total of 4,370 patients were treated in the outpatient section, and 20,482 patients received rehabilitation care in other departments.**

Specifics of the facility:

Respiratory physiotherapy is one of the department's dominant activities. Additional specific procedures include treatment of spastic paresis in the Spasticity Centre (including applying botulinum toxin under sonographic or electrostimulation navigation and prescription of cannabis preparations), therapy for pelvic floor disorders, therapy for vestibular disorders, visceral rehabilitation, therapy and diagnosis for swallowing disorders, neurovisual rehabilitation, a lymphology programme and care for amputees.
The department also runs other programmes, such as a specialized programme for adult and paediatric patients after surgery for congenital heart defects. Serious forms of cerebral palsy are then assessed at interdisciplinary seminars with a consultation character (for patients under 18 and separately for adults from the entire Czech Republic), as well as interdisciplinary seminars intended for adult neurological patients.
The department provides bachelor's and master's programmes in physiotherapy (+ applied physiotherapy), undergraduate teaching, pre-attestation courses and habilitation and appointment procedures in the field of Rehabilitation and Physical Medicine.

New methods and procedures:

- The diagnostic and therapeutic concept of Dynamic and Neuromuscular Stabilization (DNS), based on the principles of developmental kinesiology, was created in the department and introduced into practice. Professor Pavel Kolář, the department's head, is the founder of this concept. The facility is involved in lecturing on this concept in the Czech Republic and abroad (roughly 55 countries).
- Outpatient project in cooperation with the ENT Department, 1st Faculty of Medicine, Charles University and Motol University Hospital in care for patients after total laryngectomies and oncological patients after radiation treatment in the cervical region and in rehabilitation care for patients with facial paresis after surgery on facial nerve tumours.
- Collaboration with the Department of Neurology in the testing of patients with SMA in Spinraza therapy and providing comprehensive care for patients with ALS.
- Outpatient project in cooperation with the Department of Pneumology, 2nd Faculty of Medicine, Charles University and Motol University Hospital and the Third Department of Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital, in care for patients before and after lung transplants.
- Extension of speech therapy care at Motol University Hospital – provision of speech therapy care including auditory rehabilitation for adult patients after cochlear implantation and establishment of a speech therapy group for people with diagnosed Parkinson's disease. There is also a speech therapy advisory centre for parents in the neonatology ward dedicated to eating and a specialised outpatient unit for children with cleft defects.
- In 2023, the Neurovisual Rehabilitation Project was created and is dedicated to the diagnosis and therapy of neuro-visual functions in adult and paediatric patients.

- We are newly collaborating in the process of induced sputum blending in patients who are unable to expectorate spontaneously (e.g. cystic fibrosis patients).
- Since the beginning of 2024, we have been providing sonographic examinations of the myoskeletal system and newly also interventional sonography, mainly dedicated to the treatment of pain.

Unique equipment:

- BTL 6000 FSWT device – high energy shock wave, whose use promotes healing of acute and chronic myoskeletal disorders and has a significant analgesic effect.
- Dynamic walkway with virtual reality
- new device: DST 8000 Triple Pro smart bars – system with 3-metre handrail for training walking on the flat, an inclined plane and stairs
- devices for functional electrical stimulation for lower or upper limb paresis
- A Poelite 100 BTL-6000 super induction magnetotherapy device – device for treating acute and chronic movement disorders
- new device: Alpinion xCube 70 including high-frequency probes with high resolution
- new device: USONO probe fix - device for ultrasound probe fixation for dynamic examination
- new device: 4 new virtual reality sets are in operation

Major events in 2024:

- Successful completion of the Erasmus+ grant “The movement activity enhancement after the COVID19 pandemics”. In addition to several publications in foreign journals, educational brochures were produced as outputs from this grant.
- Prof. MUDr. Alena Kobesová, Ph.D**. –** active attendance at the IV Congress of Physiotherapists of Montenegro;
- Prof. MUDr. Alena Kobesová, Ph.D, prof. PhDr. Pavel Kolář, Ph.D.: Update/ 3 levels of Motor Control. DNS World Congress. Logan University, St. Louis, MO. USA. 14.-16.6.2024;
- As. Mgr. Klára Kučerová, Ph.D., doc. PhDr. Ondřej Čakrt, Ph.D. as a part of Balance Awareness Week organized on 16 - 22 September 2024, an educational event for the public and professionals about vertigo and balance disorders at Motol University Hospital;
- As. MUDr. Jakub Jačisko, Ph.D**.:** Active participation (lecturer) at the Euromusculus conference 10/2024 in Morocco and 1/2025 at a Neuromuscular Sonography course – lecturer.

Publication activity – a total of **49 publications, mostly in impact journals**. Selection:

- Türkekul P, Jačisko J, Jevič F, Kobesova A, Özçakar L. Identifying malaligned knee screw during ultrasound examination. PM&R. 2025;1-2. doi:10.1002/pmrj.13344, **IF: 2.2 [Q2]**
- Slivkova P, Jevic, Schmidtova B, Smetanova J, Kyncl M, Jacisko J, Kobesova A. Pediatric basilar invagination: Unveiling a rare complication of inflammatory bowel disease unclassified. PM&R. 2024; http://doi.org/10.1002/pmrj.13203, **IF: 2.2 [Q2]**
- Sannasi R, Morris CE, Busch A, Noronha T, Krishna VP, Stribrny M, Kobesova A. Inter-rater reliability of the dynamic neuromuscular stabilization diaphragm tests among individuals with

non-specific low back pain and neck pain. Musculoskeletal Science and Practice, (2024), https://doi.org/10.1016/j.msksp.2024.102949, **IF: 2.2 [Q1]**

- Líška D, Rutkowski S, Oplatková L, Sýkora J, Pupiš M, Novák J, Urbářová E, Rutkowska A, Busch A, Kobesova A. Comparison of the level of physical activity after the COVID-19 pandemic in Poland, Slovakia and the Czech Republic. BMC Sports Sci Med Rehabil. (2024)https://doi.org/10.21203/rs.3.rs-3192881/v1,: **IF:1.9 [Q3]**
- Schramlová M, Řasová K, Kobesová A, et al. Quality of Life and Quality of Education among Physiotherapy Students in Europe. Frontiers in Medicine (2024). ,doi: 10.3389/fmed.2024.1344028
  IF: 3.9 [Q2]
- Chmielewska D, Malá J, Opala-Berdzik A, Nocuń M, Dolibog P, Dolibog PT, Stania M, Kuszewski M, Kobesova A. Acupuncture and dry needling for physical therapy of scar: a systematic review. BMC Complementary Medicine and Therapies. (2024) 24:14 https://doi.org/10.1186/s12906-023-04301-4,
  IF: 3.3 [Q1]
- Kavka T, Ryšavá M, Kobesová A. Clinicians' adherence to Low Back Pain Guidelines in the Czech Republic is low: an Exploratory Cross-sectional Study. Cesk Slov Neurol N. 2024; 87/ 120(6): 408–416. ISSN 1210-7859. doi: 10.48095/cccsnn2024408, **IF: 0.3 [Q4]**
- Kolář J, Veselý V, Kolář P, Kobesová A. Diagnosis and training of neuro-visual functions in rehabilitation and sport. Rehabil Fyz Lek 2024; 31(4): 173–183. doi: 10.48095/ccrhfl 2024173
- Kobesová A, Beránková K, Novák J, Kolář P. The use of the Dynamic Neuromuscular Stabilization examination protocol in clinical practice. Rehabil Fyz Lek 2024; 31(1): 11-24. doi: 10.48095/ccrhfl20241 Corresponding author
- Novotná K, Zeiselová J, Staníčková B, Kövári M, Uher T, Janatová M. Interest in Telerehabilitation Among Patients with Mild to Severe Multiple Sclerosis: Results of the Czech Republic. Telemedicine and e-Health. 2024;30(1). doi: 10.1089/tmj.2023.0065. **IF: 2.8.**
- Ricci Vincenzo; Mezian Kamal; Chang Ke-Vin; Tamborrini Giorgio; Jačisko Jakub; Naňka Ondřej; Özçakar Levent: Ultrasound-guided injection of the Achilles paratenon: A cadaveric investigation. Foot and Ankle Surgery, 2024, 30(4), 313-318, ID 642847
- Koutná S, Kalitová P, Jeřábek J, Slabý K, Kučerová K, Bouček J, Čakrt O. Comparison of postural control and space perception outcomes between robotic and conventional cochlear implantation in adults. Eur Arch Otorhinolaryngol. 2024;281(7):3839-3843.

2. Spinal Unit

Senior Consultant doc. MUDr. Jiří Kříž, Ph.D.
Head Nurse Mgr. Hana Jirků

Basic description:

The spinal unit ensures therapeutic and rehabilitation care for patients in the post-acute stage after spinal injuries and for patients in the chronic stage after spinal injuries who are experiencing serious health complications.
In 2024, 78 patients with acute spinal lesion and 27 spinal patients at the chronic stage with acute complications were hospitalized, approx. 550 patients were treated in the outpatient unit as part of follow-up or due to newly developed health problems.

New methods and procedures:

- Baclofen pump implantation in another two patients after spinal cord injury with severe spasticity in collaboration with the Department of Neurosurgery for Children and Adults.
- Treatment of chronic neuropathic pain using medical cannabis
- In cooperation with the Paraple Centre, the evaluation of patients in the Charles University Grant Agency-supported project "Managing Sleep Apnoea in People with Spinal Cord Injury, Treatment Options with Oral Correctors" was completed;

- In cooperation with the Faculty of Biomedical Engineering of the Czech Technical University, the project “Designing and Developing a Method to Prevent Autonomic Dysreflexia in Individuals Following Spinal Cord Injury” continued.
- Faecal bacteriotherapy to decolonize multidrug-resistant pathogens

Unique equipment:

- voice assistant for communicating with the surroundings and controlling equipment for patients with upper limb paralysis, with addition of a module for controlling various types of hospital bed
- tablet and communicator for baclofen pump programming
- CoughAssist device to support coughing in patients with neck spinal lesion
- Pony FX device for spirometry examination of lesions
- Misonic SonicOne device for removing necrotic material and devitalized tissue from skin defects
- Finapres NOVA device for assessing defects of the autonomous nervous system
- ABPM device – pressure Holter monitor
- Conformat for a seated pressure map examination in individuals with spinal cord injury

Major events in 2024:

- Co-organization of a day-long seminar to mark International Spinal Cord Injury Day, Paraple Centre, 5 September 2024;
- Continued work on the European project “European Multicenter Study about Spinal Cord Injury (EMSCI)”. IFP 2001/P 66;
- Active attendance at the “63nd ISCoS Annual Scientific Meeting”, Antwerp, Belgium, 22-25 September 2024;
- Organization of the 10th Course on Spinal Patient Examination, 15 - 16 November 2024
- 20th anniversary of the opening of the Spinal Unit at Motol University Hospital.

Publication activity:

- Weidner N, Abel R, Maier D, Röhl K, Röhrich F, Baumberger M, Hund-Georgiadis M, Saur M, Benito J, Rehahn K, Aach M, Badke A, Kriz J, Barkovits K, Killeen T, Farner L, Seif M, Hubli M, Marcus K, Maurer MA, Robert B, Rupp R, Scheuren PS, Schubert M, Schuld C, Sina C, Steiner B, Weis T, Hug A, Bolliger M, Weiskopf N, Freund P, Hothorn T, Schwab ME, Curt A; Nogo Inhibition in Spinal Cord Injury Study Group. Safety and efficacy of intrathecal antibodies to Nogo-A in patients with acute cervical spinal cord injury: a randomised, double-blind, multicentre, placebo-controlled, phase 2b trial. Lancet Neurol. 2025 Jan;24(1):42-53.,**IF 46.5, Q 1**
- Kriz J, Nasincova Z, Gallusova V, Vyskocil T, Gregor M, Slaby K, Sediva K. Muscle Excitability Scale for the assessment of spastic reflexes in spinal cord injury: development and evaluation. Spinal Cord. 2024 Sep;62(9):532-538.,**IF 2.1, Q 1**
- Kriz J, Hysperska V, Bebrova E, Roznetinska M. Faecal microbiota transplantation for multidrug-resistant organism decolonization in spinal cord injury patients: a case series. Infect Prev Pract. 2024 Jan 27;6(1):100340.,**IF 2.283, Q 2**
- Rybka V, Sediva K, Spackova L, Kolar P, Bradac O, Kriz J. Epidural spinal cord stimulation can facilitate ejaculatory response in spinal cord injury individuals: a report of two cases. Int J Neurosci. 2024 Nov;134(11):1357-1364.,**IF 2.2, Q 2**

3. Department of Pain Research and Treatment

Senior Consultant doc. MUDr. Jiří Kozák, Ph.D.
Head Nurse Soňa Bašová

Basic description:

The Department for Pain Research and Treatment has a multidisciplinary character in the care for chronic painful conditions. It is one of the 11 neuromodulation centres in the CR, an undergraduate and postgraduate teaching institution in algesiology and neuromodulation techniques. **The number of outpatient treatments for 2024 was 5,500, the number of hospitalized patients with chronic pain conditions was 109, the number of consultations was 299, Interventional methods, numbers: radio frequency procedures 76, total number of interventional procedures under USG navigation 579, number of neuromodulation procedures 16.**

New methods and procedures:

- Extension of radio frequency methods and indications for RF to nociceptor and peripheral neuropathic pain;
- Nerve blocks guided by USG and neurostimulator, one-time, continuous with catheter during hospitalization
- Pain testing using the Dolosys – Pain Tracker;
- The programme for implantation of spinal cord stimulation, peripheral nerve stimulation and peripheral tissue stimulation is ongoing;
- The use of cannabis and the introduction of Methadone into pain pharmacotherapy;
- Applying Capsaicin pl. (Qutenza) in neuropathic pain and creating a new code in the List of Medical Procedures;
- Creation of a new telemetry procedure (code creation in the List of Medical Procedures) for remote monitoring and programming of neuromodulations.

Unique equipment:

- Pain Tracker – Dolosys – testing device for assessing the RIII reflex – pain tester;
- radio frequency generator – invasive pain treatment (thermolysis, pulsed RF);
- neurostimulator for detecting nerve structures and navigating invasions;
- USG device for guiding targeted nerve and soft tissue blocks;
- neurostimulation systems for implanting SCS and PNS and monitoring neuromodulation methods, programming equipment;

Major events in 2024:

- Completion of the “Fascigel” clinical trial for patients with LBP – interfacial blocking (ESP approach) – MUDr. Petrová, doc. MUDr. Kozák);
- Participation in the organization of an international congress in Bratislava, “Dialogues on Pain 2004”, with active participation (doc. MUDr. Kozák);
- Doc. MUDr. Jiří Kozák, CSc. – active participation at the world congress (IASP), Amsterdam 2024;
- Co-organization of intervention post-graduate teaching in 2024 (Department for Pain Research and Treatment at Motol University Hospital + Department for Pain Research and Treatment at Královské Vinohrady University Hospital + Department for Pain Research and Treatment at Plzeň University Hospital + Institute for Postgraduate Medical Education);

- Active participation and co-organization of a Symposium on Pain Management in cooperation with the Society for Pain Study and Management, the Czech Haematological Society and the Neurological Society of the Czech Medical Association of JE Purkyně;
- Organization of a Neuromodulation Day with international participation at Motol University Hospital and a workshop in programming techniques and skills (22-23 November 2024);

4. Department of Sports Medicine

Senior Consultant doc. MUDr. Jiří Radvanský, CSc.
Head Nurse Mgr. Hana Jirků

Basic description:

The Department of Sports Medicine is one of the department's outpatient units. It focuses mainly on functional diagnostics at the regional level (in the case of congenital heart defects at the national level) and subsequent mobility recommendations. The department conducts functional stress diagnostics of the circulatory system even in patients in wheelchairs. The facility is the largest training centre for functional diagnostics under stress for the purposes of sports medicine and paediatric cardiac surgery in the country. **In 2024, roughly 2,000 athletes were examined during preventive sports exams, as were 2,300 patients indicated for stress testing as a part of differential diagnosis, long-term follow-up or pre-operative examination. We provided 4,474 interventions to 522 clients as a part of movement therapy, including individually tailored movement therapy and nutrition and lifestyle consultations.**

New methods and procedures:

- Launch of the cardiovascular rehabilitation programme;
- Introduced stress laryngoscopy to diagnose induced laryngeal obstruction (EILO) in collaboration with the Department of ENT, 1st Faculty of Medicine, Charles University
- Programme for patients with abdominal hernia
- Cardiovascular rehabilitation programme
- Movement therapy for oncology patients
- Specialised advisory centres for diseases associated with physical activity
- Ongoing multicentre studies (e.g. in patients with significant aortic regurgitation or aortic coarctation)

Major events in 2024:

- Ongoing multicentre studies (e.g. in patients with significant aortic regurgitation or aortic coarctation)
- Lecturing at conferences in the Czech Republic with international or domestic participation;
- Active participation in medical services for sports events with international participation, etc.

Department of Paediatric and Adult Orthopaedics and Traumatology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Vojtěch Havlas, Ph.D.
Senior Consultant MUDr. Daniel Rybka
Head Nurse Bc. Lucie Plocová
Department Manager Ing. Martina Tomandlová

Basic description:

The facility provides care in orthopaedics and traumatology for paediatric and adult patients not only within its region, but also throughout the CR through consultations. Thanks to its focus, it is one of the few orthopaedic facilities in the CR to cover the entire spectrum of orthopaedic and traumatological care.
The department contributes to the preparation and organization of congresses, especially the Smetana Evenings under the Czech Medical Association of JE Purkyně and the annual Spring Orthopaedic Symposium. Members of the department regularly participate in active lecturing activities at domestic and foreign symposia and congresses.
The department's doctors are repeatedly elected as active members to the committees of domestic professional societies for orthopaedics and arthroscopy – the Czech Society for Orthopaedics and Traumatology and the Society for Sports Traumatology and Arthroscopy. As a part of international cooperation, the managerial staff are members of foreign professional societies (SICOT, ESSKA and ISAKOS), where they also hold positions in extended committees and advisory boards, prof. Havlas has been the national SICOT delegate since 2019. Members of the department closely collaborate with specialist periodicals as reviewers (ACHOT, KSSTA and AJSM).
The department has long been involved in the implementation of new surgical procedures and techniques into standard practice, thereby supporting the development of the field of orthopaedics and its sub-specialties. As part of its research activities and grant projects, it is currently working with other leading orthopaedic facilities across the Czech Republic, institutes of the Czech Technical University and the Czech Academy of Sciences in Prague, Brno University of Technology and the Technical University of Ostrava.
Medical procedures at the department have been enriched in recent years with a number of innovations and successful treatment methods that help improve our patients' quality of life, in particular in the field of minimally invasive shoulder and hip surgery, knee osteotomies, endoprosthetics, paediatric and adult traumatology, treatment of congenital defects and post-traumatic deformities.
The number of hospitalizations in 2024 was 1,603 paediatric and 2,266 adult patients. The total number of surgeries
was 3,636, of which 1,329 procedures were on children and 2,307 procedures were on adult patients (of which 990 were endoprostheses).
The total number of outpatient treatments in 2024 was 49,884, including 31,214 patients in the children's section and 18,670 patients in the adult section.

Specialized outpatient units/advisory clinics/centres:

- orthopaedic oncology outpatient unit
- scoliosis outpatient unit
- outpatient unit of sports traumatology for children and adults
- specialized outpatient unit for arthroscopic procedures
- specialized outpatient unit for hip joint arthroscopy
- outpatient unit for neurogenic defects
- outpatient unit for congenital skeleton defects
- outpatient unit for primary and revision endoprosthesis of the large joints
- outpatient unit for comprehensive surgeries of the shoulder joint
- adult musculoskeletal sonography
- sonography of hips of newborns

New methods and procedures:

- In the field of paediatric onco-orthopaedics, the first individual replacement of the scapula and shoulder joint was performed.
- There was further development of “growing endoprostheses” surgery.
- In cooperation with the Czech implant manufacturer Prospon, the first implantations of individually produced partial superficial hip replacements were performed in young patients with segmental necrosis. It was the first implant of this type in the Czech Republic.
- In 2024, we became the first university facility in the Czech Republic to start to perform knee TEP using robotic assistance.

Unique equipment:

- 2 Canon Xario 100 Platinum and Xario 200 Platinum ultrasound machines They are used for standard screening of hips in newborns and for specialized ultrasound examination and therapy of the locomotive system.
- SIMBIONIX ARTHRO surgical simulator for ASK operations
- ultramodern 4k arthroscopic mobile unit, which is used in the department’s paediatric and adult sections
- optical PC navigation – used for knee joint replacement
- robotic navigation of the knee joint (loan)

Major events in 2024:

- Prof. Havlas was elected president of the ESSKA 2026 congress, which will take place in Prague.
- Organization of the Spring Orthopaedic Symposium, April 2024 – theme “News and trends in the treatment of ankle, foot and forefoot pathology”.
- Prof. Havlas organized the SICOT Travelling Fellowship – a one-month internship for foreign doctors at our department.

Publication activity:

- Jurča J, Vlach M, Havlas V. Total joint arthroplasty of the thumb CMC joint. Archives of Orthopaedic and Trauma Surgery. 2025, 145:127 doi:10.1007/s00402-024-05663-1 **IF 2.0** (Q2)
- Kubášová K., Drátovská V., Losertová M., Salvetr P., Kopelent M., Kořínek F., Havlas V., Džugan J., Daniel M. A Review on Additive Manufacturing Methods for NiTi Shape Memory Alloy Production. Materials. 2024, 17, 1248. Doi: 10.3390/ma17061248 **IF 3.1** (Q2)
- STRNADOVÁ, Martina; BALKO, Jan; BROŽ, Petr; WAGENKNECHT, Lukáš; KRSKOVÁ, Lenka (K). Fibromyxoid aSoft Tissue Tumor With PLAG1 Fusion-The First Case in an Adult

Patient. Genes, Chromosomes & Cancer. 2024, 63(11), e70011. ISSN 1045-2257. DOI: 10.1002/gcc.70011 **IF 3.1** (Q2)

- Hanák F., Koukolská V., Krsková B., Kynčl M., Havlas V. Fixation of knee osteochondral fragments using MAGNEZIX implants in paediatric patients – medium-term clinical and MRI results – accepted for publication 12/2024 **IF 0.4** (Q4)
- Completion of Czech Health Research Council grant – **NU20-08-00150**, Biodegradable magnesium-based implants with optimized microstructure and controlled absorption rate.
- Work continued on a grant in cooperation with the Czech Technical University – Czech Health Research Council, **NU23-08-00043**, Additive manufacturing of an NiTi alloy for applications in orthopaedics and traumatology
- New Czech Health Research Council grant in collaboration with the Czech Academy of Sciences – **NW24-10-00231**, Allogeneic multipotent mesenchymal stromal cell spheroids for cartilage regeneration.
- New Czech Health Research Council grant obtained in cooperation with Brno University of Technology and the University of Chemistry and Technology – **NW25-08-00044**, 3D printed individualized segmental joint replacement: optimization of bone fixation and biotribology of articulating surface.

Department of Neurosurgery for Children and Adults, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head doc. MUDr. Vladimír Beneš, Ph.D.
Senior Consultant prof. MUDr. RNDr. Ondřej Bradáč, Ph.D.
Head Nurse Bc. Tereza Drbohlavová

Basic description:

The department focuses on specialized acute and planned neurosurgery care for children and adults and provides medical consultation in its field. Above all in paediatric neurosurgery, it represents the most productive facility in the country. It also provides undergraduate and postgraduate tuition and carries out research activities. Apart from patients from the clearly defined catchment area of Prague and its surroundings, it accepts patients from all over the CR and, in the case of some specialised operations, also from abroad. **In 2024, we managed to maintain the trend for an increase in the volume of surgery for both parts of the department, above all in the field of neuro-oncology. We also maintained the growth in inpatients and outpatients.**
Together with the Department of Paediatric Neurology and the Neurology Department for Adults, the department is part of the Centre for Highly Specialized Care for Pharmacoresistant Epilepsies and the Epilepsy Research Centre Prague (EpiReC) – a consortium of the 2nd Faculty of Medicine, Charles University, Motol University Hospital, the Czech Academy of Sciences and the Czech Technical University. In collaboration with the Neurology Department, it is part of the Centre for Highly Specialized Cerebrovascular Care. In cooperation with the Department of Paediatric Haematology and Oncology, the Department of Paediatric Neurology and other departments, especially in the children's section of the hospital, the unique Paediatric Neuro-oncology Centre continues its activities, successfully promoted in professional forums and in the media (Czech Radio, CNN Prima News...)

Specialized outpatient units/advisory clinics/centres:

- outpatient unit of neurosurgery for children
- neurosurgical outpatient unit for adults with a focus on cranial and spondylosurgical issues

New methods and procedures:

- Measurement of neurophysiological functions during surgeries of the brain and spinal cord using a multimodal device, perioperative stimulation of brain centres in small children;
- Implantation of baclofen pump for the treatment of generalized spasticity in children and adults continues.
- Surgical treatment of craniosynostoses, where the most complicated deformities are treated in the presence of a maxillofacial surgeon – in recent years emphasis has been put on minimally invasive endoscopic procedures contingent on early diagnosis.
- Focus on minimally invasive approaches to the treatment of degenerative spinal defects – endoscopic spinal surgery;
- Vertebroplasty and stentoplasty in the therapy of osteoporosis fractures of the spine in cooperation with the Department of Radiology and the Department of Rehabilitation and Sports Medicine;
- Radio frequency neuromodulation in painful conditions (vertebrogenic, peripheral nerves);
- We treat extensive lesions in the area of the cranial base and face in multidisciplinary cooperation with a maxillofacial surgeon, ENT specialist and plastic surgeon, with the resection procedure often followed by a reconstruction procedure with covering details with microvascular transfer of a free lobe.
- Use of highly specialized multimodal monitoring of patients with craniocerebral injuries in neuro-traumatology;
- The surgical programme and endovascular techniques are developed in cooperation with the Department of Radiology as part of the neurovascular programme.
- Fine tuning and standard use of frame and frameless stereotactic procedures – application during insertion of deep brain electrodes and during brain biopsies;
- Programme for treating refractory epilepsy under the Centre for Epilepsies at Motol University Hospital. Stereotactic implantation of deep brain electrodes for subsequent long-term video and EEG monitoring for pharmacoresistant epilepsies and resection epileptic surgery procedures is carried out.
- Radio frequency thermoablation;
- Further development of endoscopic surgery for the ventricular system – 3rd ventriculostomy, endoscopic biopsies.

Unique equipment:

- new Zeiss Kinevo microscope for the children's theatre
- endoscopic CUSA – Sornic – tumour extirpation during endoscopic procedures
- exoscope – a digital microscope – Aesculap, allows 3D surgery

- Medtronic electromagnetic neuro-guidance with no need to immobilize the head (including frameless stereotactic procedures) used at central operating theatres for children
- brain neuro-guidance Brain Lab integrated with the Pentero microscope by Zeiss.
- perioperative ultrasound machine
- M-Turbo Ultrasound System from Sonosite
- InVent endoscope (Aesculap) including instruments, endoscopic instrumentation with a wide working channel

Major events in 2024:

- Continuation in the international cerebellar mutism syndrome study (CMS Study) and its expansion to include a specialized MRI protocol as a part of the FASTIGIAL study;
- Continuation of 2 Czech Health Research Council grants (Comprehensive Multidomain Diagnostic Battery for NPH; PediTuMRI).
- Allocation of organization of the working days of the Czech Neurosurgical Society for the year 2028

Publication activity:

- Publication of the monograph “Normal Pressure Hydrocefalus” by prof. Bradáč through the publishing house Springer
- Rýdlo O., Bubeníková A., Häcklová K., Skalický P., Leško R., Ebelová A., Netuka D., Beneš V. III, Beneš V., Bradáč O. Comparison of Decline In Different Cognitive Domain In Patients With Normal Pressure Hydrocephalus, Neurosurgical review 2024. DOI: 10.1007/s10143-024-02410-3 **IF 2,8**
- Táborský J., Táborská J., Sova P., Mařatová K., Kodytková A., Beneš V.III, Libý P. Evaluating mechanical benefit of wedge osteotomies in endoscopic surgery for sagittal synostosis using patient-specific 3D-printed models. Child’s nervous system 2024. DOI: 10.1007/s00381-024-06612-4. **IF 1.532**
- Luptáková N., Dlouhý V., Sobola D., Fintová S., Weiser A., Beneš V.III, Dlouhý A. Interfaces between Cranial Bone and AISI 304 Steel after Long-Term Implantation: A Case Study of Cranial Screws. ACS Biomaterials Science & Engineering 2024. DOI: 10.1021/acsbiomaterials.4c00309. **IF 5.8**
- Trková K., Sumerauer D., …, Beneš V. III, Zápotocký M. Clinical and molecular study of radiation induced gliomas. Sci Rep 14, 3118 (2024). DOI: 10.1038/s41598-024-53434-0 **IF 4.6**
- Táborský J., Táborská J., Vaculík M., Maratová K., Kodýtková A., Beneš V., Libý P. Selection of appropriate surgical technique in the treatment of the most common craniosynostosis. Cesk Slov Neurol N 2023;86:310-321. **IF 0.5**
- Haratek K., Bubeníková A., Entenmann Ch.J., Tomášek M., Zápotocký M., Sumerauer D., Kynčl M., Koblížek M., Libý P., Tichý M., Bradáč O., Beneš V. 3rd* Predictors of postoperative complications and functional outcomes in pediatric patients with surgically treated fourth ventricle tumors Acta Neurochirurgica 2023. DOI: 10.1007/s00701-023-05729-w **IF 2.4**
- Sedlák V., Bubeníková A., Skalický P., Vlasák A., Whitley H., Netuka D., Beneš V., Beneš V. 3rd, Bradáč O. Diffusion tensor imaging helps identify shunt-responsive normal pressure hydrocephalus patients among probable iNPH kohort Neurosurgical Review 2023. DOI: 10.1007/s10143-023-02078-1 **IF 2.8**
- Entenmann, Ch.J., Mišove A., Holub M., Zápotocký M., Sumerauer D., Tomášek M., Koblížek M., Bradáč O., Beneš V. 3rd Current management in the treatment of intramedullary ependymomas in children. Child’s nervous system 2023. DOI: 10.1007/s00381-022-05814-y **IF 1.532**
- Entenmann Ch.J., Bubeníková A., Blažková J. jr., Zápotocký M., Kruseová J., Sumerauer D., Trková K., Sochová V., Koblížek M., Kynčl M., Malinová B., Bradáč O., Beneš V. 3rd

Evaluation of the growth rates and related prognostic factors in radiation-induced meningiomas. J Neurooncol 2023. DOI: 10.1007/s11060-022-04209-y **IF 4.506**

Department of Stomatology for Children and Adults, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head MUDr. Petra Hliňáková, Ph.D., MBA
Senior Consultant MUDr. Milan Hubáček
Head Nurse Mgr. Václava Kolomazníková

Basic description:

Stomatology for children and adolescents focusing on healthy and handicapped patients – multidisciplinary cooperation between a general dentist, paedostomatologist, periodontist, prosthetist, orthodontist, dentoalveolar and craniomaxillofacial surgeon in the treatment of congenital and acquired developmental defects, injuries and tumours, children's centre for distraction osteogenesis of the facial skeleton as congenital developmental defects and joint centre for endoprosthesis of the jaw joint. Diagnosis and treatment of congenital and acquired defects of the splanchno-neurocranium, development of microscopic craniomaxillofacial surgery and dental and dentoalveolar microscopy in cooperation with other departments (such as neurosurgery, ENT, ophthalmology, oncology, plastic surgery, biology and genetics).
In 2024, 16,819 outpatient treatments and 641 one-day treatments were performed (313 tooth rehabilitations under general anaesthesia and 328 surgical procedures), 351 treatments under analgosedation. 782 patients were hospitalized at the inpatient department and 792 surgeries were performed, of which 231 were tooth rehabilitation for handicapped patients under general anaesthesia. X-ray examinations: 2335 OPG, 558 TL, 473 CBCT, 1233 IO, 272 BTW.

Specialized outpatient units:

- maxillofacial surgery (with specification of congenital developmental defects)
- defects of the jaw joint in children and adolescents
- oncology
- diseases of the salivary glands in children
- prosthetics
- implantology
- periodontology
- orthodontics
- orthodontic surgery focusing on the treatment of jaw anomalies
- orthodontic surgery focusing on the treatment of impacted teeth
- for children with special needs (disabilities)
- for children with rare diseases

New methods and procedures:

- augmentation of maxillary bone defects using a 3D modelled Ti-mesh
- care for patients with a cleft (comprehensive stomatological care)

- orthognathic surgical procedures including specialized counselling centre and 3D modelling, planning and reconstruction
- dental implantology and managed bone regeneration
- care for teeth of handicapped children under total anaesthesia or analgosedation
- surgery of the jaw joint, including subtotal endoprosthesis
- distraction of the facial skeleton in congenital developmental defects in children
- digital stomatology using intraoral and facial scanner
- With the Department of Mathematics, Faculty of Applied Sciences, we produce mathematical models for facial skeleton reconstruction;
- In collaboration with the Department of Computer and Control Engineering of the Faculty of Chemical Engineering, we analyse the assembly of 2D and 3D images, X-rays and working models in the creation of virtual treatment planning, including the printing of individual components;
- Together with the Faculty of Nuclear Sciences and Physical Engineering of the Czech Technical University, we are evaluating laser and ultrasound-based micro-preparation techniques.
- We prepare special obturation plates in cooperation with the ENT department and monitor their effect on functional reconstruction in patients with defects in the orofacial area in the form of monitoring the act of swallowing and during phonation.
- Together with the Department of Biology and Medical Genetics, the 2nd Faculty of Medicine of Charles University and Motol University Hospital, we monitor and treat children and adolescents with rare diseases according to a long-term treatment plan. We use intraoral and facial scanners to monitor therapy during growth with a focus on a comparison with young healthy individuals. 3D analysis and model reconstruction allow us to work with virtual impressions, 3D printed models, computer-made crowns, bridges and implants using CAD CAM techniques. We incorporate these procedures into our department's clinical dental practice.
- In clinical practice, we generate 3D models of the dental arch and jaw relationships for orthodontic, surgical and prosthetic treatment.

Unique equipment:

- 3D imaging system CBCT I-CAT
- KAVO 2D and 3D imaging system
- Orthopantomograph OP 3D Pro
- intraoral scanner 3SHAPE Trios
- stereolithographic 3D printer
- dental microscope

Major events in 2024:

- As a part of European cooperation, involvement in the studies "Rare congenital and developmental diseases of the orofacial system ERN CRANIO" and "Congenital and developmental defects of the orofacial system" (Centre for the Czech Republic in the EU).
- Completed post-graduate education in the specialisation – Orthodontics: MDDr. Jancíková Barbora, MDDr. Nocar Adam and Clinical Stomatology: MDDr. Chaloupková Markéta.

- Completed doctoral study Ph.D.: MDDr. Nocar Adam.
- On 3 October 2024, the book “Manifestations of Rare Diseases in the Orofacial Area” by Eva Míšová, Adam Nocar and Lenka Kratochvílová, published by Galén, was launched.
- Lectures to mark the 7th Children’s Stomatology Day were held on 6 December 2024.

Publication activity:

- A total of **5 articles in foreign publications with an IF**, 1 article in a peer-reviewed journal, 1 monograph and 1 contribution to a book.

Adult Inpatient Part

Geriatric Internal Department, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Milan Kvapil, CSc., MBA
Head Nurse Vladimíra Kotvová
Department Manager Ing. Daniela Polanecká

Basic description:

The Geriatric Internal Department provides diagnostic and therapeutic care to elderly patients in the whole range of geriatric and internal medicine, both inpatients and outpatients. In addition to standard acute internal care, the department provides specialized care programmes for seniors. It provides undergraduate teaching of geriatric medicine for Czech and foreign students in the 5th year at the 2nd Faculty of Medicine, Charles University, and in the 2nd year for general nurses.
In 2024, almost 288 patients were hospitalized in one inpatient station for standard geriatric care, and ¾ of the patients returned to their home environment after hospitalization.
In 2024, more than 2,400 patients were treated as outpatients in the specialised outpatient units.

Specialized outpatient units:

- geriatric outpatient unit
- diabetology outpatient unit
- podiatric outpatient unit
- urology outpatient unit
- angiology outpatient unit
- conservative cardiology outpatient unit – echocardiography
- endocrinology outpatient unit

Unique equipment:

- spirometry, audiometry, SudoScan, non-mydriatic fundus camera
- photoplethysmography + ABI/TBI measurement

- duplex sonography
- ApneaLink device for investigating sleep apnea
- BCM monitor; InBody
- ECG Holter monitor
- ABPM pressure Holter monitors – 24h blood pressure monitoring

New methods and procedures:

- The Geriatric Internal Department implemented comprehensive functional tests assessing the competence and performance of seniors in routine operation in 2024.
- The Geriatric Internal Department opened a new podiatric outpatient unit in 2024.
- A new method of measuring sudomotor function (screening for autonomic neuropathy in diabetics) was introduced into routine operation.
- The peripheral blood flow method (pedal acceleration time measurements) using DUS was newly introduced into the examination methods.
- The department is preparing an osteology outpatient unit and telemedicine outpatient unit
- In collaboration with the Department of Radiology, the department established standards for USG testing of sarcopenia, assessing muscle volume and structure in the elderly

Major events in 2024:

- The department underwent wide-ranging reconstruction in 2024, during which preparations for the opening of the 2nd inpatient station for standard geriatric care were completed.
- MUDr. Pavlína Piťhová, Ph.D. received the Prusík Prize from the Czech Society of Angiology for the publication “Deteminants of vascular impairment in type 1 diabetes-impact of sex and connexin 37 gene polymorphism: a cross-sectional study.”

Department of Obstetrics and Gynaecology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Roman Chmel, Ph.D. , MHA
Senior Consultant MUDr. Marek Pluta, Ph.D.
Head Nurse Mgr. Iveta Oravcová

Basic description:

The Department of Obstetrics and Gynaecology provides nationwide care in the entire spectrum of gynaecology and obstetrics, including specialized diagnostic examinations and surgical procedures in gynaecological oncology and gynaecological urology, treatment of sexual dysfunctions and treatment of sterility using assisted reproduction techniques. The department is a Perinatology Centre of the highest category, including comprehensive care for delivering extremely premature newborns and delivering foetuses with congenital developmental defects. **In 2024, 5,481 patients were hospitalized at the department and a total of 3,426 surgeries and 52,228 outpatient treatments were carried out. A total of 1,760 births occurred at the department, including 29 pairs of twins.**

Specialized outpatient units:

- centre of reproductive medicine
- gynaecological oncology and colposcopy
- gynaecological urology
- sexology
- outpatient gynaecology for children
- endocrinology
- centre for ultrasound diagnostics and foetal medicine

New methods and procedures:

- Participation in a multidisciplinary study to verify a non-established treatment method for sterility using uterine transplantation in women with uterine agenesis and vaginoplasty
- More than 130 robotic surgeries on gynaecological malign tumours have been performed since 2019

Unique equipment:

- Operace na robotickém chirurgickém mikromanipulátoru
- Chirurgický laser k ošetření premaligních epiteliálních lézí vulvy

Major events in 2024:

- The department's doctors were the authors and co-authors of **13 publications in journals with an IF.**

The department includes:

Department of Neonatology with IRCU

Senior Consultant prof. MUDr. Jan Janota, Ph.D.
Head Nurse Bc. Renata Jungmannová

Basic description:

The Department of Neonatology with IRCU is an integral part of the Perinatology Centre Type III – Perinatology Intensive Care Centre – with supra-regional scope. The facility provides standard, intermediate and intensive resuscitation care to the full extent, including controlled whole-body hypothermia, nitric oxide administration and all modules of conventional and non-conventional artificial pulmonary ventilation. In collaboration with other paediatric disciplines, it provides comprehensive care for newborns with congenital developmental defects and metabolic disorders. The department also provides specialized intensive and resuscitation care for premature babies, in particular to extremely immature babies and all critically ill newborns regardless of their gestational age. Care for physiological newborns in particular under the rooming-in regime is standard. **In 2024, there were 1,788 live births in the centre, 62 newborns with a birth weight below 1,500 g and 188 with a birth weight below 2,500 g were treated in the centre. Intensive, resuscitation or intermediate care was provided to a total of 410 newborns, of which 38% were born outside Motol University Hospital and transported after birth.**

Specialized outpatient units/advisory clinics/centres:

The facility includes a specialized outpatient unit for perinatally at-risk children. In 2024, 400 examinations were carried out in collaboration with a paediatric neurologist, physiotherapist, audiologist, ophthalmologist and clinical psychologist.

New methods and procedures:

- A series of studies are ongoing in the process of optimizing ventilatory support for patients with automatic oxygen therapy modification using the PRICO method
- In cooperation with the Ear, Nose and Throat Department of the 2nd Faculty of Medicine, Charles University and Motol University Hospital, a programme for early correction of a cleft lip in newborns is ongoing.

Unique equipment:

- comprehensive equipment of all artificial pulmonary ventilation devices with automatic FiO_2 control depending on HbSat (PRICO).
- special comprehensive transport system (2 x Giraffe Omnibed Carestation and GE Healthcare Shuttle module) with life support and comprehensive monitoring of vital signs implemented for postpartum and all transports within the framework of multidisciplinary cooperation at Motol University Hospital

Major events in 2024:

- The department was granted the status of a centre of highly specialized care in the field of perinatology – **Perinatology Centre of Intensive Care (PCIC)** for the period 2025–2029
- Award of the committee of the Czech Medical Society of Jan Evangelista Purkyně for the best medical book publication of the year – the book "Neonatology" (3rd edition), authors Jan Janota (Neonatal Department of Motol University Hospital) and Zbyněk Straňák
- Holding and organisation of European Resuscitation Council Neonatal Life Support Courses.
- The department became part of a transport service for newborns for Prague and the Central Bohemian Region and actively participates in transports of newborns from the whole region

Publication activity:

- Antibiotic exposure for culture-negative early-onset sepsis in late-preterm and term newborns: an international study. Dimopoulou V, Klingenberg C, Navér L, Nordberg V, Berardi A, El Helou S, Fusch G, Bliss JM, Lehnick D, Guerina N, Seliga-Siwecka J, Maton P, Lagae D, Mari J, Janota J, et al; AENEAS Study Group.Pediatr Res. 2024 Sep 17. doi: 10.1038/s41390-024-03532-6.
- Delivery room dextrose gel for preterm hypoglycaemia (the GEHPPI study): a randomised placebo-controlled trial. King G, Sloan J, Duddy P, O'Sullivan A, Ó Catháin N, Miletin J, Dempsey S, Moore S, Purna JR, McDermott C, Moran M, James J, Letshwiti JB, Tabery K, Kubátová A, Janota J, Kelleher J. Arch Dis Child Fetal Neonatal Ed. 2024 Nov 18:fetalneonatal-2024-327313. doi: 10.1136/archdischild-2024-32731

Department of Internal Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head Prof. MUDr. Radan Keil, Ph.D.
Senior Consultant MUDr. Jindra Lochmannová
Head Nurse Mgr. Kateřina Lisová/Bc. Miriam Němec

Basic description:

The Department of Internal Medicine provides comprehensive diagnosis and therapeutic care in the entire range of internal medicine to hospitalized patients and outpatients from the region and medical consultation services to patients from the entire Czech Republic. The department provides undergraduate tuition for Czech and foreign students in years 3–6 at the 2nd Faculty of Medicine Charles University, and postgraduate tuition in the framework of the specialization.
The department is a training centre for physicians prior to postgraduate certification in internal medicine, gastroenterology, diabetology/endocrinology, nephrology, intensive metabolic care and parenteral and enteral nutrition. The department is a teaching centre for endoscopic method candidates and also runs a course in abdominal sonography with the subsequent possibility of being licensed, guaranteed by the Czech Medical Chamber (CMC).
In 2024, the number of inpatients increased and was 4,704. A total of 50,250 outpatient procedures were performed, despite the partial reduction in the number of beds.
The department performed 5,740 endoscopic procedures over the year. In the field of ERCP, we are the department with the highest number of procedures in adult and paediatric patients in the whole country.

Specialized outpatient units/advisory clinics/centres:

- general internal medicine (including medical consultation)
- gastroenterology (including endoscopy and sonography)
- 24-hour service for urgent endoscopic procedures (ERCP, gastroscopy, colonoscopy)
- diabetes centre
- podiatric
- cardiology (including ECHO)
- angiology (including DUS examination of arteries and veins)
- nephrology (including peritoneal dialysis)
- nutritional
- lipidology
- endocrinology
- Centre for Vascular Access (1-11/2024)
- Centre for the Biological Treatment of Non-specific Intestinal Inflammation
- Centre for Treatment of Viral Hepatitis
- Centre for the Treatment of Obesity

New methods and procedures:

- EFTRD of the stomach (endoscopic full-thickness resection) – the department was the first in the Czech Republic to perform this method.

- Introduction of pancreatic pseudocyst drainage and peripancreatic fluid collections (WON) under EUS using apositional stents – using Hot Axios instrumentation.
- Weekly multidisciplinary seminars (oncoboards) are organized to effectively manage care for complex patients.
- In cooperation with the Pneumology Department, we are involved in a programme of comprehensive screening of patients before they are placed on the waiting list for lung transplantation.
- In collaboration with the Department of Ophthalmology, we continue our programme of therapeutic reopheresis for patients with age-related macular degeneration (AMD).
- In collaboration with the Department of Radiology, we provide inpatient facilities, preparation and post-procedural care for patients with absent or malfunctioning vascular access to haemodialysis. This includes new methods (Waveling, Surfacer) and transumbilical catheters.
- In 2023, treatment with immunoadsorption was initiated. The method is provided to neurological patients who have pharmacologically intractable demyelinating diseases. This method is also beneficial for patients with specific types of lung transplant rejection or other autoimmune diseases. A total of 92 immunoadsorption procedures were performed, which is the highest number of procedures in the country.
- In 2024, minimally invasive treatment of obesity using endoscopic gastric remodelling was commenced.

Unique equipment:

- In Body 970 – perfectly determines not only the amount of skeletal muscle and subcutaneous fat in the body, but also accurately measures visceral fat content, distinguishes intra and extracellular water
- BCM (Body Composition Monitor) – a device that allows precise analysis of the patient's hydration
- Canon Aplio i 800 sonographic device, which allows, in addition to standard two-dimensional and Doppler examination, also a multiparametric examination of the liver
- Artificial intelligence – visualisation of colon polyps
- Canon Aplio sonographic device with an endocrinological examination probe for the evaluation of microvascularization of thyroid nodules with precise display of the puncture needle, enabling puncture of thyroid nodules

Major events in 2024:

- The endoscopy facility at the Department of Internal Medicine obtained the status of a Digestive Endoscopy Centre granted by the Ministry of Health of the Czech Republic.
- Another "Prague Autumn Gastroenterological Days" congress was held on 3-4 December 2024 under the auspices of the Czech Society of Gastroenterology, whose president is prof. MUDr. Radan Keil, Ph.D.
- A Case Study Seminar was organized on 20 February 2024 under the auspices of prof. MUDr. R. Keil, Ph.D.
- MUDr. Martin Wasserbauer successfully completed his postgraduate studies in Human Physiology and Pathophysiology in 2024 at the 2nd Faculty of

Medicine, Charles University by defending his thesis “The peripheral nervous system and its dysfunction in patients with Crohn’s disease”.

Publication activity:

- *Monograph*
- Pichlerová D., Kamberská K.: “Always a Gourmet” Euromedia Group, 2024, 232 pp. ISBN: 978-80-284-0068-2. Book Publik 24
- Hoffmanová Iva: “Abdominal Sonography of the Gallbladder and Biliary Tract”. 1st electronic edition. Prague: Grada, 2024. 1 online source (264 pages). book Publik 23
- J. Malinovská, J. Brož. “Addiction Issues in Medical Practice”. Published 2024. Prague: ing. Slávka Wiesnerová, 2024, ISBN 978-80-87630-25-9
- Brunerová L, Urbanová J, Brož J. “Diabetes in Endocrinopathies and Endocrinopathies in Diabetes”, Prague, Grada 2023, 978-80-271-3700-8 – Prizes for the best monograph from the Czech Diabetic Society and the Czech Society of Endocrinology for 2023.
- *Publications with an impact factor*
- Král J, Drastich P, Galvao MP, Knotková K, Haluzík M, Machytka E: Extending limits: the longest recorded duodenojejunal bypass implant Endoscopy 2024; 56(S 01):E732-E733. publik 29. ISSN: 0013-726X. **IF: 11.5.** PMID: 39137910.
- Král J, Beneš M, Lánská V, Macinga P, Drastich P, Špičák J, Hucl T: Long-Term Results of Duodeno-jejunal Bypass in the Treatment of Obesity and Type 2 Diabetes Obes Surgery 2024;34(5):1407-1414. publik 30. **IF: 2.9.** ISSN: 0960-8923. PMID: 38436919.
- Král J, Selucká J, Waloszková K, Buzga M, Špičák J, Machytka E: Cutting-edge novel device in the treatment of obesity Endoscopy 2024; 56(2):155-156. publik 28. ISSN: 0013-726X. **IF: 11.5.** PMID: 38290503. Grant: NITINOTES NCT03472196.
- Huguet JM, Ferrer-Barceló L, Suárez P, Barcelo-Cerda S, Sempere J, Saracino IM, Florini J, Vaira D, Perez-Aisa A, Jonaitis L, Tepes B, Castro-Fernandes M, Pabón Carrasco M, Král J et al: Role of compliance in Helicobacter pylori eradication treatment: Results of European Registry on H. pylori management United European Gastroenterol J 2024; 12(6):691-704. publik 27. ISSN: 2050-6406**. IF: 10.5.** PMID: 38685613.
- Wasserbauer M, Malá Š, Štechová K, Hlava Š, Černíková P, Šťovíček J, Drábek J, Brož J, Kučerová B, Lísková P, Král J, Bartušková L, Keil R. Dysfunction of peripheral somatic and autonomic nervous system in patients with severe forms of Crohn’s disease on biological therapy with TNFα inhibitors – a single center study. Plos One 2023; in print **IF: 3.7** /Q2
- Altová A, Kulhánová I, Reisser K, Netrdová P, Brož J, Eikemo TA, Balaj M, Lustigová M: Educational inequalities in cervical cancer screening participation in 24 European countries Public Health 2024; 233:1-7. Publik 6. PMID: 38805834. **IF: 3.9.** ISSN: 0033-3506. Grant: GA UK 640120.
- Berka Barbora, Lustigová M, Urbanová J, Krollová P. Hloch O, Romanová A, Michalec J, Taniwall A, Žejglicová K, Malinovská J, Jenšovský M, Vejtasová V, Gonzáles-Rivas JP, Maranhao Neto GA, Pavlovska I, Brož J: Cascade of care for hypertension among apparently healthy and unhealthy individuals of 25-64 years in the Czech Republic PLOS ONE 2024;19(4): e0301202. publik 3. ISSN: 1932-6203. **IF: 3.7.** PMID: 38662802.
- Brož J, Brožová K, Povolná E, Michalec J: Hypoglycaemic confidence levels in patients with type 2 diabetes J Clin Nurs 2024;33(11):4510-4511. publik 9. **IF: 3.2**. ISSN: 0962-1067. PMID: 38797926.
- Fejfarová V, Jarošíková R, Antalová S, Husáková J, Wosková V, Beca P, Mrázek J, Tůma P, Polák J, Dubský M, Sojáková DE, Lánská V, Petrlík M: Does PAD and microcirculation status impact the tissue availability of intravenously administered antibiotics in patients with infected diabetic foot? Results of the DFIATIM substudy Frontiers in Endocrinol 2024;15:1326179. publik 35. ISSN: 1664-2392**. IF: 3.9.** PMID: 38774229.
- Král J, Hradis M, Buzga M, Kunovský L: Exploring benefits and challenges of AI-driven large language models in gastroenterology: think out of the box Biomed Pap Med Fac Univ Palacky

Olomouc Czech Repub 2024; 168(4):277-283. publik 31. ISSN: 1213-8118. **IF: 0.7.** PMID: 39234774.

Department of Surgery, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head doc. MUDr. Alan Stolz, Ph.D.
Senior Consultant MUDr. Filip Pazdírek, Ph.D.
Head Nurse Bc. Jitka Kabrnová

Basic description:

The department provides comprehensive care in the field of general surgery, oncosurgery, with a focus on abdominal surgery, coloproctology, endocrinology, breast surgery and reconstructive and plastic surgery, and now bariatric surgery. The department provides a non-stop surgical emergency service for all urgent surgical diseases including thoracic and abdominal trauma.
In colorectal surgery, there was a significant increase in minimally invasive procedures compared to previous years. The proportion of robotic surgery, laparoscopy and TEM (transanal endoscopic microsurgery) procedures is increasing. In rectal cancer surgery, the share of minimally invasive procedures is 85%. A robotic system is used to treat colorectal cancer and now also in the treatment of obesity. In 2022, the department became an international training centre for robotic colorectal surgery. The facility was included among highly specialized care centres for rectal cancer and hepatobiliary surgery. In an evaluation of centres for rectal cancer, Motol University Hospital ranked 1st in the Czech Republic.
The Department of Surgery is the only centre in the Czech and Slovak Republic providing comprehensive surgical treatment including differential diagnosis of lymphatic drainage disorders.
The number of breast surgeries, including reconstructive surgeries, is gradually increasing.
The number of patients in the day surgery programme increased in 2024.
The department is involved in undergraduate and postgraduate tuition and was actively involved in the implementation of research tasks. It helps train ostomy nurses in the Czech Republic.
In 2024, the department's outpatient unit examined more than 21,040 patients. 5,672 patients were treated at the Adult Emergency Department, which is an increase of 11% compared to 2023. 3,802 patients were hospitalized, which is an increase of 5% compared to 2023. Surgery was performed on 3,616 patients. 540 patients were provided with consultations at Motol University Hospital.

Specialized outpatient units:

- proctological advisory centre
- advisory centre for patients with surgical openings - educational and training centre for patients with surgical openings
- advisory centre for diseases of the pancreas and bile duct
- advisory centre for malignant melanomas
- advisory centre for endocrinological surgery
- breast advisory centre

- advisory centre for lymphedema
- endoscopy, anorectal manometry
- plastic surgery

New methods and procedures:

- robotic surgery in the treatment of obesity
- robotic resection of the rectum for tumours
- robotic resection of the colon for tumours
- the technique of microscopically sutured lymph node anastomosis has been introduced, preparation for lymph node auto-transplantation
- ERAS in the care of patients in the colorectal programme

Unique equipment:

- use of the daVinci Xi robotic system for surgery on rectal and colon tumours
- scintillation probe for identification of the sentinel node during surgeries on the breasts and malignant melanomas
- LigaSure – use in conventional and laparoscopic surgery
- detection of axillary nodes using iodine grain
- ultrasonic dissector
- surgical rectoscope with microsurgical instruments
- DG HAL set
- surgical method for anastomosis perfusion control, ICG
- system for functional examination of the anorectum

Major events in 2024:

- Workshop focused on robotic right-sided hemicolectomy in collaboration with the Department of Anatomy, 2nd Faculty of Medicine, Charles University;
- Workshop for minor procedures focused on suturing of intestinal anastomoses in cooperation with the Faculty of Medicine in Ostrava;
- The department participates in the international system of quality control of care in colorectal surgery as a part of European Society of Coloproctology (ESCP) audits.
- Continuation of the Motol University Hospital project “Modern Technologies” – nanofibre technology;
- Continuation of the ERAS project (protocol for multimodal perioperative care in colorectal surgery). Following the modification of the ERAS protocol, a colorectal surgery training centre is planned.
- Motol University Hospital project focused on the relationship between the microbiome and lymphedema;
- Motol University Hospital project focused on prediction of treatment response to NCHRT in rectal cancer based on the microbiome.

Publication activity – in journals with an impact factor:

- Pesce A, Ramírez JM, Fabbri N, Martínez Ubieto J, Pascual Bellosta A, Arroyo A, Sánchez-Guillén L, Whitley A, Kocián P, Rosetzka K, Bona Enguita A, Ioannidis O, Bitsianis S, Symeonidis S, Anestiadou E, Teresa-Fernandéz M, Vittorio Feo C. The EUropean PErioperative MEdical networking (EUPEMEN) project: recommendations for perioperative care in colorectal surgery. a quality improvement study. Int J Surg. 2024 May 13. doi: 10.1097/JS9.0000000000001601. **IF 12.5**, D1
- Ioannidis O, Anestiadou E, Ramirez JM, Fabbri N, Ubieto JM, Feo CV, Pesce A, Rosetzka K, Arroyo A, Kocián P, et al. The EUPEMEN (EUropean PErioperative MEdical Networking)

Protocol for Acute Appendicitis: Recommendations for Perioperative Care. J Clin Med. 2024;13(22):6943. doi.org/10.3390/jcm13226943. **IF 3.2**, Q1

3rd Department of Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital

Centre for Cardiovascular, Thoracoabdominal and Transplant Surgery, Motol University Hospital

Head prof. MUDr. Robert Lischke, Ph.D.
Senior Consultant MUDr. Jiří Tvrdoň
Head Nurse Mgr. Ida Šmolíková

Basic description:

The department is the largest facility focusing on thoracic surgery in the Czech Republic, providing comprehensive care in thoracic surgery (surgery on the lungs, trachea and airways, thoracic wall and deformities of the chest, oesophagus (the largest centre in the Czech Republic), mediastinum, myasthenia gravis, diaphragm).
The department is the only centre in the CR performing lung transplants. Since 2018, it has been providing lung transplants for the Slovak Republic.
It is the only centre with accreditation for grade II thoracic surgery.
It provides care in abdominal surgery in the entire spectrum of activities (surgery of gastroesophageal reflux, diaphragmatic hernia, oesophageal achalasia, surgery of the stomach and small intestine, liver, bile ducts and pancreas, surgery of the large intestine and rectum, hernia surgeries, minimally invasive laparoscopic and robotic techniques, traumatology of the chest and abdomen and endocrine surgery).
The department is the largest facility centralizing patients with soft tissue sarcomas.
In 2024, 3,505 surgeries were carried out, 3,563 patients were hospitalized and 43,601 patients were treated in the outpatient unit. 72 lung transplants were performed (high-volume centre, of which there are only 8 in Europe).
The first 2 transplants of a heart-lung block in children were performed in cooperation with the Children's and Adults' Heart Centre. The first RE-Re-transplant was also performed on a 26-year old woman.

Specialized centres:

- National Lung Transplantation Centre for the Czech and Slovak Republics
- Centre for Highly Specialized Pneumo-onco-surgical Care
- Centre for Highly Specialized Care for Surgical Diseases of the Oesophagus
- Centre for Highly Specialized Care for HPB Surgery
- Centre for Highly Specialized Care for Surgical Therapy of the Rectum
- Centre for the Treatment of Soft Tissue Sarcomas of Motol University Hospital
- Centre for Cardiovascular, Thoracoabdominal and Transplant Surgery of Motol University Hospital
- Joint participation in the Laryngotracheal Centre with the ENT Department and Department of Pneumology of Motol University Hospital

Specialized outpatient units:

- outpatient unit for lung transplantation
- outpatient unit for diseases of the lungs, mediastinum and thoracic wall

- outpatient unit for diseases of the oesophagus and stomach
- outpatient unit for surgery of soft tissue sarcomas
- outpatient unit for diseases of the liver, bile duct and pancreas
- outpatient unit for diseases of the bowel and rectum
- outpatient unit for endocrine surgery
- outpatient unit for diseases of the lower limb veins
- outpatient unit for endoscopy of the upper GIT
- internal outpatient unit

New methods and procedures:

- Preparation and introduction of the Ex vivo pulmonary perfusion and reconditioning programme into clinical practice, method leading to increased number of suitable grafts for lung transplantation;
- Programme for lung transplantation from DCD donors (donors with circulation failure);
- Heart-lung block transplantation programme in cooperation with the Institute for Clinical and Experimental Medicine;
- Introduction of endoscopic application of absorbable stents in the airways;
- Robotic surgery of the lungs, thymus and oesophagus – the only workplace in the CR, robotic surgery of the colon and rectum;
- Introduction of minimally invasive laparoscopic neurostimulation of the diaphragm in cooperation with the spinal unit of Motol University Hospital.

Unique equipment:

- ECMO and Ex vivo perfusion of the lungs
- DaVinci robotic system
- dissection and electrocoagulation techniques, including harmonic scalpel and LigaSure in conventional, laparoscopic and robotic surgery.
- 3D instruments – for laparoscopic and video-assisted thoracoscopic surgery
- ICG laparoscopy tower
- neuromonitoring in endocrine surgery

Major events in 2024:

- Ongoing scientific cooperation with the Department of Chronic Diseases and Metabolism, Laboratory of Respiratory Diseases and Thoracic Surgery (BREATHE), KU Leuven, Leuven, Belgium, and the Department of Thoracic Surgery, University Hospitals Leuven, Leuven, Belgium;
- Active participation at the European Society of Thoracic Surgeons 2024 conference in Barcelona and the International Society for Heart and Lung Transplantation 2024 in Prague.
- Albert Schweitzer Prize for Medicine 2024 – 3rd place;
- Jedliček Prize of the Czech Surgical Society of the Czech Medical Association of JE Purkyně – best paper in a specialist journal in 2022 (VACHTENHEIM JR, How COVID-19 Affects Lung Transplantation: A Comprehensive Review. Journal of Clinical Medicine, 2022).

Department of Cardiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Petr Ošťádal, Ph.D.
Senior Consultant MUDr. Jiří Vejvoda, MHA
Head Nurse Mgr. Jana Kovalčíková

Basic description:

Department of Cardiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital, is a part of the comprehensive Cardiovascular Centre for Adults at Motol University Hospital and provides highly specialized therapeutic and preventive care to inpatients and outpatients with heart and vascular diseases. **In 2024, 17,899 patients were treated in the outpatient section and 4,651 patients were hospitalized. At the Department of Intervention Cardiology, 3,169 catheterization procedures were performed, including 756 percutaneous coronary interventions, 475 peripheral artery catheterizations, 118 transcatheter aortic valve implantations (TAVI), and 7 mitral insufficiency corrections (MitraClip). Arrhythmology interventions performed included 486 catheterization ablations of arrhythmias, 160 ICD implantations and 346 permanent pacemaker and loop recorder implantations.** We observed an increase in outpatient and inpatient procedures, in most catheterization interventions, and a significant increase in arrhythmology interventions.

Specialized outpatient units:

- clinical cardiology outpatient unit
- outpatient unit for valvular heart defects
- outpatient unit for heart failure
- outpatient unit for hypertrophic cardiomyopathy
- arrhythmology outpatient unit
- angiology outpatient unit
- lipidology outpatient unit
- centre for congenital heart defects in adulthood
- centre for infective endocarditis (new)

New methods and procedures:

- Mechanical circulatory support for conditions with critical circulatory failure – synchronized pulsatile extracorporeal membrane oxygenation (i-cor) and percutaneous mechanical left ventricular support (Impella CP, Impella 5.5);
- Catheterisation valvuloplasty of the tricuspid valve (TriClip);
- Development of other structural heart interventions;
- Catheter treatment of pulmonary embolism;
- Coronary interventions;
- Coronary artery flow assessment and coronary microcirculation assessment;
- Ablation of atrial fibrillation by pulsed field (Farapulse);
- Electrodeless (leadless) pacing;
- Methods of physiological pacing;
- Implantation of a subcutaneous cardioverter/defibrillator;
- Catheter ablation of arrhythmias in adult patients with a congenital heart defect;
- Ablation of ventricular tachycardias using the epicardial approach;

- Endovascular monitoring of body temperature;
- New methods of 3D electroanatomical mapping;
- Protocol for diagnosis and treatment of cardiogenic shock.

Unique equipment:

- synchronized pulsatile extracorporeal membrane oxygenation (i-cor) – the second in the Czech Republic
- percutaneous mechanical left ventricular support (Impella CP and Impella 5.5) – among the first in the Czech Republic
- CARTO, EnSite Velocity – 3D electroanatomical mapping
- Hemosphere and Masimo systems for advanced haemodynamic monitoring – among the first workplaces in the Czech Republic
- Thermogard system for endovascular body temperature monitoring – unique in the Czech Republic

Major events in 2024:

- At the Young Investigator Awards to mark Czech Cardiovascular Research and Innovation Day 2024, MUDr. Jenšovský won second place for the work "Effectiveness of contemporary risk stratification in patients with hypertrophic cardiomyopathy: a pilot study".
- Professor Ošťádal is the a co-author of the paper "Temporary mechanical circulatory support in infarct-related cardiogenic shock: an individual patient data meta-analysis of randomised trials with 6-month follow-up" published in the Lancet (IF 98).
- Professor Ošťádal contributed to the preparation of guidelines of the European Society of Cardiology for diagnosis and treatment of chronic coronary syndrome.
- We were the first in the Czech Republic to introduce a comprehensive protocol using a new method – continuous thermodilution (for direct evaluation of the coronary flow and resistance), and acetylcholine testing of coronary vasoreactivity for invasive diagnosis and therapy of coronary microvascular dysfunction and increased coronary vasoreactivity.
- MUDr. Kala continues to work on Czech Health Research Council grant No. NU23J-02-00015 (2023-2026) "New pharmacological approaches for the treatment of heart failure with reduced ejection fraction combined with chronic kidney disease".
- Under the leadership of prof. Ošťádal work is continuing on Czech Health Research Council grant No. NW24-09-00215 "Big data analysis for saving the lives of patients with acute myocardial infarction and stroke in the Czech Republic (MISA-BID Myocardial Infarction and Stroke Big Data Analysis)".
- MUDr. Kala contributed to the establishment of a world-unique combined rat model of heart failure of ischemic etiology with pulmonary hypertension induced by microsurgical ligation of the rat's left coronary artery and pharmacological induction of pulmonary vasculopathy with accelerated pulmonary resistance – laboratory of the Centre for Experimental Medicine (CEM).
- In the field of research into hypertrophic cardiomyopathy, work continued on the characterisation of patients with hypertrophic cardiomyopathy (HCM) examined and followed up in the specialist centre and their monitoring in the registry.

- 930 patients have already been entered in the registry of percutaneous implantation of bioprostheses in the aortic position.
- MUDr. Jenšovský and MUDr. Mikula were successfully accepted into Ph.D. studies and MUDr. Puchnerová entered the third year of her Ph.D. studies.
- We held a one-day “New Trends in Cardiovascular Medicine” conference (280 attendees).
- We arranged an interactive seminar “Valvular Defects, How to Do It?” (90 attendees).

Publication activity: 29 articles in journals with an IF

The Department of Infectious Diseases and Travel Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head: MUDr. Milan Trojánek, Ph.D.
Senior Consultant: MUDr. Martin Tulach
Head Nurse: Mgr. Milena Chybová

Basic description:

The Department of Infectious Diseases and Travel Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital provides comprehensive treatment, preventive and diagnostic care in the field of infectious diseases and travel medicine. It provides acute and specialized outpatient care to the full extent of infectious diseases (excluding HIV) and has 23 beds for hospitalization of adult patients with transmissible, complicated or hard-to-treat infections. The department contributes to consultation care as a part of Motol University Hospital, in particular for patients with serious infections, infectious complications or febrile or inflammatory conditions of unclear aetiology.
The department’s professional focus reflects a modern concept of treatment of infectious diseases, inspired by the approach of foreign centres with emphasis on outpatient care, consultancy services and rational antibiotic therapy. The services provided are based on interdisciplinary cooperation with clinical facilities of Motol University Hospital and the Department of Medical Microbiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital. The department contributes to the antibiotic stewardship programme at Motol University Hospital.
The department contributes to the teaching of students in bachelor’s and master’s study programmes at the 2nd Faculty of Medicine of Charles University and serves as a teaching facility at the Institute for Postgraduate Medical Education. The department is involved in scientific and research activities in cooperation with laboratory and clinical fields at Motol University Hospital.
In 2024, 524 patients were hospitalized, the total number of unique personal ID numbers was
6,930, and 15,103 patients were examined as outpatients.

Specialized outpatient units/advisory clinics/centres:

- Vaccination Centre
- Travel Medicine Centre
- Centre for Treatment of Infections in Intravenous Drug Users

- Centre for Treatment of Viral Hepatitis

New methods and procedures:

- Consultation and outpatient specialist care for paediatric patients
- Department's involvement in the National Lung Transplantation Programme and the activities of the Centre for Infectious Endocarditis at Motol University Hospital
- Recommended practices for rational empiric antibiotic therapy prepared for the Emergency Department and Medical First Aid Service for Children and the Adult Emergency Department
- Expansion of the spectrum of care provided in travel medicine and vaccinations
- Mobile vaccination teams for vaccination of Motol University Hospital employees (influenza, covid-19, whooping cough)

Major events in 2024:

- Moving of the Vaccination Centre of Motol University Hospital to new, modern space.
- Josef Hlávka Prize (MUDr. Vyacheslav Grebenyuk);
- Kredba Prize for a specialist publication for authors up to 35 years old (MUDr. Vyacheslav Grebenyuk);
- Awards for the department's doctors at international OMI seminars in Salzburg (MUDr. Vyacheslav Grebenyuk, MUDr. Veronika Jegorova, MUDr. Zuzana Uhříková;
- Antibiotics in Clinical Practice – 3rd publication of the successful monograph (MUDr. Marek Štefan, MBA);
- MUDr. Marek Štefan, MBA, appointed chairman of the Subcommittee for Antibiotic Policy of the Medicine Committee of the Czech Medical Association of JE Purkyně;
- Department's involvement in the prestigious GeoSentinel network of travel medicine centres (CDC, USA);
- Educational project Travel.medicine.online.

Publication activity:

- HASMANOVÁ MARHÁNKOVÁ, Jaroslava, ZIELINA, Martin, PETRÚŠEK, Ivan, BEZDÍČKOVÁ, Ludmila, TROJÁNEK, Milan. Perception of the risk of antibiotic resistance and knowledge of the principles of rational ATB prescription among Czech general practitioners – conclusion from a pilot survey. Journal of Czech Physicians. 2024, vol. 163, No. 1-2, pp. 38-43.
- ŠTEFAN, Marek, HAVRÁNEK, Jindřich, PETRŽELOVÁ, Markéta, GAMBACORTA, Jitka, KULAKOWSKÁ, Markéta, NOVÁKOVÁ, Šárka, DOLINSKÁ, Dagmar, MODRÁKOVÁ, Antónia, VALKO, Alena, NYČ, Otakar, TEJNICKÁ, Jana, ZIEG, Jakub, DYTRYCH, Petra, TROJÁNEK, Milan, MÜLLEROVÁ-DISSOU, Jitka. Empirical outpatient antibiotic therapy of the most frequent acute community-acquired bacterial infections in children. Paediatrics for Practice. 2024, vol. 25, no. 4, pp. 206-212.
- TROJÁNEK, Milan, ŠTEFAN, Marek, BEZDÍČKOVÁ, Ludmila, PROKEŠ, Michal, ŽEMLIČKOVÁ, Helena. Antibiotic therapy for the most frequent infections in outpatient practice. Internal Medicine. 2024, vol. 70, no. 5, pp. 276-283.

Department of Cardiovascular Surgery, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head MUDr. Štěpán Černý, CSc., MBA
Senior Consultant for Vascular Surgery MUDr. Radovan Fiala, Ph.D.
Senior Consultant for Cardiac Surgery MUDr. Aleš Klváček
Head Nurse Mgr. Barbora Kolářová, MSc.

Basic description:

The department provides comprehensive care in cardiac surgery and vascular surgery. It provides a non-stop surgical emergency service for all urgent diseases of the cardiovascular system, including traumas, thoracic and abdominal aortic surgery. The department includes an organ perfusion team that provides extracorporeal circulation including ECMO (extracorporeal membrane oxygenation) for the entire hospital in the adult section.
A robotic cardiac surgery programme was established. We are the second facility in the Czech Republic that realistically offers a complete robotic cardiovascular programme.
In cooperation with the Department of Cardiology, the Department of Radiology and the Children's Heart Centre, a centre for care for patients with a congenital heart defect in adulthood was opened.
In cooperation with the Department of Cardiology, the Department of Infectious Diseases and the Department of Microbiology, a centre for care for patients with infectious endocarditis was established to provide comprehensive care for these high-risk patients.

In addition to the full spectrum of vascular surgery and endovascular interventions in the arterial system (in close cooperation with the angio-intervention group at the Department of Radiology), the department is developing a specialized programme of vascular graft transplantation in vascular surgery reconstruction procedures and a hybrid revascularization programme. It is contributing to the establishment of a centre for screening, diagnosis, dispensary, and surgical and endovascular treatment of aortic aneurysms. As a part of the stroke centre, it cooperates with the Department of Neurology and ensures surgical therapy of carotid artery disorders.
In cooperation with the Third Surgical Department, Department of Urology, Department of Paediatric Surgery, Department of Spondylosurgery and orthopaedic departments, it provides oncovascular care for patients with tumours of the thoracic and abdominal cavity and soft tissue sarcomas.
As part of the traditional cooperation with the children's section of the hospital (Department of Paediatric Surgery, Department of Paediatric and Adult Orthopaedics) and the specialized paediatric vascular outpatient unit (operated under the auspices of the Children's Heart Centre), it guarantees consultancy activities, treatment and long-term monitoring of paediatric patients with congenital and acquired disorders of the vascular system.

In 2024, 1,180 surgeries were performed at the Department of Cardiovascular Surgery, including 526 heart surgeries (including congenital heart defects in adults) and 654 vascular operations (445 arterial reconstructions, 174 lower limb varix operations, 35 other). Surgeons and perfusionists were involved in 69 lung transplants. The department's perfusion team performed a total of 523

extracorporeal supports (including 51 extracorporeal circulations in lung transplants and 58 in the ECMO programme). 5,044 patients were treated as outpatients.

Specialized outpatient units:

- cardiology outpatient unit for valvular defects
- cardiology referral outpatient unit
- vascular outpatient unit
- paediatric vascular outpatient unit (in cooperation with the Children's Heart Centre)
- outpatient unit for dialysis AV shunts

New methods and procedures:

- robotic cardiac surgery – robotic-assisted myocardial revascularization, mitral and aortal valve surgery, robotic surgery for congenital heart defects and benign heart tumours
- minimally invasive approaches in full-spectrum cardiac surgery (selected congenital defects, valve surgery)
- reconstructive (salvage) surgery of the aortic, mitral and tricuspid valves
- Ross procedure
- aortic arch and thoracic aortic surgery (frozen elephant trunk, extra-anatomic aortic arch bypass)
- ExoVasc implantation – external stabilization of the aortic root in patients with congenital connective tissue disorders
- surgical and endovascular treatment of thoracic and abdominal aortic aneurysms, including complex morphologies
- complex treatment of critical limb ischemia, vascular graft transplantation
- hybrid revascularization
- establishment of dialysis AV shunts, including complicated shunts, using an artificial vascular prosthesis and basilic vein transposition
- larvotherapy and application of amniotic membrane to chronic non-healing defects

Unique equipment:

- devices for ECMO – PLS and HLS devices allowing non-stop mechanical cardiac or pulmonary support
- latest generation echocardiographic and vascular DUS devices
- instrumentation for ablation therapy of atrial fibrillation
- device for measuring blood flow through bypasses and for peroperative sonographic examination of large arteries

Major events in 2024:

- Head Physician MUDr. Štěpán Černý CSc., MBA, became the leader of the working group for robotic surgery in the European Association for Cardio-Thoracic Surgery (EACTS)
- We contributed to the organization and specialist programme of the New Trends in Cardiovascular Surgery seminar

Publication activity: **10 specialist articles** published in journals **with an impact factor**

Department of Nuclear Medicine and Endocrinology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Petr Vlček, CSc., MHA
Senior Consultant MUDr. Kateřina Táborská
Head Nurse Ladislava Novotná

Basic description:

The Department of Nuclear Medicine and Endocrinology is an interdisciplinary facility of nuclear medicine and endocrinology focusing on standard diagnostics using radioisotope methods, as well as diagnostics, treatment and follow-up of differentiated thyroid carcinoma, serious forms of thyroidal orbitopathy and ^{131}I-MIBG therapy from the entire CR. The department is also an educational facility – it is accredited for endocrinology, diabetology and nuclear medicine**.**
The department is a centre for the treatment of thyroidal autoimmune orbitopathy with growth hormone inhibitors, diagnosis and therapy of advanced forms of differentiated carcinoma of the thyroid using human recombinant TSH (Thyrogen) and for the treatment of neuroendocrine tumours using radiopharmaceutical ^{131}I-MIBG (as the only centre in the Czech Republic).

Specialized outpatient units:

- endocrinology specializing in differentiated carcinoma of the thyroid, the unit is following up on more than 20,600 patients (one of the largest sets worldwide)
- advisory centre for micro-carcinomas of the thyroid (MDTC)
- advisory centre for medullary thyroid carcinoma (MTC)
- advisory centre for thyroidal autoimmune orbitopathy (TAO)
- outpatient unit for nuclear medicine

New methods and procedures:

- Diagnostics using the hybrid method combining X-ray (CT) and isotope (SPECT) imaging;
- Implementation of individual dosimetry in diagnostic and therapeutic procedures in paediatric and high-risk patients with advanced carcinoma of the thyroid;
- In cooperation with the Department of Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital, the department ensures targeted biological treatment of radio-iodine refractory thyroidal carcinomas;
- Arranging genetic examination for patients with the familial form of the medullary thyroid carcinoma and patients with papillary thyroid carcinoma in cooperation with the Institute of Endocrinology in Prague;
- In cooperation with the Department of Paediatric Haematology and Oncology of Motol University Hospital and Brno University Hospital, treatment of patients with high-risk neuroblastomas with the ^{131}I-MIBG combination according to the MATIN protocol with full-body dosimetry performed.
- Inclusion of the radiopharmaceutical Luthatera ^{177}Lu-DOTATATE (oxodotreotide) for therapy
- of inoperable or metastatic, progressive and well-differentiated (G1 and G2) gastroenteropancreatic neuroendocrine tumours (GEP-NET) that progress on treatment with somatostatin analogues.

Major events in 2024:

- The inclusion of the radiopharmaceutical PLUVICTO (177Lu-PSMA-617) as a standard part of therapy for patients with metastatic castration-resistant prostate cancer (mCRPC)

Department of Otorhinolaryngology and Head and Neck Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Jan Plzák, Ph.D.
Senior Consultant MUDr. Jan Kluh
Head Nurse Mgr. Jitka Hovorková

Basic description:

The department provides the full spectrum of examinations and treatments of diseases from the ENT specialization. Surgical procedures are carried out in the full extent, including the most highly specialized procedures, which are performed in many cases for the entire Czech Republic.
2,831 surgical procedures were performed at the department in 2024.

Specialized outpatient units:

- oncology outpatient unit
- cophosurgery outpatient unit
- rhinology outpatient unit
- endocrine surgery outpatient unit
- otoneurology outpatient unit
- outpatient unit for correction of hearing defects – hearing aids
- laryngeal and phonosurgical outpatient unit
- outpatient unit for rehabilitation of voice – voice prostheses
- outpatient unit for sleep disorders and snoring
- sonography outpatient unit
- outpatient unit for diseases of the salivary glands
- outpatient unit for swallowing defects
- outpatient unit of neurosurgery and diseases of the cranial base
- phoniatrics outpatient unit

Specialized centres:

- centre for laser surgery
- centre for surgery of the thyroid and parathyroid glands
- centre for cochlear implants
- centre for oncological surgery of the head and neck
- centre for rehabilitation of patients after total laryngectomy
- centre for electronic hearing replacements
- centre for salivary gland diseases
- centre for treatment of sleep insufficiency
- centre for swallowing disorders with multidisciplinary cooperation
- centre for robotic assisted surgery in head and neck oncology therapy

New methods and procedures:

- Use of the Montgomery salivary bypass tube after resection and reconstruction procedures following oncological procedures due to tumours in the head and neck;
- Augmentation of the vocal cords with Radiesse;
- Treatment of patients with sleep apnoea using the DISE method (Drug Induced Sleep Endoscopy);
- Endoscopic approaches to removal of tumours in the inner ear canal;
- Perioperative neuromonitoring;
- Fibre-optic endoscopic evaluation of swallowing with functional assessment (FEES);
- Extended microsurgery of tumours in secondary nasal cavities and cranial basis using guidance;
- Examination of vestibular evoked myogenous potentials (VEMP) in patients with balance disorders;
- Endoscopic surgery of oesophageal diverticulum;
- Endoscopic diagnostics of tumours in airways and swallowing system using NBI;
- Endoscopic examination of the salivary glands and endoscopic treatment of the sialolithiasis;
- Use of exoscope in posterior cranial fossa surgery, phonosurgery and traditional ear surgery;
- Rehabilitation of patients after total laryngectomy with synthetic voice recording; in cooperation with the University of West Bohemian in Plzeň – department of cybernetics;
- Introduction of robotic assisted surgery in head and neck oncology therapy.

Unique equipment:

- CO2 Laser, Dioxi Laser, Thulium laser, argon plasma coagulation
- harmonic scalpel, radio frequency scalpel, shaver
- endoscopic equipment for minimally invasive procedures on the thyroid and in surgeries of the cranial base and the inner ear canal
- video-stroboscopy, video ENG
- NBI in early diagnosis of tumours
- neuronavigation
- video-endoscopy of the salivary glands
- micro-shaver and laser for stapedial ear surgery
- Interacoustics EyeSeeCam vHIT
- The ICS Chartr 200 system allowing examination with infrared glasses (VNG vestibulometry), as well as detecting nystagmus with electrodes (ENG vestibulometry).
- surgical exoscope
- robotic technology for therapy of tumours of the head and neck and surgery for cochlear implants

Major events in 2024:

- Prof. MUDr. Jan Plzák became a member of the Czech Medical Academy.
- Prof. MUDr. Jan Plzák was awarded the Bronze Medal for his contribution to the building and development of the Slovak Medical Association.

- The department hosted or co-hosted a number of events with domestic and international participation in which doctors in the department, undergraduate and postgraduate students actively participated.
- Active participation of undergraduate and postgraduate students at scientific conferences (lectures, commented posters, instruction courses).

Publication activity – a total of **16 publications with an impact factor**

- Raudenská M, Bugajová M, Kalfeřt D, Plzák J, Šubrt A, Tesařová P, Masařík M. The interplay between microbiome and host factors in pathogenesis and therapy of head and neck cancer. Biochim Biophys Acta Rev Cancer. 2024 Nov;1879(6):189216. doi: 10.1016/j.bbcan.2024.189216. Epub 2024 Nov 13. PMID: 39542383. **IF= 9.7**
- Bugajova M, Raudenska M, Hanelova K, Navratil J, Gumulec J, Petrlak F, Vicar T, Hrachovinova S, Masarik M, Kalfert D, Grega M, Plzak J, Betka J, Balvan J. Glutamine and serum starvation alters the ATP production, oxidative stress, and abundance of mitochondrial RNAs in extracellular vesicles produced by cancer cells. Sci Rep. 2024 Oct 28;14(1):25815. doi: 10.1038/s41598-024-73943-2. PMID: 39468126; PMCID: PMC11519472. **IF= 3.8**
- Holy R, Kalfert D, Vasina L, Vorobiov O, Dytrych P, Janouskova K, Augste E, Kashiri S, Pastorkova N, Miminak K, Hlozek J, Kovar D, Vodicka J, Astl J. Olfactory event-related potentials (OERPs) and trigeminal event-related potentials (TERPs) in subjects after Covid-19 infection: single-center prospective study. J Appl Biomed. 2024 Sep;22(3):149-154. doi: 10.32725/jab.2024.020. Epub 2024 Sep 23. PMID: 39434512. **IF= 2**
- Rotnagl J, Hlozek J, Holy R, Pavlik E, Kalfert D, Astl J. Salivary glands – a new site of Helicobacter pylori occurrence. J Appl Biomed. 2024 Sep;22(3):141-148. doi: 10.32725/jab.2024.018. Epub 2024 Sep 6. PMID: 39434511. **IF= 2**
- Novak S, Balatkova Z, Fikova A, Grega M, Kalfert D, Plzak J. Preservation of orbit in tumor invasion through the periorbita in sinonasal malignancy. Eur Arch Otorhinolaryngol. 2024 Oct;281(10):5303-5310. doi: 10.1007/s00405-024-08757-z. Epub 2024 Jun 24. PMID: 38914815; PMCID: PMC11416355. **IF= 1.9**
- Bugajova M, Raudenska M, Masarik M, Kalfert D, Betka J, Balvan J. RNAs in tumour-derived extracellular vesicles and their significance in the tumour microenvironment. Int J Cancer. 2024 Oct 1;155(7):1147-1161. doi: 10.1002/ijc.35035. Epub 2024 Jun 6. PMID: 38845351. **IF= 5.7**
- Kalfert D, Ludvikova M, Pesta M, Hakala T, Dostalova L, Grundmannova H, Windrichova J, Houfkova K, Knizkova T, Ludvik J, Polivka J, Kholova I. BRAF mutation, selected miRNAs and genes expression in primary papillary thyroid carcinomas and local lymph node metastases. Pathol Res Pract. 2024 Jun;258:155319. doi: 10.1016/j.prp.2024.155319. Epub 2024 Apr 23. PMID: 38696857. **IF= 2.9**
- Lagerstam H, Kalfert D, Maleki Z, Kholová I. How the Milan System for Reporting Salivary Gland Cytopathology works in cytopathology practice: Meta-analysis of prospective studies and comparison with retrospective studies. Cancer Cytopathol. 2024 Jul;132(7):447-457. doi: 10.1002/cncy.22815. Epub 2024 Apr 9. PMID: 38594082. **IF= 2.6**
- Horáková Z, Stárek I, Kalfert D, Dostalova L, Kalivoda I, Salzman R. Primary Squamous Cell Carcinoma of the Parotid Gland: Study and Review of the Literature. In Vivo. 2024 Jan-Feb;38(1):358-364. doi: 10.21873/invivo.13446. PMID: 38148050; PMCID: PMC10756455. **IF= 1.8**
- Fikova A, Novak S, Kalfert D, Kuchar M, Zabrodsky M, Dostalova L, Balko J, Plzak J. Utility of fine-needle aspiration biopsy (FNAB) in parotid pleomorphic adenoma diagnosis and management. Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub. 2024 Jun;168(2):156-161. doi: 10.5507/bp.2023.027. Epub 2023 Jul 10. PMID: 37431621. **IF 0.7**
- Kalfert D. Comment on and correction of Zwierz et al. Maximal medical treatment of adenoid hypertrophy: a prospective study of preschool children. Eur Arch Otorhinolaryngol. 2024 May;281(5):2771. doi: 10.1007/s00405-024-08547-7. Epub 2024 Mar 1. PMID: 38427045. **IF= 1.9**

  Bonaventurová M, Balatková Z, Červený K, Černý R, Bandúrová V, Koucký V, ,Peterková L, Fík Z, Komarc M, Mrázková E, Plzák J, Čada Z. The comparison between intratympanic gentamicin prehabilitation and postoperative virtual reality exposure to standard vestibular training in patients with vestibular schwannoma. Eur Arch Otorhinolaryngol. 2024 Aug 10. doi: 10.1007/s00405-024-08891-8. Epub ahead of print. PMID: 39127800. **IF 2.2**

- Lazak J, Betka J, Zverina E, Vlasak A, Bonaventurova M, Balatkova Z, Kana M, Fik Z. Quality of life in patients after vestibular schwannoma surgery. Acta Neurochir (Wien). 2024 Jan 25;166(1):33.doi: 10.1007/s00701-024-05936-z. PMID: 38270649; PMCID: PMC10810939.**IF1.9**
- Smahelova J, Pokryvkova B, Stovickova E, Grega M, Vencalek O, Smahel M, Koucky V, Malerova S, Klozar J, Tachezy R. Aspartate-β-hydroxylase and hypoxia marker expression in head and neck carcinomas: implications for HPV-associated tumors. Infect Agent Cancer. 2024 Jun 10;19(1):26. doi: 10.1186/s13027-024-00588-1. PMID: 38858774; PMCID: PMC11163809. **IF 3.1**
- Pavelková L, Táborská E, Syding LA, Plačková K, Simonova E, Hladíková K, Hensler M, Laco J, Koucký V, Zábrodský M, Bouček J, Grega M, Rozkošová K, Vošmiková H, Halaška MJ, Rob L, Práznovec I, Hodek M, Vošmik M, Čelakovský P, Chrobok V, Ryška A, Palová-Jelínková L, Špíšek R, Fialová A. Tissue contexture determines the pattern and density of tumor-infiltrating immune cells in HPV-associated squamous cell carcinomas of oropharynx and uterine cervix. Transl Oncol. 2024 Mar;41:101884. doi: 10.1016/j.tranon.2024.101884. Epub 2024 Jan 18. PMID: 38242007; PMCID: PMC10831289. **IF 4.5 Q1**
- Nabuurs CH, Kievit W, Leemans CRR, Smit CFGM, van den Brekel MWM, Pauw RJ, van der Laan BFAM, Jansen JC, Lacko M, Braunius WW, Dai C, Shi X, Danesi G, Bouček J, Borsetto D, Gowrishankar S, Kania R, Jourdaine C, Jansen TTG, Derks J, Dijkema T, Takes RP, Kunst HDPM, Postoperative Radiotherapy for pT1-and pT2-Classified Squamous Cell Carcinoma of the External Auditory Canal, Cancers, **IF – 4.5, Q1**
- Koutná S, Kalitová P, Jeřábek J, Slabý K, Kučerová K, Bouček J and Čakrt O, Comparison of postural control and space perception outcomes between robotic and conventional cochlear implantation in adults. Eur Arch Otorhinolaryngol. 2024, **IF – 1,9, Q2**
- Schwarz, M; Hanková, K; Havlovicová, M; Pourová, R ; Boucek, J, A TBC1D24 gene variant coincides with STRC compound heterozygosity in a family with hearing loss: a case report, EGYPTIAN JOURNAL OF OTOLARYNGOLOGY, **IF – 0.4**

Department of Spinal Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Jan Štulík, CSc.
Senior Consultant as. MUDr. Jan Kryl
Head Nurse Bc. Lenka Šipulová

Basic description:

Specialized department with national operations for the treatment of injuries and diseases of the spine, including consequences in children and adults (acute spinal fractures and addressing their consequences, primary and secondary tumours, degenerative defects, inflammatory diseases, congenital and acquired deformities). **In 2024, 1,532 patients underwent surgery, 1,595 patients were hospitalized, 14,519 patients were treated in the spondylosurgery outpatient unit and the Centre for Conservative Therapy treated 2,498 patients.**

Specialized outpatient units/advisory clinics/centres:

- outpatient unit for treatment of spinal injuries and diseases
- scoliotic advisory centre for children
- Centre for Conservative Therapy
- Centre for Highly Specialized Spinal Surgical Care

Unique equipment and new methods and procedures:

- total spondylectomy of the second cervical vertebra
- 3D printing
- AEOS exoscope
- EOS full-body scanning

Major events in 2024:

- XXVII National Congress of the Czech Society for Orthopaedics and Traumatology 2024
- XXII Congress of the Czech Spondylosurgical Society, Ostrava 2024
- V National Spondylosurgical Symposium, Brno “Tumours and Metastatic Diseases of the Spine”
- X Interdisciplinary Symposium, Lázně Bělohrad
- Postgraduate course at the 1st Faculty of Medicine, Charles University, organised by the 1st Department of Surgery, 1st Faculty of Medicine, Charles University
- Eduweek Eurospinu 24-27 June 2024
- Subdepartment of Orthopaedic Prosthetics and Podiatry at the Institute for Postgraduate Medical Education – lecture

Department of Long-term Treatment – Aftercare Centre

Senior Consultant MUDr. Martina Nováková
Head Nurse Mgr. Lucie Kubová

Basic description:

The Department of Long-term Treatment – Aftercare Centre specializes in geriatric issues and in aftercare for patients following traumas, surgeries, prolonged internal diseases, strokes, etc., with no age restrictions. It specializes in wound healing, nutrition, physiotherapy and occupational therapy. The facility contains an outpatient unit and a geriatric outpatient unit. It has **293 beds, but 130** were temporarily closed due to building reconstruction. **In 2024, the total number of admissions was 534 and the number of procedures in the geriatric outpatient ward was 355.**
The department works closely with the Geriatric Internal Department. The department has 1st degree accreditation for tuition in geriatrics and contributes to the postgraduate education of physicians in geriatrics. It contributes to non-graduate teaching of internal medicine and bachelor’s studies for nurses and physiotherapists at the 2nd Faculty of Medicine, Charles University.
The department also runs training courses for paramedics, social work students and massage therapists. Cooperation with the Czech Technical University is underway to teach paramedics. Close cooperation with the palliative care consultation team for the adult section of Motol University Hospital (PCCT) continues.

Specialized outpatient units/advisory clinics/centres:

- geriatric outpatient unit

Unique equipment:

- 2x weight machine – resistance training to prevent and treat sarcopenia
- combined electro and magnet therapy
- Siemens ultrasound machine with colour Doppler and probes for abdominal USG and DUS
- a tablet with special speech therapy programs (Alfaslovník, Gotalk, Gridplayer)
- hydraulic lifts, positioning chairs and baths for immobile patients

Major events in 2024:

- The complete reconstruction of the Department of Long-term Treatment – Aftercare Centre building continued throughout 2024. A part with 25 beds was opened in the main building of the adult section in January 2024, and another part with 25 beds was opened in October 2024. Both these parts were staffed by institutional emergency service doctors from the Department of Internal Medicine, who we thank.

Department of Neurology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Petr Marusič, Ph.D.
Senior Consultant doc. MUDr. Aleš Tomek, Ph.D. , FESO
Deputy for Science and Research prof. MUDr. Jakub Hort, Ph.D.
Head Nurse Mgr. Tereza Koláčná

Basic description:

The Department of Neurology provides comprehensive diagnostics and treatment for patients with nervous system diseases. The main programmes developed at the highest achievable level in the Czech Republic include the cognitive, epileptological, neurootological, neuromuscular, neuroimmunological and neurovascular programmes. Besides caring for patients from the region, super consultation is also provided selectively to patients from the entire Czech Republic. **In 2024, the department's outpatient unit examined more than 40,000 patients. 2,520 patients were hospitalized.**

Centres providing highly specialized care accredited by the Ministry of Health of the Czech Republic:

- Centre for Highly Specialized Cerebrovascular Care
- Centre for Highly Specialized Care for Pharmacoresistant Epilepsies
- Centre for Highly Specialized Care for Multiple Sclerosis and Neuromyelitis Optica

Centres of the European Reference Network for Rare Diseases (ERN):

- ERN EpiCARE – European Reference Network for rare and complex epilepsies
- ERNRND – European Reference Network for rare neurological diseases
- ERN EURO-NMD – European Reference Network on neuromuscular diseases

Specialized centres accredited by professional societies:

- Cognitive Centre
- Neuromuscular Centre
- Centre for Parkinson's Disease and Other Extrapyramidal Disorders
- Centre for Hereditary Ataxias
- Neurootological Centre
- Headache Centre

Specialized outpatient units:

- advisory centre for neurocutaneous disorders
- vertebrogenic and myoskeletal advisory centre

New and unique methods and procedures:

- Advanced EEG assessment in intracranial EEG and high-density scalp EEG, as well as implementation of the protocol for examination and mapping of cognitive functions from intracranial electrodes are carried out in cooperation with the Czech Academy of Sciences and the Czech Technical University.
- The department cooperates on the international project E-PILEPSY, which has allowed the introduction of a methodology for assessing sources of EEG signals (Electrical Source Imaging) and post-processing in neuro-imaging (advanced processing of PET image and its co-registration, 3D Slicer).
- First national centre for CADASIL – Autosomal dominant cerebral arteriopathy with subcortical infarcts and leukoencephalopathy established
- Under the longitudinal Czech Brain Ageing Study (CBAS), homocysteine, oxidative stress markers and pathological protein (TDP-43, phosphorylated tau and beta-amyloid) levels in the serum and in the cerebrospinal fluid are analysed. Genetic examination was expanded to include determination of polymorphism for TOMM, BDNF-met and TDP-43.
- The set of samples from patients with limbic encephalitis was further expanded and examination of neutralizing antibodies in patients with MS was carried out.
- A significant increase in the number of patients treated for DMD and their scientific processing including registers is occurring in multiple sclerosis.
- The cognitive centre innovated the tests for examining preclinical and prodromal Alzheimer's disease, including a new examination battery for spatial cognition with testing in virtual reality.
- Cerebrospinal fluid laboratory (in cooperation with the Department of Immunology, 2nd Faculty of Medicine and Motol University Hospital) – introduction of the immunoanalytical methodology for determining intrathecal synthesis of anti-GAD antibodies. The existing diagnostic panel for autoimmune encephalitis – examination of antibodies against well characterized onconeural antigens Hu, Yo, Ri, Ma2 (Ta), CV2 (CRMP5), amphiphysin using the Western Blot method with subsequent automated semiquantitative evaluation; examination of antibodies against membrane and synaptic antigens (NMDAR, AMPA1R, AMPA2R, GABABR, caspr-2, LGI-1) using indirect immunofluorescence on cells transfected with genes for the relevant antigens was expanded to include Zic4, Tr (DNER), SOX1, Ma1.
- A unique electrochemical method of body fluid fingerprinting was introduced in laboratory differential diagnostics of neurodegenerative diseases.
- Endovascular treatment of acute ischemic strokes as a routine therapeutic procedure (cooperation with the Department of Radiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital);
- A method for rehabilitation of patients with chronic vertigo conditions and balance defects during hospitalization unique in the Czech Republic continues to be used. The method uses visual biological feedback with a power platform and a tablet. Our facility contributed to the development of this system.
- Examination of the otolith system using the cervical myogenic evoked potential method, introduction of the pupillometry method – expansion of the

options in examination with the existing equipment for video-oculography (VOG).
- Testing thin fibres of the peripheral nerves with thermal threshold determination using a Peltiér cell.
- Introduction of unique neurophysiological diagnostics of thin nerve fibre defects (A delta, C fibres) in patients with peripheral and autonomous neuropathy. Introduction of neurophysiological tests (spectral analysis – frequency and time) for cardial autonomous neuropathy in diabetics.
- New methodology for quantitative electromyography as part of myopathy diagnostics (computer processing of the EMG signal – power spectrum analysis, peak ratio, number of small segments). The methodology increases the sensitivity from the original 64% to 91%.

Unique equipment:

- Simoa analyser – automated device for detecting immunological markers in cognitive and autoimmune brain diseases
- laboratory for augmented virtual reality
- 256-channel high-density EEG
- ICS Impulse device by Otometrics for examining the function of individual semi-circular canals
- telemetry with Philips IntelliVue M3150 central monitor for 9 patients
- RIMED Intraview ultrasonography device with helmet for long-term monitoring
- three ultrasonography devices for examining transcranial and extracranial arteries and peripheral nerves
- 128-channel EEG system NicoletOne for video EEG monitoring
- NYDIAK rotating chair for electronystagmography – ENG examination
- FAN Study system allowing comprehensive evaluation of the function of the autonomous nervous system, including test on a sloping surface
- Somedic thermal tester, Sweden – electrodiagnostic device evaluating the function of A-delta thin fibres + C fibres
- digital algesimeter Somedic, Sweden – electrodiagnostic device for research into deep neuropathic pain
- experimental laboratory for examining spatial memory and spatial orientation (Blue Arena)

Major events in 2024:

- A total of 48 scientific publications, 44 of them in foreign impact journals
- Organization of a number of national congresses and seminars (Cerebrovascular, Epileptology, etc.)

1st Department of Orthopaedics, 1st Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Ivan Landor, CSc.
Senior Consultant doc. MUDr. Petr Fulín, Ph.D., MBA
Head Nurse Mgr. Hana Kárníková

Basic description:

The department provides conservative and surgical treatment for adult patients throughout the entire spectrum of orthopaedic procedures. It ensures traumatology

services for the locomotor system with the exception of the spine and paediatric orthopaedics. The department has 127 beds in total, of which 18 are intensive care beds for orthopaedic and traumatology aseptic patients and septic patients; there are also 30 traumatology beds and 19 septic beds.
In 2024, a total of 3,908 patients were hospitalized and 49,671 patients were treated in the outpatient unit. 3,944 surgeries were performed.

Specialized outpatient units/advisory clinics/centres:

- joint replacements
- surgery of large joints
- surgery of the hand and foot
- arthroscopy of the shoulder, wrist, knee and ankle
- sports traumatology
- septic orthopaedics
- rheumatosurgery
- oncology
- general traumatology

New methods and procedures:

- Research and development of new joint implants in cooperation with local and foreign partners;
- New techniques for wrist surgeries;
- New ankle joint replacement – new surgical technique
- Introduction of minimally invasive surgical techniques for addressing hallux valgus;
- Laboratory determination of alpha defensin in the diagnostics of joint replacement infection;
- Endoscopic methods of meduloscopy in the treatment of chronic osteomyelitis;
- Masquelet technique in therapy of infected pseudoarthrosis;
- Vacuum therapy in the treatment of infected defective wounds;
- Implantation of augmentation components for shoulder joint replacement addressing bone defects

Major events:

- Publication of the textbook: “Basics of Orthopaedics and Traumatology of the Musculoskeletal System” by Sosna A., Fulín P., Pokorný D, Vlček M., Krbec M. et al. – an innovative textbook for teaching medical students
- Publication of the monograph: “Differential Diagnosis of Joint Pain in Clinical Practice” by Šenolt L, Veigl D. et al.
- Award of the Ministry of Health of the Czech Republic for medical research and development for 2024 for the Czech Health Research Council project entitled: “Implantable Sensors for Early Detection of Inflammation and Bacterial Colonization”. Project head: Prof. MUDr. David Jahoda CSc.
- Organizer of an international course on shoulder arthroplasty on 25 October 2024

Publication activity:

- Sosna A., Fulín P., Pokorný D., Vlček M., Krbec M. et al. Basics of Orthopaedics and Traumatology of the Musculoskeletal System. 1st ed. Prague : Triton, 2024, 471 pp. ISBN 978-80-7684-290-8
- Šenolt L, Veigl D. et al. Differential Diagnosis of Joint Pain in Clinical Practice. 2nd reworked and supplemented ed. Prague : Grada Publishing, 2024, 389 pp. ISBN 978-80-271-5091-5
- Judl T, Popelka S, Tomšík E, Hrubý M, Daniel M, Fojt J, Melicherčík P, Landor I, Jahoda D. Acidity Is an Excellent Marker of Infection in Hip and Knee Arthroplasty. Journal of Clinical Medicine. 2024, 13(3):688. ISSN 2077-0383 / **IF = 3.000** (2023)
- Beneš M, Kunc V, Naňka O, Kachlík D, Barták V. Anatomy of the iliopsoas notch and its relationship with morphology of the proximal femur. Surgical and Radiologic Anatomy. 2024, 46(1):51-57. ISSN 0930-1038 / **IF = 1.200** (2023)
- Barna M, Čepová J, Dunovská K, Melicherčík P, Barták V, Průša R, Kizek R, Klapková E. Biochemical importance of Gla protein matrix and its potential use in clinical biochemistry as a marker. Chemical Letters. 2024, 118(5):270-276. ISSN 0009-2770 **/ IF = 0.600** (2023)
- Streck M, Vlček M, Veigl D, Pech J, Landor I. Radial head endoprosthesis: resolution of elbow and forearm instability in fragility fractures of the radial head associated with elbow luxation. Acta Chirurgiae Orthopaedicae et Traumatologiae Čechoslovaca. 2024, 91(2):96-102. ISSN 0001-5415 / **IF = 0.400** (2023)
- Cerezo A, Navrátilová A, Kuklová M, Prokopcová A,Baloun J, Kropáčková T, Veigl D, Popelka S, Fulín P, Ballay R, Pavelka K, Vencovský J, Šenolt L. IL-40 is up-regulated in the synovial fluid and cartilage of osteoarthritis patients and contributes to the alteration of chondrocytes phenotype in vitro. Arthritis Research & Therapy. 2024, 26(1):146. ISSN 1478-6354 / **IF = 4.400** (2023)
- Vlček M, Štefanisko S, Pech J, Veigl D. Conservative therapy of mid-articular fractures. Perspectives in Surgery. 2024, 103(10):400-405. ISSN 0035-9351
- Holubová G, Vymazal T, Beitl E, Dráč P, Edelmann K, Gurlich R, Jícha Z, Kloub M, Kočí J, Krtička M, Menšík P, Pavelka T, Matějka J, Pleva L, Šír M, Šrám J, Durila M. Management of trauma patients in the Czech Republic – results of a questionnaire study across 12 adult trauma centres. Anaesthesiology and Intensive Care Medicine. 2024, 35(2):89-97. ISSN 1214-2158 **/ IF = 0.100** (2023)
- Pokorný D, Šlouf M, Gajdošová V, Šeděnková I, Vyroubalová M, Němec K, Fulín P. Comparison of the quality of the most commonly used new UHMWPE articulating knee replacement implants. Acta Chirurgiae Orthopaedicae et Traumatologiae Čechoslovaca. 2024, 91(4):207-216. ISSN 0001-5415 **/ IF = 0.400** (2023)
- Kratochvíl A, Daniel M, Fulín P, Pokorný D. Radiographical magnification of the shoulder region. Obere Extremitaet. 2024, 19(4):283-287. ISSN 1862-6599 / **IF = 0.500** (2023)
- Melicherčík P, Mazura M, Hodík M, Dundrová K, Landor I, Jahoda D, Horváth R, Barták V, Kizek R, Klapková E. Synovial fluid alpha-defensins in Lyme arthritis – a useful marker. Folia Microbiologica. 2024, 69(6):1355-1362. ISSN 0015-5632 **/ IF = 2.400** (2023)
- Peřina V, Němec P, Barták V. Update on Focal Infection Management: A Czech Interdisciplinary Consensus. International Dental Journal. 2024, 74(3):510-518. ISSN 0020-6539 / **IF = 3.200** (2023)
- Hauer L, Augustín P, Barták V, Chrz P, Izakovičová Hollá L, Korábek L, Línková H, Peřinka L, Svačina Š, Trojánek M. Recommended procedure for the rational indication of systemic antibiotics in outpatient dental care. LKS: Journal of the Czech Dental Chamber. 2024, 34(1):8-19. ISSN 1210-3381
- Fulín P, Pokorný D, Heřt J, Sosna A. Shoulder joint replacement in trauma indications. Medicine & Art. 2024, 2024(2(79)):20-24. ISSN 1803-3679
- Pokorný D, Fulín P, Heřt J, Sosna A. New components of reverse shoulder joint replacements for the treatment of glenoid defects of the scapula. Medicine & Art. 2024, 2024(2(79)):11-15.ISSN1803-3679

Department of Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Tomáš Büchler Ph.D.
Senior Consultant – Clinical Oncology MUDr. Zdeněk Linke
Senior Consultant – Radiation Oncology MUDr. Michaela Jirkovská Ph.D.
Head Nurse: PhDr. Mgr. Jana Anna Kopecká
Chief radiological assistant: Alena Čuprová

Basic description:

The facility provides comprehensive care for oncological patients in antitumour pharmacotherapy and radiation treatment. It is one of the Comprehensive Cancer Centres in the Czech Republic, where highly specialized care is provided. The department was designated as one of two National Cancer Centres (NCC) in the Czech Republic at the end of 2019. The facility is accredited for specialized education in clinical oncology and radiation oncology.
In 2024, a total of 413,304 procedures were performed at the Department of Oncology of Motol University Hospital and a total of 1,974 new patients were admitted. A total of 1,370 patients were hospitalized.
14,311 cycles of parenteral administration of chemotherapy/biological treatment/immunotherapy were administered. In 2024, 1,061 new patients were treated with external beam radiotherapy. A total of 1,184 patients were irradiated.
In the brachytherapy unit, 598 applications were performed on a total of 109 patients in 2024.

Specialized outpatient units/advisory clinics/centres:

- outpatient unit for follow-up care for patients after completion of antitumour treatment
- outpatient unit for checking patients during chemotherapy
- outpatient unit for checking patients during teletherapy
- outpatient unit for chemotherapy, hormone therapy, biological therapy and immunotherapy
- outpatient unit for checking patients during brachytherapy
- outpatient unit for palliative and symptomatic care
- outpatient unit for lymphatic drainage
- outpatient unit for observation of genetic mutation carriers, increasing the risk of cancer

New methods and procedures:

- Periodic adjustment of standard protocols for the treatment of malignant tumours with the introduction of new biological treatment molecules, cytostatic drugs, and combinations of cytostatic drugs and biological treatment. Major contribution to the creation of therapeutic outcomes, including drug registries in the Czech Republic.
- Update of local radiology standards (in 2024 tumours of the prostate, breast, SCLC, cerebral gliomas, brain metastases, cervical and endometrial tumours);
- Cooperation with genetic facilities in searching for families with a genetic high risk with regard to the occurrence of malignant tumours, recommended

preventative therapeutic measures and follow up of healthy carriers of high-risk mutations with regard to the origination of oncological diseases.

- Cooperation with the Department of Immunology and the Department of Urology at Motol University Hospital in the application of the SNP01 product – Centre for Treatment of Prostate Cancer;
- Standard use of the IMRT (intensity modulated radiotherapy) or VMAT (volumetric modulated arc therapy) technique allowing for a higher dose of radiation in the target volume while avoiding irradiating healthy tissue. 73% of patients are irradiated with this technique.
- Standard performance of the IGRT (image guided radiotherapy) technique based on checking the current settings of the patient's position during radiotherapy and the option of correcting this position according to the reference position;
- Standard use of the SRT (stereotactic radiotherapy) technique allowing targeted radical radiotherapy of primary tumours and oligometastatic diseases. 109 patients were irradiated in 2024;
- Full use of FFF (Flattening-Filter Free) beams on all linear accelerators, leading to a reduction of the actual irradiation time.
- Standard use of a regular system of off-line adaptive radiotherapy for head and neck cancer using Velocity software.

Unique equipment:

- Three Truebeam linear accelerators, Varian Medical Systems, enabling 3D patient imaging with CBCT with a Respiratory Management System and movement equipment with modulated intensity VMAT. Two accelerators are equipped with Millenium 120 collimator, the third accelerator with a HD MLC collimator. In addition to photon beams, all accelerators produce FFF beams.
- stereotactic body radiotherapy (SBRT)
- Visual coaching during breathing for respiration-controlled radiotherapy – 4D radiotherapy
- MR image-based adaptive brachytherapy for cervical cancer – MR based IGABT (Image-Guided Adaptive Brachytherapy)
- 3D printing for the production of individual moulage in the treatment of patients with non-melanoma skin tumours Brilliance Big Bore CT simulator, Philips, for treatment planning
- Irradiator with automatic afterloading for HDR brachytherapy Gammamed Plus iX, Varian Medical Systems

Major events in 2024:

- The department worked closely with the management of the Motol University Hospital to create a plan, layout and equipment for the Motol Oncology Centre, the construction of which began in 2023.
- The department's membership of the OECI (Organisation of European Cancer Institutes), which brings together only a small number of the highest quality cancer centres in Europe, has enabled the department's staff to participate in research on new innovative drugs, to access such drugs in academic clinical trials, and to have preferential and funded educational programmes for its doctors.
- In 2024, the facility was an active member of EORTC (Soft Tissue and Bone Sarcoma Group, Gastrointestinal Tract Cancer Group), Euro Ewing

Consortium. It is also a member of the European Reference Network for Rare Tumours (EURACAN) for sarcomas, rare gynaecological malignancies and endocrine tumours. It contributes to academic clinical studies (such as Survival Outcomes in Adolescent and Young Adults with Colorectal and Pancreatic Cancer).

- In 2024, doctors again actively participated in international ASCO, ESMO and ESTRO events with specialist communications, abstracts and posters.
- The facility contributed to the organization and lectures at the 15th Prague Onco Colloquium in January 2024, the 3rd Best of Oncology Prague gathering in November 2024 (this event follows the previous five Best of ASCO events), a Urooncology Symposium, a SROBF Conference (Society of Radiation Oncology, Biology and Physics) and other important Czech scientific symposia.

Department of Pneumology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head doc. MUDr. Libor Fila, Ph.D.
Senior Consultant MUDr. Dmitry Rakita, CSc.
Head Nurse Mgr. Jana Zelenková

Basic description:

The Department of Pneumology focuses on diagnosis, treatment and research of diseases of the lower respiratory tract and the lungs. The department currently has three inpatient stations with a total of 42 standard beds and an ICU with 8 beds. The main programmes focus on lung transplantation, pneumooncology, adult cystic fibrosis, and interventional bronchology. The department is part of the Prague Lung Transplantation Programme, the Centre for Highly Specialized Pneumo-Onco-Surgical Care at Motol University Hospital and the CF Centre at Motol University Hospital (as a part of ERN-LUNG and ECFS-CTN). The department is accredited at level 3 for postgraduate education in pneumology and phthisiology and organizes Institute for Postgraduate Medical Education courses in bronchology and in cystic fibrosis in adulthood. The department houses the Sub-department of Pneumology and Phthisiology of the Institute for Postgraduate Medical Education (headed by Prof. MUDr. Miloslav Marel, CSc.).
In 2024, a total of 1,709 patients were hospitalized, 306 of them in the ICU. 17,410 patients were treated as outpatients, 1,438 bronchoscopies were performed and 1,999 chemotherapy treatments were administered The department's multidisciplinary team dealt with a total of 1,421 cases.

Specialized outpatient units:

- pneumology outpatient unit
- transplantation outpatient unit
- outpatient unit for cystic fibrosis
- outpatient unit for interstitial pulmonary diseases
- outpatient unit for hard-to-treat asthma
- outpatient unit for breathing disorders in sleep
- outpatient unit for treatment of tobacco addiction

New methods and procedures:

- Neoadjuvant chemoimmunotherapy with nivolumab for lung cancer
- Use of next-generation sequencing (NGS) in the detection of driver mutations for targeted therapy of lung cancer (sotorasib and others);
- New approaches in the treatment of resistant CMV infection in patients after lung transplantation (letermovir, maribavir);
- In cystic fibrosis patients who do not expectorate, a method of collecting induced sputum was introduced.

Unique equipment:

- Olympus ESG-300 argon plasma coagulation device
- device for molecular diagnostics of respiratory pathogens (SARS-CoV-2, Influenza) using the unique ID now nucleic acid amplification technology

Major events in 2024:

- Doc. Martina Šterclová obtained a grant from Czech Health Research Council for research into telomeropathy for patients with interstitial pulmonary processes.
- Dr. Nela Šťastná is the main author of the document SOP Transition in a Patient with CF, dedicated to the process of transferring a paediatric patient with cystic fibrosis to an adult medicine facility and his/her systematic preparation for adult life.
- In cooperation with the Third Surgical Clinic, a record 72 patients were brought for lung transplantation
- Five doctors at the department successfully obtained attestation in the field of pneumology and phthisiology in 2024.

Publication activity:

- **Zajacova A** *et al.* ERS International Congress 2023: highlights from the Thoracic Surgery and Lung Transplantation Assembly. ERJ Open Res. 2024;10(2):00854-2023. **Q1; IF 4.3**
- **Stastna N** *et al.* The long-term effect of elexacaftor/tezacaftor/ivacaftor on cardiorespiratory fitness in adolescent patients with cystic fibrosis: a pilot observational study. BMC Pulm Med. 2024;24(1):260. **Q2; IF 2.6**
- **Sterclova M** *et al.* Adherence to the ISHLT Protocol for the Referral of Patients with Idiopathic Pulmonary Fibrosis to the Transplantation Center among of Czech Centers for Interstitial Lung Diseases. Pulm Med. 2024;2024:5918042. **Q2; IF 2.0**
- Gramegna A, **Fila L** *et al.* Monitoring of ECFS quality standards for the clinical management of adults with cystic fibrosis. J Cyst Fibros. 2024;23(2):306-313. **Q1; IF 5.4**
- Krakorova G, **Marel M** *et al*. Omission of staging PET/CT linked to reduced survival in stage III non-small cell lung cancer: insights from the LUCAS project real-world data. Transl Lung Cancer Res. 2024;13(7):1495-1504. **Q1; IF 4.0**

Department of Urology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Marek Babjuk, CSc.
Senior Consultant MUDr. Marek Schmidt, FEBU
Head Nurse František Kubíček

Basic description:

The Department of Urology provides therapeutic and preventive care in the entire spectrum of adult urology nationwide and internationally. It specializes in surgical treatment of cancers of the urogenital tract including subsequent oncological treatment. It is a leading facility in the treatment of lithiasis, laparoscopic and robotic-assisted procedures. It is the most important facility for surgical sex changes and complex treatment of bladder tumours in the Czech Republic. It has had the daVinci robot surgery system since 2018. **In 2024, 442 robotic urological surgeries were performed. In 2024, 28,023 outpatient examinations, 2,523 hospitalizations and 2,339 surgeries were performed.**

Specialized outpatient units:

- oncology outpatient unit
- outpatient unit for treatment and metaphylaxis of lithiasis and chronic infection
- andrology outpatient unit
- outpatient unit for dysfunction of lower urinary tract
- centre for treatment and research of prostate cancer (in cooperation with the Department of Radiotherapy and Oncology and the Department of Immunology)
- centre for surgical treatment of transsexualism
- Centre for Robotic Surgery of the MUH

New methods and procedures:

- Advanced laparoscopic procedures – cystectomy, radical prostatectomy, reconstructive surgeries, retroperitoneal lymph node dissection, kidney resection, solution of vesicovaginal fistulas, Boari-plasty;
- Advanced and complex endoscopic treatment of urolithiasis – percutaneous mini-nephrolithotomy technique, percutaneous nephrolithotomy, flexible ureteroscopy, laser lithotripsy etc.;
- Use of new imaging methods for diagnostics of tumours of the bladder (NBI = “narrow band imaging”) in regular practice;
- Percutaneous neurostimulation in the treatment of urgent symptomatology of the bladder
- Introduction of surgical implantation of sacral neuromodulator for the treatment of idiopathic hypoactivity of the bladder;
- Intradetrusor application of neurotransmitter blockers in the treatment of hyperactive bladder;
- Use of Ho:YAG laser in surgical procedures;
- Transurethral bipolar enucleation of the prostate using a morcellator;
- MRI/USG fusion prostate biopsies;
- Implantation of artificial urethral constrictor in severe incontinence.
- Laser ablation of bladder tumours under local anaesthesia

- Robotic surgeries – radical prostatectomy, kidney resection with peroperative sonographic tumour detection, pyeloplasty, radical cystectomy, nephroureterectomy, vesicovaginal fistula occlusion, ureteral reimplantation, complete robotic-assisted radical cystectomy with intracorporeal derivation, robotic-assisted retroperitoneal lymphadenectomy for testicular tumours.

Unique equipment:

- Ho:YAG laser
- instruments for NBI ("narrow band paging"), fluorescence cystoscopy
- instruments for miniPNL
- Einstein Vision 3D laparoscopic system
- Piranha endoscopic morcellator
- Toshiba Aplio 500 sonographic device for MRI/USG fusion biopsies of the prostate
- COMBAT BRS (COMBined Antineoplastic Thermotherapy Bladder Recirculation System) for hyperthermic intravesical chemotherapy of bladder tumours.
- daVinci Xi robotic system

Major events in 2024:

- Organization of the Comprehensive Developments in Oncology conference, 17–18 May 2024, Prague;
- Organization of an ESU/ESOU Masterclass on Non-muscle-invasive Bladder Cancer EAU 21–22 March 2024; Prague;
- The first robot-assisted radical nephrectomy with thrombectomy and suture of the inferior vena cava for a renal tumour in the Czech Republic – 8 October 2024.

Common Examination and Therapeutic Units

Department of Radiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Ing. Lukáš Lambert, Ph.D., MBA
Senior Consultant of the adult section MUDr. Vojtěch Suchánek
Senior Consultant of the paediatric section Irena Buksakowská, M.D., Ph.D.
Senior Radiological Assistant of the adult section Mgr. Tomáš Schilla
Senior Radiological Assistant of the children's section Alice Jará

Basic description:

The facility provides the full spectrum of preventive and diagnostic medical care in the field of radiology. In the field of paediatric radiology up to the super consultation level for the whole of the Czech Republic. It enables comprehensive performance of all diagnostic and therapeutic procedures in paediatric and adult patients, including interventional radiology, both vascular and non-vascular. The facility's activities are based on close cooperation with the facilities of Motol University Hospital and the 2nd Faculty of Medicine, Charles University, the 1st Faculty of Medicine, Charles University and others, not only in treatment and preventive care, but also in science, research and teaching activities.

The facility is equipped with four magnetic resonance imaging (MRI) machines: three of them (including one 3T MRI machine shared with paediatric patients) serve adult patients and one is exclusively for the paediatric section. It also has three CT machines for adults, including interventions and cardiac investigations, and one additional CT machine in the paediatric section.
The equipment also includes one angiography set. Among other devices, the department has a densitometry machine and also a mammography machine. Ultrasound and X-ray machines are available for outpatient and inpatient use. In the operating theatres, the department ensures C-arm operation.

In 2024, a total of 385,664 examinations were carried out at the Department of Radiology (of which 95,354 were in the paediatric section) and 249,843 patients were examined (of which 46,263 in the paediatric section). This was a slight increase in patient number, but about a 10% increase in the total number of examinations. Of the total number of patients, 177,304 were seen as outpatients and 72,539 were inpatients. There was a similar ratio between the number of outpatient and inpatient examinations. The number of MRI examinations increased by about 20% in the adult section of the Department of Radiology and by 10% in the paediatric section of the Department of Radiology. The number of CT scans increased by about 15% in the adult section and by about 12% in the paediatric section of the Department of Radiology.

We expanded our programme of comprehensive ultrasound examinations: in 2024, fusion ultrasound examinations were newly introduced in the paediatric section, and the number of ultrasound elastography examinations increased by 25%.
The number of EOS examinations increased significantly. Compared to 2023, the increase in patients was almost 50%, but the number of examinations performed increased by more than 250%.

An internal clinical audit was performed. In January 2024, we successfully defended Motol University Hospital's accreditation.

The radiology assistant study field currently has 58 students in two years.

Unique equipment:

- EOS – 3D X-ray machine for low-dose diagnosis of spinal defects, especially in paediatric patients.
- Modern ultrasound devices, equipped with e.g. shear-wave elastography, fusion ultrasound and super microvascular imaging;
- Aquilion Prism CT device – equipped with AI reconstructions for dose reduction in paediatric patients
- 3T MR MAGNETOM Vida

New methods and procedures:

- MRI – new options for vascular examination, functional examination of the heart, tractography, fractional anisotropy, introduction of prostate MRI screening

- T2 relaxometry, examination in uncooperative patients, spectroscopy;
- Thanks to the Siemens VIDA 3T MRI and the expansion to include AI reconstruction, examination protocols were shortened and the device's capacity increased;
- Arterial spin labelling as a recent method for imaging brain perfusion in MRI;
- CT angiography, 3D VR visualization, CT cardio, CT coronarography;
- CT generation of volumetric data for neuronavigation, ENT navigation and stomatology;
- Prenatal US and MR diagnostics;
- Mammography facility – ductography, puncture of cysts and core cut biopsy under ultrasound control, puncture with the Vacora device;
- Radio frequency ablation and chemoembolization of metastasis in the liver, lungs;
- Implantation of aortal stent grafts (including fenestrated);
- Cerebral thrombectomy in patients who have suffered an ischemic stroke;
- Subintimal recanalization of peripheral arteries, interventional treatment of acute and chronic deep vein thrombosis, treatment of vascular access for haemodialysis;
- An Inari catheter for thrombectomy in the pulmonary artery and lower limbs was newly added to the instrumentation.
- Intervention in the bile duct, spondyloplasty and vertebroplasty;
- Intervention under CT sciascopy;
- Contrast ultrasound, especially for dynamic diagnosis of lesions of the liver and kidneys;
- SMI (Super Microvascular Imaging) allowing precise and sensitive display of the microvascular architecture of tissue.
- Expanded use of dictation systems;
- Conference system enabling monitoring of surgery, conferences also outside the Czech Republic;
- Catheter treatment of retinoblastoma, the first in the Czech Republic.
- The spectrum for pelvic oncology diagnosis was expanded to include a protocol assessing the extent of bladder cancer (VI-RADS) in collaboration with the Department of Urology.

Major events in 2024:

- The department's new head is prof. MUDr. Ing. Lukáš Lambert, Ph.D. MBA.
- Prof. Miloslav Roček, M.D., CSc. is the President of the Czech Radiological Society of the Czech Medical Association of JE Purkyně, Chairman of the Section of Paediatric Radiology of the CRS of JE Purkyně, Deputy Chairman and Scientific Secretary of the Czech Society of Interventional Radiology of the Czech Medical Association of JE Purkyně.
- The department hosted the 11th Prague European Tutorial of Radiology Prague/Czech Republic.
- Active participation at the 45th Czech radiological congress in Plzeň.
- Participation in the international DISCHARGE Randomized Clinical Trial (Senior Consultant Suchánek).

Publication activity: **13 articles in journals with an IF were published**.

Department of Biology and Medical Genetics, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Milan Macek, DrSc., MHA
Senior Consultant MUDr. Markéta Havlovicová
Head Nurse Mgr. Hana Strouhalová
Quality Manager: RNDr. Tereza Stříbná, Ph.D.

Basic description:

The department (hereinafter the DBMG) provides a wide spectrum of preventive and diagnostic medical care in medical and molecular genetics also through medical super consultations throughout the Czech Republic. The Institute of Biology and Medical Genetics diagnoses selected congenital defects, hereditary tumours, neurodegenerative diseases in children and adults, and rare diseases, including mental development disorders in the prenatal and postnatal period. **In 2024, the institute's outpatient units provided specialized consultations to almost 7,000 families as part of postnatal and prenatal care, and there were a total of roughly 13,409 outpatient examinations. Department of Biology and Medical Genetics laboratories carried out 7,898 molecular genetic tests of various types, ranging from targeted testing for a single gene variant to testing for a clinical exome. A total of 128 prenatal cytogenetic and FISH exams were performed in 2024. A total of 542 postnatal whole-genome exams using array CGH were performed.**
In addition, 1,588 postnatal blood cultures were performed for karyotyping, ZCA (1,467) and/or examination using the FISH method (121).
At the Centre for Reproductive Genetics (CRG), 355 semen examinations and 176 semen cryopreservation examinations were performed in an accredited andrology laboratory in 2024. The CRG embryology laboratory performed 124 oocyte collections, 32 fresh embryo transfers and 149 frozen embryo transfers. A pre-implantation genetic exam was performed for 29 couples.
The Department of Biology and Medical Genetics laboratories are accredited by the Czech Institute for Accreditation and registered in the Register of Clinical Laboratories of the National Authorization Centre for Clinical Laboratories at the Czech Medical Association of JE Purkyně (NASKL.cz) and hold a Certificate of Compliance with the Conditions of Audit I for Expertise in Clinical Biochemistry and Medical Genetics.
The National Coordination Centre for Rare Diseases, Centre for Diagnostics and Treatment of Paediatric and Adult Patients with Cystic Fibrosis operates under the Department of Biology and Medical Genetics and the facility is also part of the national research infrastructure – "National Centre for Medical Genomics".

Specialized outpatient units/advisory clinics/centres:

- prenatal genetic advisory centre
- neurogenetic advisory centre
- oncogenetic advisory centre
- genetic advisory centre for sensory defects and non-syndrome deafness
- cardiogenetic advisory centre
- genetic advisory centre focusing on dysmorphology
- genetic advisory centre for couples with reproduction problems

- genetic advisory centre for patients with intellect insufficiency and defects of the autistic spectrum
- genetic advisory centre for thrombophilia
- genetic advisory centre for gastroenterology and hereditary pancreatitis
- genetic advisory clinic for CF/CF screening in newborns in cooperation with the Centre for Cystic Fibrosis at Motol University Hospital
- genetic advisory clinic for hereditary nephropathy

New methods and procedures:

- We continue to expand the diagnosis of new microdeletion syndromes using the FISH and aCGH methods and diagnosis without the need for direct cultivation of amniotic/chorionic cells.
- The “custom” platform (4x180K CGH+SNP) is introduced under the array CGH method for examination of patients with isolated heart defects and also possibly severe combined complex congenital heart defects. The platform maps to a novel version of the hg38 genome.
- The SNP array method is implemented on the Illumina platform
- Additional features have been added to the new cytogenetics database in 2024.
- The classification of variants is being perfected by using new database tools and updating the evaluation algorithms of the data analysis software, and we are involved in the creation of this database.
- Our colleagues hold expert positions in the Czech array national group, which was established to improve chip diagnostics.
- In our medical molecular genetics laboratories, we introduced exome testing using the Clinical Exome Solution (CES) and Whole Exome Solution (WES) from Sophia Genetics on NextSeq 550 and NovaSeq 6000Dx analysers from Illumina into our routine diagnostic practice. Clinical exome score (CES) analysis was performed for 624 people and a WES examination for 2,028 people in 2024.
- We replaced the most commonly used Cardio and CID (Custom Intellectual Deficiency) gene panels with virtual panels based on Clinical Exome Solution (CES) and Whole Exome Solution (WES) from Sophia Genetics.
- Based on CES and WES, we designed and implemented into diagnostic practice our own virtual diagnostic panels of genes responsible for various genetic diseases.
- For the most complex cases of genetic diseases, the CES data are filtered according to the proband’s clinical symptoms – according to HPO terms, according to type of hereditary and other parameters. We performed trio examinations, i.e. simultaneous examinations of the parents and the sick child.
- In our diagnostic practice, we continue to use NGS methods to examine gene panels on a MiSeq device. In 2024, these methods were routinely used to examine patients with suspected hereditary breast and ovarian cancer, patients with suspected Lynch syndrome and, more recently, patients with suspected cystic fibrosis.
- The department continues to perform DNA diagnostics using the DNA sequencing method according to Sanger or using the fragmentation analysis method on more than 120 genes responsible for genetic syndromes with intellectual deficiency / defects of the autistic spectrum, ataxia, dystonia,

muscular dystrophy, myopathy, growth defects, osteochondrodysplasia, craniosynostosis, defects of gender development, syndromes with cancer predisposition, organ and sensory defects, thrombophilia, rare diseases and genetic syndromes. We also continue to perform examinations of the defect of imprinting in PWS/AS, BWS/RSS and MLID syndromes. Gene deletions/duplications or microdeletion syndromes are investigated using MLPA, with an increasing proportion of CE IVD kits.

- In 2024, we again successfully met the requirements of the external international inter-laboratory quality control of molecular genetic laboratories EMQN and RfB for 14 different diagnoses, Sanger DNA sequencing and NGS.
- We continue to improve the filtering and prioritization of NGS data and more accurate interpretation of variants and priorities of unclear significance, using Sophia DDM, VarAFT, VarSome Clinical and Franklin (Genoox) software.
- We screen newborns for cystic fibrosis throughout the Czech Republic in cooperation with Královské Vinohrady University Hospital and the General University Hospital in Prague (approx. 50,000 newborns), we cooperate with the Department of Paediatric Neurology and General University Hospital in early detection of SMA in newborns for the needs of the earliest biological treatment.

Unique equipment:

- Infinium starter kit for SNP array
- VeritiPro thermal cycler
- Rotofix centrifuges
- Labogene Scanlaf Mars biohazard laminator cabinet, Safe Fast Light laminator cabinet
- PHCbi controlled atmosphere incubator for long-term tissue cultivation
- Carousel for Zeiss Axioscope fluorescence microscope
- Leica DM 2500LED light microscope (karyotyping, ZCA)
- Applied Biosystems 3500 Genetic Analyzer
- Applied Biosystems SeqStudio Flex 8
- NextSeq 550 from Illumina for NGS
- NovaSeq 6000Dx from Illumina for NGS with a pipetting unit Hamilton Microlab Star
- Veriti Pro 96-Well Thermal Cycler
- Centrifuges for the andrology laboratory

Major events in 2024:

- At the Department of Biology and Medical Genetics, 3D facial morphometry is used mainly as a tool for objective phenotyping and digitization of the facial phenotype. Grant project GAUK44120 focusing on facial evaluation of patients with a proven pathogenic variant in PKD1/PKD2 genes continued (AD polycystic kidney disease). The initial results were presented at the ESHG 2024 conference – Mihulová, M., Kočandrlová, K., Moslerová, M., Turnovec, M., Martinková, J., Macek, M., Havlovicová, M. & Thomasová, D. (2024, June). 3D facial gestalt analysis of adult ADPKD patients. The European Human Genetics Conference 2024, Berlin, Germany. Last but not least, the results of the study for the grant project GAUK134121 were presented by MUDr. Schwarz at Kapras Day – Moslerová, V., Schwarz, M.,

Geryk, J., Havlovicová, M., Mihulová, M., Turnovec, M., Ryba, L., Martinková, J., Macek Jr, M., Palmer, R., Kočandrlová, K. & Velemínská, V. (2024, February).

- The facility successfully solved a project of the EEA/Norwegian Funds, the output of which was a unique brochure focused on rare genetic diseases in the Roma population in the Czech Republic (https://nf.ublg.cz/publikace/).
- Prof. Macek obtained Honorary Membership of the Czech Medical Society for his lifelong contribution to the development of medical genetics and rare diseases.
- The facility participated in the development of the first national interdisciplinary recommendations for genetic examination in cardiology.
- The facility contributed to a unique publication on post-mortem molecular genetic diagnosis of sudden cardiac death.
- In cooperation with Rare Diseases Czech Republic (RDCR), the Department of Biology and Medical Genetics is also involved in a project to establish a Support and Educational Centre for Rare Diseases, which is funded under the Health programme.

Department of Medical Chemistry and Clinical Biochemistry, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Richard Průša, CSc., EuSpLM
Senior Consultant MUDr. Jana Čepová, Ph.D. , MBA
Head Laboratory Technician Mgr. Martina Bunešová, MBA

Basic description:

The laboratory of the Department of Medical Chemistry and Clinical Biochemistry provides more than 195 different laboratory examinations. Annually we process biological material from 98,000 unique birth numbers. Every day (including Saturdays, Sundays and public holidays) the laboratory examines an average of 3,000 biological samples, i.e. 810,000 examinations per month in a continuous three-shift operation. Medical laboratory technicians, laboratory assistants, analysts and doctors collaborate on the analyses. The analysts and physicians on duty also provide consultation for the clinics. A number of tests (MTX, cyclosporine A, tacrolimus, sirolimus, lead, platinum, antifungals, busulfan, IGF-1, gentamycin, α defensin, ganciclovir, isavuconazole, vitamin K, etc.) are also performed for outside medical facilities, self-payers and veterinary medicine. **In 2024, 9,713,220 laboratory tests were performed, of which 60% were in preferential mode. The results of preferential analyses are available to the physician online within an average of 60 minutes from the receipt of the biological sample by the laboratory. There are specialist outpatient units at the Department of Medical Chemistry and Clinical Biochemistry, where 4,747 patients were treated in 2024.**

Specialized outpatient units/advisory clinics/centres:

- outpatient unit focusing on the treatment of hyperlipoproteinemia
- outpatient unit focusing on bone metabolism issues
- outpatient unit focusing on nutritional issues

New methods and procedures:

- **2021**
  - A method for determining isavuconazole in plasma using LC-MS was introduced;
  - converting a-Tg and a-TPO methods from chemiluminescence to electrochemiluminescence;
  - converting procalcitonin and NT-proBNP methods from electrochemiluminescence to chemiluminescence;
  - converting the myoglobin method from immunoturbidimetry to chemiluminescence on micro-particles;
  - AAS – for the determination of serum copper and zinc by flame AAS method, autosampler use was introduced;
  - For the urinary copper method, the method and calibration settings were adjusted to more accurately measure low concentrations (<1µmol/l).
  - For the serum selenium method on AAS with a graphite cuvette, the amount of sample and reagents pipetted into the cuvette were optimized to refine individual measurements
- **2022**
  - Conversion of methods: PSA, free PSA from Roche (electrochemiluminescence) to Siemens (chemiluminescence);
  - biobanking introduced in the AQUA system – monitoring the archiving of isavuconazole biological material processed
- **2023**
  - Conversion of PSA, free PSA from Siemens (chemiluminescence) to Beckman Coulter (chemiluminescence) PHI index on DxI800 introduced;
  - insulin, C-peptide, Folic Acid/Folate, Vitamin B12 methods converted from Roche (electrochemiluminescence) to Beckman Coulter (chemiluminescence).
  - AMH Elisa changed to DxI800 analyser.
- **2024**
  - Determination of catecholamine metabolites VMA and HVA in urine and 5HIIA using LC-MS;
  - development of a new method for determination of 3-methoxytyramine in urine using LC-MS;
  - MxA, calprotectin in stool, in IDS – renin, aldosterone, ACTH;
  - free beta HCG replaced by beta-HC;G
  - FIB-4 calculation introduced to evaluate the risk of liver fibrosis;
  - development of a new LC-MS method to determine fluconazole, free3-methoxytyramine;
  - measurement of markers of hyaluronic acid, N-terminal propeptide of procollagen type III and tissue inhibitor of matrix metalloproteinase-1 was introduced for subsequent calculation of the ELF score.

Unique equipment:

- **2021**
  - 2 new AtellicaIM1600 immunochemical analysers, fundamental change in laboratory operation
  - the existing Cobas6000 was replaced with a new one
  - the number of osmometers was expanded with a new OsmoPRO osmometer

- 2 new, cooled, large capacity Beckman Coulter centrifuges
- 2 new decappers
- replacement of the biochemical AtellicaDL with an AtellicaSH (+ sample handler)
- replacement of 5 acid-base analysers with the newer ABL800 FLEX PLUS at the Department of Anaesthesiology and

  Resuscitation
- exchange of two AQT90 FLEX immunochemical analysers at the Adult Emergency Department.
- exchange of the ABR for a later type ABL800 FLEX PLUS at the Department of Paediatric Surgery
- New ABL800 FLEX PLUS acid-base analyser installed at the Department of Surgery.
- Stat Profile pHOx Ultra acid-base analyser installed at the Department of Paediatrics.
- Stat Profile pHOx Ultra acid-base analyser installed at the Paediatric Sampling Centre.
- A total of 33 network strip glucose meters were replaced by new StatStrip glucose meters of the same type.

▪ **2022**
- Two new Siemens Rapidlab 1245 acid-base analysers installed
- New ABL90 FLEX PLUS acid-base analyser installed at the Adult Emergency Department
- Replacement of the acid-base analyser by an ABL800 FLEX PLUS device at the Department of Surgery.
- Two carousel glucose meters replaced by a new SensoStar GL30 Touch at the Department of Paediatrics
- A total of 42 network strip glucose meters were replaced by new StatStrip glucose meters of the same type.
- installation of new immunochemical analysers – Architect 4000 in i2000SR+i2000SR configuration (Abbott)
- installation of the AQUA system – pre-analytical phase of lab examination;
- 2 new, cooled, large capacity Beckman Coulter centrifuges
- the number of osmometers was expanded with a new OsmoPRO osmometer
- the number of LC–MS increased
- 1260 HPLC system from Agilent Technologies
- ELISA reader – SUNRISE RC
- ceiling air conditioning
- installation of AU 480 analyser (Beckman Coulter), replacement for Cobas Integra 400 from Roche s.r.o

▪ **2023**
- replacement of two ABR analysers at the Adult Emergency Department by a newer StatProfile Prime Plus type
- Acid-base analyser StatProfile Prime Plus installed in the Department of Internal Medicine
- DxI800 analyser installed
- installation of two ceiling mounted air conditioning units
- installation of a deep freeze box

- purchase of 2 Elisa readers – Tecan
- purchase of Hydroflex Plus8/4 microplate washer
- Multiwave 5000 modular sample preparation system

- **2024**
  - Two acid-base analysers were replaced by the ABL825 FLEX PLUS type at the Adult Emergency Department.
  - A StatSensor analyser for measuring creatinine levels was newly installed at the Adult Emergency Department.
  - A new Stat Profile pHOx Ultra acid-base analyser was installed at the Department of Pneumology.
  - An AFIAS-3 analyser was newly installed at the Adult Emergency Department to measure the MxA and CRP infection markers.
  - Two StatStrip network glucose meters were newly installed at the Department of Anaesthesiology, Resuscitation and Intensive Medicine.
  - Afias
  - new OC Sensor Ceres analyser
  - StakPure ultrapure water production system

Major events in 2024:

- January 2024 – Menhir conference – congress of national significance
- April 2024 – national congress of biochemical laboratory technicians – Brno – Department of Medical Chemistry and Clinical Biochemistry staff with active participation + co-organizers
- May 2024 World Congress of Clinical Biochemistry, IFCC Dubai –Department of Medical Chemistry and Clinical Biochemistry staff with active participation

Publication activity:

Total number of publications:	16
of which with IF:	**10**
total domestic publications	6
of which article in an impact journal	1
of which article in a peer-reviewed journal	1
other (books, chapters in books)	4
posters at congresses (foreign, government)	4

Department of Immunology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Jiřina Bartůňková, DrSc., MBA
Senior Consultant prof. MUDr. Anna Šedivá, DSc.
Head Laboratory Technician Mgr. Jarmila Grecová

Basic description:

The Department of Immunology provides comprehensive care for paediatric and adult patients with immunopathological conditions, including clinical and laboratory examination and follow-up care. Besides outpatient examinations and treatment in the full range of allergology and clinical immunology, the Department of Immunology also has a specialized outpatient unit for vaccination of high-risk patients and provides regular therapy and infusion application of indicated drugs for serious immune disorders at the daycare centre for children and adults. The Department of

Immunology also provides central treatment in the allergology and clinical immunology speciality. Clinical trials in the field of immunotherapy are also conducted in the outpatient units and laboratories of the Department of Immunology. The department is the base for undergraduate and postgraduate tuition in immunology and carries out research in the same field. The Department of Immunology provides highly specialized care in immune disorders, immunodeficiencies and autoimmune diseases, including neuro-immunology, autoinflammatory disorders and severe forms of allergic diseases and focuses on the immunology of tumorous diseases. The department operates nationally in these areas of highly specialized care and sometimes even internationally.
In 2024, 16,493 patients were examined in the outpatient units, 260,629 examinations were carried out in the laboratories on 44,983 patients and a further 31,357 examinations were carried out in the cerebrospinal fluid laboratory

Specialized outpatient units:

- outpatient unit for immunodeficiency
- outpatient unit for allergies, autoinflammatory and autoimmune diseases
- daycare unit for therapy of immunopathological conditions for children and adults
- outpatient unit for application of anti-tumour vaccines under clinical studies
- outpatient unit for vaccinating children at risk

Specialized laboratory:

- cerebrospinal fluid laboratory (under clinical cooperation with the Department of Neurology)

Centres:

- Centre for the Treatment of Difficult-to-treat Asthma
- Centre for the Treatment of Hereditary Angioedema
- Centre for Diagnostics and Treatment of Immunopathological Conditions – part of Centres of Excellence of the Federation of Clinical Immunology Societies (FOCIS)
- Member of ERN RITA, the European Reference Network for Rare Immunological Diseases

New methods and procedures:

- Extended options for diagnosis of severe immune disorders especially in methods for examining cell immunity;
- Functional examination of parameters of congenital and acquired immunity;
- Introduction of diagnostic algorithms for immune disorders as part of a pilot SCID screening project in the Czech Republic, diagnostic process of recorded newborns
- Introduction of the interferon release assay
- Extension of the cell immunity panel (ki-67 proliferation test, examination of Th17 and T regulating lymphocytes, B and T detailed cytometric panel);
- Optimization of autoantibody investigation panel – introduction of Bio-flash methods;
- Introduction of a new multiplex method, ALEX, for allergy diagnosis, allowing simultaneous measurement of total IgE and specific IgE.

- Introduction of methods for monitoring biological treatment and latent TB examination before such therapy
- Extended daycare units in supervision of home application of subcutaneous immunoglobulins

Clinical Studies:

- Clinical study of immunopathology of tumours.
- Clinical study of the rare disease PI3 kinase activated syndrome with the specific inhibitor CCDZ173X2201.
- Clinical study of treatment of hereditary angioedema with factor XIIA inhibitor, CSL312_3002.
- Clinical trial of Pfizer B1971060 meningococcal vaccination.

Unique equipment:

- comprehensively equipped laboratory for flow cytometry including a sorter with another new cytometer in 2022
- microscopic facility including a confocal microscope and scanning cytometer
- automated equipment for ELISA methods including new automatic device
- equipped with automated chemiluminescence apparatus for antibody detection
- equipment with a fully automated IFA microscope – in combination with an intelligent digital imaging system – that reads images of slides.
- AFIAS 10 automated immunofluorescence analyser for monitoring biological treatment and measurement of IGRA TB

Major events in 2024:

- Continued individual administration of unregistered preparation DCVAC under the hospital exception for modern therapy pharmaceuticals, Sections 49b) and 49c) of the Act on Pharmaceuticals;
- Management of the Immunodeficiency Centre within the global network of centres of the Jeffrey Modell Foundation, USA, resolving a scientific grant from this foundation;
- Work on projects of Institutional Support from Motol University Hospital; work on Czech Health Research Council grants;
- Solution of projects for diagnosis of immunopathological conditions in the Modern Therapies scheme

***Publication activity* – 25 foreign impact publications**, publication awards by national societies

Department of Medical Microbiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Pavel Dřevínek, Ph.D.
Senior Consultant MUDr. Otakar Nyč, Ph.D.
Senior Laboratory Technician Vladimír Kryll

Basic description:

The department provides laboratory diagnostics of bacterial, viral, mycotic and parasitic infections. It provides consultancy services for the diagnosis of infectious diseases and in ATB therapy. It collaborates on monitoring the incidence of nosocomial infections and monitors the occurrence of exceptional ATB-resistance profiles. It is connected to the European system of surveillance of ATB resistance and a European study for monitoring the incidence of infections caused by *Clostridium difficile.* Through its representatives in the Central Coordinating Group of the National Antibiotic Programme, Subcommittee for Antibiotic Policy of Czech Medical Association of JE Purkyně and the committee of the Society for Medical Microbiology of the Czech Medical Association of JE Purkyně, the department actively participates in the implementation of antibiotic policy in the Czech Republic. Special emphasis is placed on evaluation of the latest diagnostic procedures and their implementation in clinical practice with the aim of further improving microbiological diagnostics.

New methods and procedures:

- Diagnostics based on extrahuman genome analysis: panbacterial and targeted PCR (recently introduced tests target the hepatitis E virus, hepatitis B virus, HIV, HPV, travellers' fever agents including malaria, septic agents) and POCT of respiratory infections;
- Detection of the most common mutations associated with macrolide resistance in *Mycoplasma pneumoniae*;
- Whole genome sequencing of bacterial strains with unusual resistance or virulence, including long-read sequencing for plasmid transfer analysis;
- MALDI-TOF identification of bacterial agents and filamentous fungi using the international MSI database;
- Detection of virulence factors and resistance genes: MRSA, PVL and TSST in *S. aureus*, mcr genes for isolates of Enterobacteriaceae; carbapenemases;
- Molecular typing of *C. difficile*, *S. aureus*, for vancomycin-resistant *Enterococcussp.* (for the purposes of the Czech Republic, including national surveillance), *P. aeruginosa* and *B. cepacia* complex (chronic infections in patients with cystic fibrosis; CF);
- Cooperation with the Department of Internal Medicine at Motol University Hospital as a part of the functioning of the donor bank for faecal transplantation in patients with recurrent colitis caused by *Clostridium difficile*;
- Determination of 1,3-beta-D-glucan for diagnosis of invasive mycoses;
- Selective culture of *Scedosporium*, a filamentous fungus of the order Onygenales, in patients with CF or primary ciliary dyskinesia;

Unique equipment:

- NextSeq 2000 (Ilumina) high-capacity desktop sequencer
- CE-IVDR genetic analyser 3500 Dx (AppliedBiosystems)

- BENTLEY anaerobic box
- IR Biotyper (Bruker) for bacterial subtyping

Major events in 2024:

- Through the department's head, Prof. Dr. Dřevínek, Ph.D., it is represented at the National Institute for Pandemics under the Ministry of Health of the Czech Republic.
- 4 employees of the department are on the committee of the Society for Medical Microbiology of the Czech Medical Association of JE Purkyně; Prof. MUDr. Pavel Dřevínek, Ph.D, is chairman of the Society for Medical Microbiology of the Czech Medical Association of JE Purkyně.
- Participation in the preparation of professional seminars organized by the Society for Medical Microbiology;
- Mgr. Marcela Krůtová, Ph.D received the title "ESCMID Fellow" from the European Society for Clinical Microbiology and Infectious Diseases for her international contribution to the field.
- The postgraduate students MUDr. Jakub Kantor and Mgr. Jaroslava Zíková won an award for the best poster at the 10th Congress of Clinical Microbiology, Infectious Diseases and Epidemiology and MUDr. Anežka Gryndlerová won an award for the best lecture at the Scientific Conference of the 2nd Faculty of Medicine, Charles University for the sixth time.
  Publication activity: **30 international impacted publications**

Department of Pathology and Molecular Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head prof. MUDr. Josef Zámečník, Ph.D.
Senior Consultant MUDr. Petr Škapa, Ph.D.
Senior Laboratory Technician Vladimíra Kratinová

Basic description:

The department is involved in tissue and cellular diagnostics of diseases at the microscopic and molecular level. It uses biopsy and cytology methods that tie into other specialized laboratory examination methods (immunohistochemistry, fluorescence in situ hybridization, enzyme histochemistry, molecular analysis of nucleic acids, electron microscopy and flow cytometry). One of the department's essential service functions is perioperative biopsies, where the histopathological diagnosis is determined during the surgical procedure. An important part of the department's work is the constantly developing area of predictive pathology, which is a group of immunohistochemical and molecular methods based on which targeted biological anticancer treatment with monoclonal antibodies or low molecular weight inhibitors is indicated as a part of the personalized medicine concept. The department has several specialized working groups focused on diagnosing the pathological conditions of individual organ systems. The department provides consultation services to other pathology departments in the Czech Republic, whose primary purpose is to correct and supplement the biopsy findings of patients who will subsequently be treated at Motol University Hospital. Autopsies are no longer the department's dominant focus, although it performs an educational and control function at the hospital. The department is an undergraduate and postgraduate training facility, teaches pathology for medical and non-medical students of the 2nd

Faculty of Medicine, Charles University, and participates in the doctoral programme in biomedicine and specialization education in Pathology.
In 2024, the facility carried out 20,101 biopsy examinations, 2,332 peroperative examinations, 2,675 non-gynaecological cytology examinations, 2,448 molecular and hybridization examinations and 1,020 flow cytometry examinations.

Specialized laboratories:

- biopsy laboratory
- cytological laboratory
- laboratory for immunohistochemistry and in situ hybridization
- laboratory for molecular pathology
- laboratory for flow cytometry
- laboratory for electron microscopy
- laboratory for neuropathology and muscle biopsies
- laboratory for pulmonary cytology

New methods and procedures:

- The facility implemented automated operations management systems in the biopsy laboratory environment as well as in the specialized laboratories.
- The biopsy laboratory switched to automated operation using the Perseus system for accurate recording of laboratory processes and individual steps during biopsy material processing. The system makes maximum use of barcodes for sample identification, simplifies the work of laboratory technicians and enables the generation of statistical data for internal or external inspections and audits. The connection of individual laboratory systems to the Perseus environment is continuing.
- Benchmark Special Stains Stainers (Roche Diagnostics) were connected to the laboratory information system and the Perseus system.
- The immunohistochemistry and in situ hybridization laboratory switched to fully automated operation using Dako Omnis (Agilent Technologies) and Dako Agilent Autostainer link 48 (Agilent Technologies) systems, which are capable of performing a wide range of immunohistochemical examinations and in situ hybridizations in continuous operation. Both systems were fully connected to the laboratory information system and the Perseus system.
- The department is involved in the development and management of a shared sequencing centre using the NovaSeq 6000 high throughput sequencer (Illumina) for next generation sequencing (NGS) methodology. Continuous development of NGS methodology in a wide range of cancers and the introduction of new diagnostic panels for diagnostic and predictive pathology purposes is ongoing.
- The development of digital pathology using VENTANA DP600 (Roche Diagnostics) scanners for virtual histological slides is ongoing. Testing of automatic diagnostic algorithms with artificial intelligence elements and analysis of their implementation in routine operation is underway.
- An innovative stimulated Raman histology system, the NIO Laser Imaging System (Invenio), which enables histological visualization of a sample by non-destructive laser spectroscopy methods in minutes, is in test operation.

Unique equipment:

- Dako Omnis (Agilent Technologies), Dako Agilent Autostainer link 48 (Agilent Technologies) and Dako Agilent PT Link Pre-Treatment Module (Agilent Technologies) automated systems for immunohistochemistry and in situ hybridization
- NovaSeq 6000 Illumina and MiSeq Illumina sequencers for NGS methodology
- EZ2 Connect MDx (Qiagen) nucleic acid isolator
- Digital LightCycler (Roche Diagnostics) for digital PCR (dPCR) technology
- Avenio Millisect System (Roche Diagnostics) for high-precision dissection of tumour tissue to prepare biopsy material for molecular diagnostics
- Covaris M220 ultrasonicator for library preparation in NGS methodology,
- Roche Cobas Z480 and Biocartis Idylla analysers for the detection of specific gene changes and microsatellite instability (MSI)
- Applied Biosystems 3500 genetic analyser for Sanger sequencing, Quibit fluorometer for measuring the concentration of NGS libraries and a cfDNA isolator from plasma or fluid,
- Beckman Coulter DxFLEX flow cytometer
- JEOL JEM-1400plus electron microscope
- fully automated filling line for the production of Sakura Tissue-TEK AutoTEC a120 paraffin blocks
- Sakura Tissue-Tek staining and mounting machine for histological slide production,
- Myr M-250 fully automatic robotic rotary microtomes
- TMA Grand Master automatic tissue microarrayer (3DHistech)
- VENTANA DP600 virtual histology scanners (Roche Diagnostics) with Navify Digital Pathology software enabling interpretation of predictive immunohistochemistry and in situ hybridization using diagnostic algorithms with artificial intelligence elements
- NovaVoice dictation software for speech-to-text conversion

Major events in 2024:

Publication activity:

- The facility contributed to **38 scientific publications in journals with an IF** (6 articles are first-authored, 5 articles are senior-authored), 8 publications are in D1, 8 publications in Q1 and 11 publications in Q2 journals
- At the end of 2024, the second updated and partially revised edition of the national textbook of “Pathology” was published; its main editor is the department’s head, prof. Josef Zámečník. Among the nearly 40 authors from all over the Czech Republic were most of the teaching staff at the Department of Pathology and Molecular Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital.

Department of Clinical Haematology

Senior Consultant MUDr. Jitka Segethová
Senior Laboratory Technician Blanka Hájková

Basic description:

The department provides extended haemato-oncological care according to the criteria of the Czech Haematological Society of the Czech Medical Association.
It is divided into two sections – the laboratory and the clinical section. The laboratory performs routine and special haematological examinations for Motol University Hospital and for requests from outside the region. **In 2024, 1,005,102 procedures were performed in the laboratory.** The laboratory is a reference laboratory for diagnostics of acute leukemias and myeloproliferative conditions in children. The attention in adult haematology is focused on precise morphological diagnostics of the myelodysplastic syndrome.
The clinical section includes an outpatient unit for the children's and the adults' section. **42,899 procedures were carried out in the outpatient unit in 2024**. In the adult outpatient unit, treatment at the centre with extended haemato-oncology care also focuses on treating multiple myeloma and low grade malignant lymphoproliferative diseases. The adult outpatient unit includes application rooms used for the application of transfusion preparations and chemotherapy.

New methods and procedures:

- Examination of the function of thrombocytes;
- Introduction of the methodology for examination of levels of new antithrombotic medicines;
- Introduction of a methodology for the examination of fibrin monomers;
- Introduction of a methodology for determining f. XIII;
- Establishment of a method for microscopic detection of *Plasmodium malariae*, including determination of parasitaemia and performance of a POCT Ag test for malaria. Examinations are available at the Department of Clinical Haematology continuously;
- Introduction of modified erythrocyte sedimentation rate (ESR) testing in 2024. This method replaced the determination of the erythrocyte sedimentation rate in clinical facilities and allowed standardization of the examination according to criteria in international recommendations.
- The morphological laboratory participates in international studies of treatment of acute leukemias in children.
- The department is actively involved in the activities of the Czech MDS Group.
- The department's physicians actively participate in the Czech Myeloma Group including entries in the register of monoclonal gammopathies – CMG.
- The laboratory provides practical training for students in the fields of Medical Laboratory Technician and Laboratory Diagnostics in Healthcare.

Unique equipment:

- SYSMEX XN 3000 – automated line for examination of blood count including digital morphology
- SYSMEX XN 1000 for blood testing
- Coagulometers (ACL TOP 750 CTS with preanalytical phase control) for routine and special coagulation tests.

- Coagulometer (ACL TOP 700) for special coagulation tests.
- STA-R Evolution – analyser for fibrin monomer and coagulation tests using the mechanical principle
- Device for testing ESR-modified erythrocyte sedimentation rate (Alifax TEST1 2.0)
- Device for functional analysis of thrombocytes (Innovance PFA 200)
- Bactec satellite incubator for receiving haemocultures
- The Department of Clinical Haematology manages the AQT90 Flex radiometer POCT machine in the Adult Emergency Department, which processes D-dimers in acute patients

Major events in 2024:

- The department contributed to the introduction of the CoaguChek POCT device for INR and APTT testing directly at the patient's bedside at the Adult Emergency Department in collaboration with the Department of Neurology for adults.
- In 9/2024 we successfully passed a National Authorization Centre for Clinical Laboratories R3 Audit.

Department of Clinical Psychology of Motol University Hospital

Senior Consultant Mgr. Markéta Mohaplová

Basic description:

The Department of Clinical Psychology has 42 employees in various positions who provide psychodiagnostic and psychotherapeutic care to adult and paediatric patients at Motol University Hospital. **In addition to care for patients from the core departments, 2024 saw more than 2,500 consultation-requested procedures**

Specifically, the department provides care for paediatric and adult patients before and after organ transplantation, paediatric haemato-oncology patients and patients with chronic pain. The psychologists are also involved in complex diagnostic and therapeutic care for paediatric patients with autism spectrum disorders, eating disorders and other psychiatric diagnoses. Department of Clinical Psychology psychologists are also part of multidisciplinary teams caring for paediatric patients with chronic renal failure, cystic fibrosis and diabetes. They are also involved in caring for paediatric and adult patients in the epilepsy surgery programme, patients of the Aftercare Centre, and are part of the teams focused on research and treatment for neurodegenerative diseases. Currently, the Department of Clinical Psychology also works closely with support and palliative care teams for children and adults. There is also a Family Therapy Centre within the department.

The Department of Clinical Psychology also provides psychological services for Motol University Hospital employees; we offer individual consultations, team interviews, we provide help during the arrangement of long-term care.

The department is accredited by the Ministry of Health of the Czech Republic for the theoretical-practical and practical part of specialization training in Clinical Psychology, Child Clinical Psychology and Psychotherapy.

New methods and procedures:

- We cooperate with the support teams of Motol University Hospital, especially with the Psychosocial Intervention Service.
- The standardization of the Children's Neuropsychological Diagnostic Battery is continuing as a part of a Technology Agency of the Czech Republic grant

Blood Bank Department

Senior Consultant MUDr. Eva Linhartová
Head Laboratory Technician Mgr. Martin Matějček/from 1 June 2024 Radka Schrollová

Basic description:

The Blood Bank Department is one of the common examination and therapeutic units at Motol University Hospital. It ensures purchasing, storage and issue of all types of transfusion products for patients at Motol University Hospital. **In 2024, the department issued a total of 28,932 TU of all types of transfusion products.** The Blood Bank Department carries out the basic and specialized immunohaematological examinations as requested by medical facilities, prenatal examinations for the pregnancy advisory centre of the Department of Gynaecology and Obstetrics and provides transfusion products for intrauterine and exchange transfusion as needed. **In 2024, 9,927 blood group examinations, 21,776 antibody screening tests and 39,127 compatibility tests were carried out as part of basic pre-transfusion examinations.** The number of specialized immunohaematological examinations remains the same as in 2024. There were no major changes to prenatal examinations. **The number of transfusion product irradiations was 10,850 irradiations in total in 2024.**
At the autotransfusion and apheresis section, autologous full blood is collected mainly for patients from the orthopaedic departments at Motol University Hospital, the Department of Urology, 2nd Faculty of Medicine, Charles University and Motol University Hospital, and for patients at Na Homolce Hospital. **In 2024, a total of 159 autologous whole blood donations and 119 autologous apheresis donations were performed (including 17 PBPC and 9 PBMC donations for drug production by Novartis for patients at the Department of Paediatric Haematology and Oncology, 165 apheresis donations for ECP – extracorporeal photochemotherapy).**
The department provides tuition under the 2nd Faculty of Medicine, Charles University and for undergraduate and postgraduate students in transfusion medicine for physicians and non-medical staff.

Specifics of the department:

- laboratory section
- section for autotransfusion and apheresis
- irradiator for irradiation of transfusion products

New methods and procedures:

- Separation of autologous peripheral blood progenitor cells (PBPC) and collection of peripheral blood mononuclear cells (PBMC) for the production of a medicinal product is carried out for paediatric patients from the Department

of Paediatric Haematology and Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital (DPHO);
- An extracorporeal photochemotherapy method was applied to patients at the 3rd Surgical Department, 1st Faculty of Medicine and Motol University Hospital after lung transplantation and to paediatric patients.

Unique equipment:
- automated Erytra + Eflexis immunohaematological analyser
- MacoGenic G2 irradiation device for UVA irradiation of blood cells according to the THERAFLEX ECP protocol using the “off line” technique

Major events in 2024:
- In cooperation with the Department of Paediatric Haematology and Oncology, international accreditation was again obtained from the Joint Accreditation Committee ISCT-EBMT (JACIE) for sampling on a peripheral progenitor cell separator.

Department of Rheumatology for Children and Adults
Senior Consultant doc. MUDr. Rudolf Horváth, Ph.D.
Head Nurse Indira Jankovičová

Basic description:
The Department of Rheumatology for Children and Adults provides comprehensive diagnostics, treatment and follow-up treatment of paediatric and adult patients suffering from inflammatory rheumatic diseases, focusing on juvenile idiopathic arthritis, rheumatoid arthritis, ankylosing spondylitis and other forms of spondyloarthritis, psoriatic arthritis, system diseases of the connective tissue and primary vasculitis. Other cooperating fields and laboratory services contribute to the care for patients. The department actively participates in consultation activities at Motol University Hospital and provides medical consultancy also to other facilities nationwide.
In 2024, 8,768 inpatient examinations, 6,621 collections, 4,387 minimum contacts, 668 consultations and 263 specialized ultrasound examinations were carried out at the department and 307 specialist consultations were provided for inpatients at various departments at Motol University Hospital.

Specialized outpatient units/advisory clinics/centres:
- specialized outpatient unit of rheumatology for adults
- specialized outpatient unit of rheumatology for children
- specialized outpatient unit for primary vasculitis
- specialized outpatient unit for the diagnosis and treatment of autoinflammatory syndromes
- clinical osteology outpatient unit
- outpatient unit of musculoskeletal ultrasonography
- capillaroscopy outpatient unit
- centre for biological treatment of children and adults in rheumatological indications

New methods and procedures:

- The portfolio of biological drugs used was expanded to include new IL17F and IL17F dual blockers in indications of ankylosing spondylitis, non-radiographic spondyloarthritis and psoriatic arthritis
- The portfolio of biologic drugs used was expanded to include IL-6 inhibitors in the indications of GCA (giant cell arteritis) and PMR (polymyalgia rheumatica).
- The drug portfolio was expanded to include small targeted synthetic molecules (JAK inhibitors) to treat RA (rheumatoid arthritis), PsA (psoriatic arthritis), AxSpA (axial spondyloarthritis) and JIA (juvenile idiopathic arthritis).
- The portfolio of biologic drugs was expanded to include new IL-1 inhibitors in indications of rare autoinflammatory syndromes.
- Bedside diagnostics and dynamic monitoring of the activity of inflammatory rheumatological diseases with musculoskeletal ultrasonography were established.
- In collaboration with the Department of Radiology, 2nd Faculty of Medicine, Charles University and Motol University Hospital whole-body MRI (magnetic resonance imaging) is carried out in specific indications (e.g. CRMO – chronic recurrent multifocal osteomyelitis).
- As part of the Motol University Hospital's institutional support projects, ultrasound examination of a wide portfolio of inflammatory and non-inflammatory rheumatic diseases was set up.

Unique equipment:

- two ultrasound devices (Esaote Mylab Class C, Esaote Mylab Seven) fitted with high frequency probes
- new VIDEOCAP 3.0 D1 capillaroscope for examining pathology in patients with SSc, SLE, MCTD and system autoimmunity

Major events in 2024:

- Active participation in domestic specialist congresses organized by the Czech Society of Rheumatology of the Czech Medical Association of JE Purkyně and foreign EULAR and ACR congresses, including presentation of the results of the ATTRA registry.
- Solution of an internal grant of Motol University Hospital institutional support entitled "Comprehensive Scientific Research Programme for Diagnosis, Monitoring and Treatment of Rheumatic Diseases in Children and Adults" continued successfully.
- **4 papers were published in journals with an IF**, two in D1 and one in a peer-reviewed domestic publication with an IF

Department of Central Operating Theatres for Children

Head Nurse Bc. Alice Podařilová
Supervising Physician doc. MUDr. Vladimír Mixa, Ph.D.

Basic description:

The Department of Central Operating Theatres for Children concentrates all surgical procedures for all surgery and other fields from the paediatric section of the hospital, except for cardiac surgeries. This concerns the fields of paediatric surgery, ENT,

orthopaedics, dental surgery, neurosurgery and ophthalmology. It also carries out bone marrow harvesting, trepanobiopsy, the introduction of central venous and peripheral catheters (PICC and midline) and SSEP examinations. Undergraduate and postgraduate tuition for physicians and other medical staff is carried out in the premises of the central operating theatres for children.
9,029 surgical procedures were carried out in 2024. In the field of transplantology, 11 kidney transplants were performed. In the field of the Department of Anaesthesiology, Resuscitation and Intensive Medicine, CVC, PICC and midline are being introduced. A total of 388 procedures were performed.

Unique equipment:

- Full HD laparoscopic tower with digital image upscaling to 4K with integrated NBI capability to support fluorescence diagnostics using ICG contrast
- new head support mechanism for NCH procedures
- Duet Encompass – modern video equipment for urology and EMG of the pelvic floor with simultaneous connection to X-ray devices
- ultramodern 4k arthroscopic mobile unit, which is used in the department's paediatric and adult sections
- micro instruments for FESS in children
- B Braun high speed bone cutter
- Clarity ultrasonic aspirator
- digitalisation of computer and audiovisual equipment with preparation for data transfer to conference rooms of individual departments

Major events in 2024:

- Performance of unique surgeries in the field of onco-orthopaedics – growing total femur component of a hip, femur and knee replacement; individual replacement of the scapula and shoulder joint, as well as individual growing replacement of the proximal tibia;
- The second paediatric patient in the Czech Republic received an auditory brainstem implant.
- The eye operating theatres have not been under the central operating theatres since 1 December 2024.

Department of Central Operating Theatres for Adults

Senior Consultant MUDr. Zbyněk Jech
Head Nurse Mgr. Vladana Roušalová

Basic description:

The Department of Central Operating Theatres for Adults (COT) ensures the operation of eight surgical facilities in the adult section of Motol University Hospital. The total of 24 operating theatres provide facilities for both routine surgical procedures and highly specialized surgery, including lung transplants and complex multidisciplinary procedures for oncology and polytrauma patients.
Anaesthetic care is provided by the Department of Anaesthesiology, Resuscitation and Intensive Medicine, 2nd Faculty of Medicine, Charles University, technical support is provided by the Department of Biomedical Engineering at Motol University Hospital.

A total of 18,649 procedures were performed in 2024 at the COT for adults. 502 of these procedures were robotic, which represents further year-on-year growth. The facility provides undergraduate and postgraduate training for medical and non-medical health professionals.

New methods and procedures:

- Continuation and expansion of robotic surgery on a second daVinci Xi system, including additional robotic cardiac surgery procedures.

Unique equipment:

- Second DaVinci Xi robotic surgery system
- three Maquet OTEUS 1160 operating tables were replaced
- coagulation devices, including accessories, were replaced
- Staff adaptation and evaluation of the effectiveness and benefit of the newly acquired technologies in clinical practice took place.

Major events in 2024:

- Two nurses completed postgraduate speciality studies (PSS) in perioperative care.
- Four orderlies successfully completed the accredited qualification course – general orderly.
- 21 students in the 3rd year of the Bachelor of General Nursing programme completed their nursing practice at the Central Operating Theatres for adults.

Department of Transplantations and Tissue Bank (DTTB)

Senior Consultant MUDr. Jan Burkert, Ph.D.
Head Nurse Mgr. Pavla Křížová

Basic description:

The Department of Transplantations and Tissue Bank (DTTB), as the only facility in the Czech Republic, provides a programme for collection and transplantation of organs (TC), as well as collection and transplantation of tissues (tissue facility – TF).

Specifics of the facility:

1) The DTTB – TC creates the organizational prerequisites so that individual departments of Motol University Hospital can indicate potential organ and tissue donors and, when necessary, organ and tissue donations and individual national organ transplant programmes, i.e. programmes that cover the whole Czech Republic, can be implemented. They are:
National Programme for Kidney Transplants in Children (head doctor MUDr. Jakub Zieg, Ph.D. - Department of Paediatrics)
National Programme for Lung Transplants in Children and Adults (head doctor prof. MUDr. Robert
Lischke, Ph.D. - 3rd Department of Surgery)
National Programme for Heart Transplants in Children (head doctor Senior Consultant MUDr. Roman Gebauer –
Children's Heart Centre)
2) The DTTB – TF operates the Specialized Tissue Bank (STB 85). It is engaged in procuring, processing, storing and distributing cardiovascular tissue from cadaveric donors, bone tissue from living and cadaveric donors and amniotic membrane from

living donors. **The National Bank of Allogeneic Valve Grafts** (NBAVG) operates nationwide and supplies valve grafts to all cardiac surgery centres in the country.

In 2024, **15 multi-organ harvests (MOH) from cadaverous donors (including 2 DCD)** were carried out. Calculated per million population (pmp), this is **48.79 donors pmp** (the Motol University Hospital region has **311,608** inhabitants), **which is the highest harvesting activity in 2024 in the Czech Republic!** Overall in the Czech Republic it is **28.91** pmp.
11 kidney transplants were performed in children, 7 from cadaveric donors and **4** from living donors.
A record **72 lung transplants were performed (including 6 lungs from DCD and 4 heart-lung blocks)** in an organ transplant programme that is the most logistically challenging, most complicated in terms of coordination and also the most expensive (**88.9%** were bilateral and **70.8%** on ECMO).
A record 363 lung offers were processed!
A record number of 10 hearts were successfully transplanted into children (a total of **17** offers were considered).
The cardiovascular tissue bank **received 158 hearts** (131 deceased and 27 living donors) for processing. 176 grafts and conduits were released for transplantation.
The National Valve Bank saw a record number of 170 valve grafts and conduits transplanted.
16 vascular grafts were accepted for transplantation (in "fresh" mode) of which 9 grafts were transplanted and 1 graft was cryopreserved.
111 bone grafts were collected from living donors **and 32 from three cadaveric donors, 44 grafts were transplanted**.
40 callus grafts were taken from living donors for autologous use and 17 cranioplasties were performed.
136 grafts were released for amniotic membrane transplantation.

Major events in 2024:

- The number of **lung transplants increased again to a record 72, i.e. 6.6 pmp** (calculated per 1 million population) and Motol University Hospital is now among the 20 largest centres in the world. **A record 363 lung offers were processed as part of the national lung transplant programme! – 29** of the offers were from Slovakia. **Transplants were performed on 12 Slovak patients in 2024.**
- **The National Bank of Valve Grafts saw a record 170 valve graft transplantations this year.** We continue to increase the number of transplanted valve grafts and for the 8th year we transplanted more than 10 valve grafts throughout the Czech Republic. This is the result of long-term and systematic work that popularizes the method among cardiac surgeons and cardiologists. The interest in lung grafts is so great that we had to introduce a waiting list for large lung grafts at the beginning of the year, in agreement with the Czech Society for Cardiovascular Surgery. At the same time, around the middle of the year, we started collecting hearts from deceased donors, i.e. from patients who are also recipients of hearts during transplants. In this way, we are trying to increase the pool of valve grafts in the Czech Republic, and because the diagnosis of these living donors is often dilated cardiomyopathy, we can expect an increase in the shortage of large lungs. The whole process is ensured by our unique national system of allocating valve grafts for

transplantation (always two for each patient) and distribution by a specialized Meditrans ambulance in transport containers that allow unused grafts to be returned to our cryostorage.

Outpatient sector

Emergency Department and Medical First Aid Service for Children

Senior Consultant MUDr. Jitka Müllerová Dissou, MBA
Head Nurse Ing. Mgr. Monika Vilímová, Dis.

Basic description:

The Emergency Department and Medical First Aid Service for Children cares for A+E paediatric patients aged
0–17 years +364 days. The department has the following 3 parts: Urgent admission – acute booths, Urgent admission – outpatient unit. From 4:00 p.m. to 7:00 a.m. on weekdays and on weekends, the emergency outpatient unit works non-stop as a children's emergency room. Priority 1 and 2 patients and patients received from the ambulance service are treated in the acute emergency booths.
POCT ABR, ECG, ultrasound, instant PCR and ID now are available directly in the department, as is a new device for CRP and MXA examinations. CT, ultrasound, X-ray and MRI are located in the immediate vicinity of the emergency room.
In 2024, 30,954 child patients were treated at the Emergency Department and Medical First Aid Service for Children, of which 6,095 were treated in the acute booths.

Major events in 2024:

- In October 2024 we established the Section of Paediatric Emergency Medicine as a part of Society for Emergency Medicine and Disaster Medicine
- The doctors actively participated in the Brno Days of Emergency Medicine in Mikulov, Dostal Days of Emergency Medicine in Ostrava and the SDAIM congress in Bratislava. We organize a course on Acute Conditions in Childhood under the Department of Emergency Medicine at the Institute for Postgraduate Medical Education.

Department of Dermatovenerology for Adults

Senior Consultant MUDr. Alena Machovcová, Ph.D., MBA
Head Nurse Mgr. Helena Janoušková

Basic description:

We are an outpatient facility without a link to an inpatient unit at Motol University Hospital. We provide basic and specialized care in dermatology and venerology focusing on dermatoallergology and occupational skin diseases, prevention and treatment of skin tumours and other diseases. We are a centre for the biological treatment of psoriasis, atopic dermatitis, chronic urticaria and hidradenitis suppurativa. We have an equipped operating theatre where we perform surgical or laser removal of skin tumours, pigment nevi, etc. **In 2024, we performed more than**

1,448 procedures. More than 8,397 patients were treated in the outpatient unit and almost 24,582 treatments were carried out.

Specialized outpatient units/advisory clinics/centres:

- outpatient unit of venerology
- outpatient unit for pigment nevi and skin tumours
- dermatoallergology outpatient unit and outpatient unit for occupational skin diseases
- corrective dermatological outpatient unit
- lymphological outpatient unit
- acne advisory clinic
- outpatient unit for patients after organ transplantation
- nail advisory clinic (ingrowing nails, incorrect curvature)
- outpatient unit for diagnostics and treatment of nail diseases
- centre for biological treatment of psoriasis, chronic hives, hidradenitis suppurativa, atopic eczema, skin lymphomas
- daycare centre for phototherapy

New methods and procedures:

- full-body body mapping to search for pigment nevi at risk

Unique equipment:

- Canfield IntelliStudio gen 3

Department of Paediatric Dermatology

Senior Consultant MUDr. Jana Čadová
Charge Nurse Veronika Brabcová

Basic description:

The Department of Paediatric Dermatology provides outpatient services in 3 outpatient units and a surgery room. It is involved in the diagnosis, treatment and observation of paediatric patients with all skin diseases. It also provides consultation services to patients in the inpatient wards of the hospital's paediatric section. It acts as the Czech Republic's super consultation facility for serious or rare diseases. It takes part in training doctors in the fields of dermatovenerology, allergology and paediatrics as a part of postgraduate education.
In 2024, 7,517 patients were treated, and 247 medical consultations were provided on beds in the hospital's paediatric section.

Specialized outpatient units/advisory clinics/centres:

In the general outpatient units, we focus on the diagnosis and treatment of common dermatoses, most frequently atopic eczema, and since 2020 we have been a centre for biological treatment. An integral part of the outpatient units are the advisory clinics for genodermatoses, pigment nevi (digital dermatoscopy), haemangiomas and vascular anomalies, acne treatment, hair and nail advisory clinics, treatment of verrucae, and in the surgery theatre we perform probatorial excisions and total excisions of small skin formations, including electrocautery. In 2024, we started an outpatient unit for lymphoedema in children.

New methods and procedures:

- BTL-4110 Premium bio-stimulation laser, which is mainly to treat scars and acne
- Illuco IDS-3100 (Magnum+) dermatoscopic magnifier with polarization integrated with a Wood's lamp is now used to improve the diagnosis of vitiligo and superficial mycoses
- DermoGenius ultra (Dermoscan) – the investigation of pigmented lesions at risk with a digital dermatoscope continues to be perfected;
- Hyfrecator 2000 electrocauter – to remove minor skin lesions.

Major events in 2024:

- Staff contribute by lecturing at national professional events and participate in postgraduate training courses at the Czech Medical Chamber and the Institute for Postgraduate Medical Education.

Primary Care Department

Senior Consultant MUDr. Jaroslava Kulhánková
Head Nurse Mgr. Alena Kašajová

Basic description:

The department provides acute and long-term preventive care for employees, patients from outside MUH registered under individual payments, preventive check-ups for secondary school and university students, foreigners with or without insurance from the local health insurance companies, and non-standard care for persons with Czech health insurance. We screen registered patients for colorectal cancer, diabetes mellitus and hypertension, and we provide follow-up for patients with type II DM and hypertension. We work with the Department of Hospital Hygiene and Epidemiology at Motol University Hospital to examine and vaccinate employees in current epidemiological situations. The department is an undergraduate and postgraduate tuition facility accredited in general practice.
In 2024, the Primary Care Department treated 18,004 patients, 975 vaccinations were administered, and 399 adult patients and 2,660 children were also treated at the UA Point. 736 children were vaccinated.

Adult Emergency Department

Head MUDr. Jiří Karásek, Ph.D.
Head Nurse Bc. Lucie Vacková

Basic description:

The Adult Emergency Department (AED) has 28 beds. It is equipped with 1 bed in the crash room, 17 monitored beds in the booths and 10 beds in the acute outpatient units for surgery, traumatology, neurology and urology. The Adult Emergency Department includes a Medical First Aid Service (MFAS).
The department's basic task is to receive patients with acute and life-threatening problems from the catchment area of Motol University Hospital and patients indicated for central care (AIM, stokes, polytraumas). We stabilize the patient's condition, perform differential diagnosis using a wide range of examination methods and decide on admission to an acute care bed or further outpatient procedure.

In 2024, 59,146 patients were treated at the Adult Emergency Department (increase of 3%), of which 9,309 were subsequently hospitalized. The medical first aid service (MFAS) treated 16,804 patients, which is an increase by 4.1%.

Major events in 2024:

- On 26 September 2024, there was a lecture day to mark 25 years of the Adult Emergency Department with almost 200 registered attendees.

Publication activity:

- Ostadal P, Rokyta R, **Karasek J**, Kruger A, Vondrakova D, Janotka M, Naar J, Smalcova J, Hubatova M, Hromadka M, Volovar S, Seyfrydova M, Linhart A, Belohlavek J; ECMO-CS Investigators. Extracorporeal membrane oxygenation in the therapy of cardiogenic shock: 1-year outcomes of the multicentre, randomized ECMO-CS trial. Eur J Heart Fail. 2024 Aug 8. doi: 10.1002/ejhf.3398. **IF 16.9**
- Manzo-Silberman S, Guedeney P, Cayla G, Beygui F, Rangé G, Motovska Z, Procopi N, Kerneis M, Zeitouni M, El Kasty M, Teiger E, Filippi E, Coste P, Huchet F, Cottin Y**,** **Karasek J**, Arnould MA, Braik N, Barthelemy O, Portal JJ, Vicaut E, Montalescot G, Silvain J; ALPHEUS Investigators. Ticagrelor vs Clopidogrel in Clopidogrel-Naive Patients With Chronic Coronary Syndrome. JACC Cardiovasc Interv. 2024 Jun 24;17(12):1413-1421. doi: 10.1016/j.jcin.2024.04.015. **IF 11.7**
- Strycek M, Polasek R, Tomasov P, **Karasek J.** Refractory cardiogenic shock in hypertrophic cardiomyopathy complicated by apical ballooning: A case report. Journal of International Medical Research. 2025;532. **IF 1.4**

Department of Hospital Hygiene and Epidemiology

Senior Physician – epidemiologist MUDr. Jarmila Rážová, Ph.D.
Senior Scientific Officer in Public Health Protection Mgr. Jana Hrončeková

Basic description:

The activity of the Department of Hospital Hygiene and Epidemiology (DHHE) meets the legislative requirements of the Act on Health Services and Protection of Public Health, namely the obligation of health service providers to establish and implement a programme to prevent and control healthcare-associated infections. In practice, implementing this programme means adopting and carrying out measures to reduce the occurrence or spread of all infections in the medical and non-medical areas of the hospital depending on the specific conditions at each facility. In 2024, this was the department's main activity.

Specifics of the facility:

Anti-epidemic measures in connection with the occurrence of community infections (e.g. influenza, covid-19) and the occurrence of multidrug-resistant strains in hospitalized patients became a priority for the Department of Hospital Hygiene and Epidemiology.

Data from the reporting of healthcare-associated infections (HAI), incidence rates, were continuously monitored and analysed. Barrier measures were ordered and monitored for 591 patients, including isolation if multidrug-resistant strains were found, and follow-up monitoring was performed. In September 2024, the Department of Hospital Hygiene and Epidemiology became the first member of the Motol University Hospital infection prevention and control team to start a pilot programme using HAIDi artificial intelligence software for HAI surveillance. Using this software, the Department of Hospital Hygiene and Epidemiology is better able to identify HAI than with previously used methodologies and procedures. In 2023, a HAI incidence of 1.00% was recorded with a predominance of urinary track infections, **but using HAIDi software for the second half of 2024 the incidence of HAI increased to 6.2 per 1,000 treatment days.**

Legislative requirements (Ministry of Health of the Czech Republic, SIDC) were fulfilled by the Department of Hospital Hygiene and Epidemiology in the field of control of bacterial cleanliness of the environment (333 measurements by aeroscope, 100 control protocols, 157 measurements by particle counter and 1,244 environmental swabs were performed), endoscopic technology, sterilization and disinfection technology (507 control protocols) and water quality control (including prevention of *Legionella* – 320 water samples were taken, of which 291 without finding *Legionella* sp.). In 2024, 216 hygiene and epidemiological audits were carried out (289 in 2023, 183 in 2022), 2,412 epidemiological investigations were performed and 537 room disinfections were carried out (508 in 2023, 913 in 2022). The consumption of disinfectants increased year-on-year – 32.1 litres per 1,000 treatment days (27.3 litres in 2023 and 30.3 litres in 2022).

The Department of Hospital Hygiene and Epidemiology continued to ensure daily reporting of patients hospitalized with covid-19 to the Ministry of Health/Institute of Health Information and Statistics/ISIN registry, imposing isolation and quarantine and other anti-epidemic measures. During 2024, 46 employees were diagnosed with the covid-19 infection (3,988 total from March 2020 to 31 December 2024), and 281 patients were hospitalized with this diagnosis (6,501 total from March 2020 to 31 December 2024).

In cooperation with the operational and technical department, the Department of Hospital Hygiene and Epidemiology carried out an analysis of the risk of lead and *Legionella* in the internal water supply and its connecting lines on the premises of Motol University Hospital, including an assessment of generic risks for all facilities where inpatient care is provided and for accommodation services, including a proposal for the frequency of sampling, monitoring and measures, in accordance with the procedure set out in Act No. 258/2000 Coll., on protection of public health, as amended, and Decree No. 252/2004 Coll., as amended. Based on the risk assessment, the operating rules of the Internal Water Supply System and Connecting Lines of Motol University Hospital were prepared and approved in September 2024 by a decision of the public health protection authority – the Public Health Station for Prague City.

In ongoing fashion, the Department of Hospital Hygiene and Epidemiology ensures communication and cooperation with the Public Health Station for Prague City on the issue of ensuring public health and epidemiological care and occupational health.

In ongoing fashion, the Department of Hospital Hygiene and Epidemiology discusses project documentation submitted to it for planned and ongoing reconstructions on the Motol University Hospital premises and project documentation for new buildings on the Motol University Hospital premises.

The Department of Hospital Hygiene and Epidemiology ensures and participates in educational and training activities for medical staff at Motol University Hospital, as well as in the undergraduate and postgraduate education of doctors (accredited facility for the field of hygiene and epidemiology in the basic course and its own specialized training) and non-medical medical staff (certified courses).

Hospital Pharmacy of Motol University Hospital

Senior Pharmacist PharmDr. Petr Horák
Deputy Senior Pharmacist Mgr. Milan Vegerbauer and PharmDr. Markéta Petrželová
Senior Pharmaceutical Assistant Helena Bohabojová

Basic description:

The main task of the Hospital Pharmacy at Motol University Hospital is to provide effective and safe drugs for hospitalized patients and outpatients and generally to set up and inspect all steps required in the handling of drugs with an impact on the

safety of patients and the outcomes of their treatment. The Hospital Pharmacy ensures the issue of drugs, as well as individual and mass production of drugs, including sterile (cytotoxic substances, parenteral therapeutic products without antimicrobial additives and other drugs) and non-sterile drugs (individual products, especially for paediatric patients), acquisition of unregistered drugs and obtaining drugs for clinical studies and clinical and pharmaceutical care.
The pharmacy provides consultation services to patients and medical professionals and theoretical and practical tuition including internships for undergraduate and postgraduate students.
The Hospital Pharmacy contributes to the drafting of the Motol University Hospital drug policy and provides methodological guidance to the Committee for Effective Pharmacotherapy. It also develops Motol University Hospital's internal regulations in the area of handling pharmaceuticals and takes part in auditing activities as a part of the pharmaceutical quality management system.

Specialist facilities:

- for preparing sterile medicinal products:
  - containing cytotoxic substances
  - others – without antimicrobial additives
- for preparing medical gases
- to check medicinal products and the preparation of test tubes
- providing information on medicines
- for dispensing medical devices

- **The work of the Department for Individual Preparation of Therapeutic Products included preparing 410,130 capsules and 20,000 children's suppositories and 2,500 adult suppositories. 5,150 g of medicinal cannabis was processed** into capsule form, the individual preparation of liquid extracts with medicinal cannabis and the preparation of topical preparations with extracts containing medicinal cannabis were significantly expanded – *1,212 g of concentrate (medicinal cannabis extract)* was dispensed. There was a significant increase in the number of individual preparations of hazardous drugs – in particular oral preparations in an isolator, including the preparation of centric drugs for paediatric patients. Preparation of alternatives with new active ingredients that are missing on the market (for paediatrics – Ondansetron suppositories, Oseltamivir susp. 15 mg/ml, Nadolol cps.; as well as neuropathic pain products for local application – ointments, creams) was dealt with. The trend of addressing shortages of authorised medicinal products through individual preparation continues. They include, for example, products from the group of topical antibiotics, antifungals and antiseptics, prokinetics and corticosteroids.
- **The Department for Central Preparation of Cytostatics prepared a total of 38,000 doses of parenteral cytostatics ready for administration, including roughly 3,000 continuous pumps.**
- The **Sterile Medicines Preparation Department (SMPD)** prepared a range of products not available in mass-produced medicinal product form for stock (antidotes, etc.). The main program is the preparation of parenteral products: cardioplegic solutions, hydration and neonatal bags, ionic cardio bags; **total of 12,190 pcs**, as well as sterile eye ointments and eye drops without antimicrobial additives. The Hospital Pharmacy prepares and provides

parenteral nutrition for 24 paediatric and 31 adult outpatients In 2024, the Sterile Medicines Preparation Department also took over enteral nutrition for hospitalized patients.

- **The OLAB department dispensed 18,559 diagnostics**, and 338 various diagnostics were individually prepared in the production laboratory using recipes in line with the requirements of the hospital's laboratory facilities.

Roughly 904,497 packs of medicines (excluding infusion solutions) prescribed on more than 55,000 requests were dispensed to the hospital. A total of 1.35 million units of medicines, medical devices and the supplementary range were issued to the public, prescribed on 375,000 prescriptions or vouchers. In addition to this, the Hospital Pharmacy ensures the availability and dispensing of centric drugs to outpatients – in 2024, 450 types of medicines were dispensed on 32,000 requests.

The pharmacy participates in all clinical assessments of drugs that are in progress at Motol University Hospital in accordance with the good clinical practice principles and good pharmacy practice principles. In total, **7,920 packs of medicines** were issued **in clinical trials**.

Our clinical pharmacists carried out 824 initial medication reviews and 1,407 additional rechecks with the need for intervention, as well as 1,369 requested consultations. 1,294 pharmacotherapy rationalization plans were prepared.

In its scientific and publication activities, the pharmacy focused on individual preparations for patients of specific age groups, especially paediatric patients, development of new customized formulas with suitable recipes and stability verified by validated methods, oral supplementation of ions in individual preparation of medicines, as well as research on shortages of drugs and staffing needs in the hospital pharmacy. The outputs from these activities are regularly published and presented at specialized fora in Europe and in peer-reviewed and impact journals.

Major events in 2024:

- In cooperation with other hospital pharmacies, we are in the process of finalizing the Recommended Procedure for the Preparation of Dangerous Drugs, and are making a significant contribution to the development of the Electronic Formulary for Individually Prepared Medicinal Products under the Czech Chamber of Pharmacists.

NURSING CARE

Nursing Care Quality Indicators

Monitoring nursing care indicators (pressure ulcers and falls) is a long-term priority. With regard to **pressure ulcers**, preventive measures, adherence to wound healing procedures according to international recommendations and monitoring of other influenceable factors, such as the occurrence of pressure ulcers during surgical procedures or the use of medical equipment, remain the highest priority in patient care.
The team of consultants is continuously increasing the number of consultations and patients treated at the inpatient facilities. The Chronic Wound Healing Outpatient Unit, which provides continuity of care for patients after discharge from acute care, treated 15 patients.
For the eleventh time, Motol University Hospital took part in activities for the International STOP Pressure Ulcer Day, which aims to bring the issue of preventing and treating pressure ulcers to the lay and professional public.

With regard to the issue of **falls by hospitalized patients**, we are still focusing mainly on consistent prevention (leaflets, banners, wristbands, verbal instructions) and the connection between falls and the use of medication. In 2024, we managed to keep the number of injuries related to patient falls low.

PICC Team

The PICC team provides comprehensive vascular insertion care for inpatients and outpatients. There are two teams working in the hospital – the Centre for Vascular Access in the adult section and a team under the Department of Anaesthesiology, Resuscitation and Intensive Medicine in the paediatric section.
Nurses in the adult section of the PICC team take part in organizing seminars on the provision of and care for vascular access. There were 8 one-day seminars for charge and staff nurses and 4 similar courses in collaboration with the Aesculab Academy; more than 100 nurses from our hospital received instruction in them. A 3-week certified course on “Comprehensive Care for Vascular Access” was held, attended by 40 nurses. 20 nurses completed the certified course “PICC and Midline Catheter Insertion”. These nurses obtained special professional competence to insert PICC and midline catheters. We contributed to theoretical and practical teaching in the new certified course “Placement of Peripheral Venous Catheters in Patients with Difficult Intravenous Access using Ultrasound Navigation” organized by the Aesculab academy. 7 general nurses completed the practical part of this course at our facility.
During 2024, nurses made a total of 2,829 vascular insertions in the adult section (PICC 1,733, Midline 44, Long PIC 1,052). On a daily basis, PICC team nurses also ensure insertion of short peripheral venous catheters and blood draws (272) for patients with difficult intravenous access (DIVA). We provide patients with dressings, i.v. port care and management of complications related to inserted ports. The team treated **5,317 outpatients.**
The PICC team in the adult area is part of the vascular team, where doctors insert additional intravenous accesses. **319 intravenous ports, 40 PermCaths, 11 PICC ports and other central tunnelled venous catheters** were inserted. The independent Centre for Vascular Access was established in December 2024.

Department of Medical Nutrition

As part of work at the clinical facilities, we continued to focus on patients at nutritional risk and processed nearly **5,000 nutritional consultations.** We addressed dietary adjustments with the nutrition team physicians. We performed **1,650 outpatient procedures** in 2024. The adult obesitology outpatient unit is already fully operational. Together with operational nutritional therapists, we were involved in improving the quality of patient diets.

Milk Kitchen Department

The department prepares dairy-based food for newborns and children up to 2 years of age. It makes milk, teas, porridges and puddings. Collaboration with the nutrition team to prepare special diets, such as the Keto diet for young patients, has expanded. In 2024, kitchen staff prepared on average about **20,000 litres of dairy food for the year (55 litres per day) and about 6,000 litres of fennel tea for the year.**

The HACCP system is followed, which guarantees that infant food is safely prepared.

Central Sterile Services Department

The Central Sterile Services Department is a specialized facility that provides comprehensive services for the preparation of sterile medical devices for operating theatres and other medical facilities. Its tasks and focus help prevent infection at the hospital. The subject of the facility's activity is pre-sterilization preparation, package assembly and sterilization using the latest technology. There was an increase in activity of almost 10% year on year.

In 2024, sterilization equipment was upgraded: a STERRAD plasma sterilizer and 3 MIELE washing machines for surgical shoes were installed. A procurement procedure for the construction of a new water treatment plant was also initiated. 2024 was a challenging year for the Central Sterile Services Department in terms of workload growth, but thanks to the implementation of more efficient procedures and the modernisation of the equipment, the high standard of service provided has been maintained.

Social Care

In 2024, the Social Department provided social care to 4,745 adult patients. Help was provided to 4,203 patients in acute beds, and 542 patients at the Department of Long-term Treatment – Aftercare (AC) received social care.

1,004 patients from all inpatient wards were discharged with home health care provided and 31 people went into home hospice care. 325 patients were discharged to aftercare rehabilitation beds and inpatient hospice care was arranged for 8 patients. 915 patients required long-term care beds, of which 340 were placed in the Department of Long-term Treatment – Aftercare. Thanks to the cooperation developed, 575 people were able to find aftercare beds outside Motol University Hospital.

In the case of the paediatric departments, this involved social solutions for 1,523 children and their families. Child patients were handled by health and social workers at all paediatric departments, including the Department of

Neonatology and the Department of Paediatric Psychiatry. Families were provided with social and legal counselling, psychosocial support and foundation assistance. There is ongoing collaboration as part of the social and legal protection for children.
Workers at the social department continue to teach medical students at the 2nd Faculty of Medicine, Charles University, including students in the bachelor's programme for paediatric nursing. Practical training of participants in the Accredited Qualification Course – Health and Social Worker is continuing.
Cooperation with health and social workers at local authorities in Prague 5 continued as a part of community planning of social services in Prague 5.

Psychosocial Intervention Service Spiritual Care

The crisis intervention team celebrated its five-year anniversary in November 2024. To mark this anniversary, we organized a guided exhibition entitled "From the Psychosocial Intervention Service Team to the Crisis Intervention Team – 5 years of Maturation".
The team consists of 17 motivated and specially trained medical staff, working primarily in various departments in the paediatric and adult sections of Motol University Hospital, in a small number of cases based on an agreement. In addition to their workload at their home facility, they provide psychosocial support and crisis assistance to employees, patients' relatives and patients themselves, as the only support team in the hospital 24 hours a day, 7 days a week.
In 2024, we provided **185 crisis interventions and support conversations** to paediatric and adult patients (56 people) and their loved ones (275 children and adults). **In total we therefore supported 331 people,** who suddenly found themselves in a difficult life situation. We provided anonymous collegial support to **62 hospital employees** (mostly medical staff).
Team members received specialist education during the year. They received regular supervision and interviews, actively participated at specialist conferences, attended interdisciplinary congresses and published the results of their work.

Healthy Hospital

The path to quitting smoking continued in 2024. A short intervention with smokers at the Department of Internal Medicine became a priority. Scheme for a short **QIT** intervention (**Q**uestion about smoking, **I**nformation about the importance of stopping smoking, **T**reatment options, handover of contact details to specialist clinic) + Standardised questionnaire.
We had excellent results from the three-month weight stabilization and reduction programme offered to staff by the Department of Rehabilitation and Sports Medicine. There were also positive results with patients who participated in a three-month movement therapy programme. In addition, libraries are used and cooperation with the company STOB continued.

Volunteer Centre

In 2024, the Motol University Hospital Volunteer Centre focused on deepening cooperation with hospital staff, awareness-raising activities and improving

communication and interaction with volunteers. As of 30 December 2024, there were **247 active volunteers. The volunteers gave patients a total of 3,184 hours and visited a total of 4,214 patients (including repeat visits).**

We organized 21 group events for hospitalized patients, such as art workshops, theatre performances, musical performances, a zootherapy programme and various educational lectures. Cooperation is continuing with employees of the Municipal Public Library and also with students of the 2nd Faculty of Medicine, Charles University, who participated in group activities for paediatric patients.
We had the opportunity to introduce the volunteer programme to the general public, for example through a lecture at Na Zatlance Grammar School, an interview on TV Nova, participation in the Blesk Tlapky Festival, and a promotional video for the Ministry of Health of the Czech Republic. A photographic exhibition from behind the scenes of volunteer visits was held at the Motol University Hospital directorate building.

On the part of the hospital staff, we perceive a continuing interest in volunteers as a part of individual requests, where the staff (psychologist, speech therapist, attending physician, charge nurse) assesses the importance and benefit of a volunteer's visits to a particular patient. A strong benefit is observed especially in visits by zootherapy volunteers with animals, especially in the case of palliative patients and their families.

As a thank you to the volunteers, we organize an informal programme for them. Thanks also go to the donors, who provide plenty of art supplies for patients and volunteers.

HOSPITAL OMBUDSMAN

The main objectives of the Independent Department of the Hospital Ombudsman and Complaints are to protect the patients' rights, and improve communication between patients, their relatives and hospital staff. Its work also includes the role of an internal ombudsman and the provision of assistance when dealing with interpersonal conflicts, dealing with notifications of possible wrongdoing of which employees have become aware in the context of their work – whistleblowing, and training on healthcare legislation in accordance with the requirements of individual facilities.

During the year, the facility received a total of **359 written complaints (in paper form or electronically) and also 556 enquiries**, which were dealt with operatively, without the need to establish a file and often represented a precursor to possible complaints.
The vast majority of **complaints were assessed as unreasonable – 206 in total**.
There were **46 partially reasonable** complaints. There were **50 reasonable** complaints.
There were **20 unauthorised complaints** (i.e. those that were not submitted by an authorised person). In **37 cases** it was not possible to evaluate the complaint because the complainant did not provide the necessary information (the content of the complaint was so general that it was not possible to investigate the facts asserted), so they were evaluated as **non-reviewable**. In the case of reasonable and partially reasonable complaints, a remedy in the form of **education of employees** (in **72 cases**) was most frequently chosen.
In terms of the form of submission, the most frequent (the same as in previous years) was **electronic – 330 submissions.** Most frequently the complainant was a **patient – 181 submissions.**

In accordance with the Methodological Instruction of the Ministry of Health of the Czech Republic on the handling of complaints pursuant to Part Eight of the Act on Healthcare Services using the institute of the hospital ombudsman, the breakdown of complaints according to their subject matter is as follows: non lege artis procedure, communication, comfort, informed consent, discrimination and other breaches of legal regulations and internal regulations of the provider. As regards the subject of complaints, most of the submissions involved **inappropriate communication – 195 submissions** and **patient comfort – 108 submissions.** Often, however, there is not just one subject in a single submission, but several facts that the complainant refers to and asks be investigated.

All submissions are always dealt with by the managements of individual units. At health facilities with the head, senior consultant or head nurse depending on which activity a particular submission relates to. Where appropriate in view of the nature of the complaint, an **oral hearing** is held to resolve it successfully. The facility against which a complaint is directed is informed of the conclusion of the complaint's investigation and, in the case of partially justified or justified complaints, the head of the relevant facility determines the necessary **corrective actions** (in the vast majority of cases, this involves various forms of employee education or staff sanctions).

The Independent Department of the Hospital Ombudsman and Complaints maintains a **detailed record** of complaints handled, as required by current legislation in accordance with individual criteria (date of complaint, person making the complaint, relationship to the patient, form of complaint, facility and department against which the complaint is directed, information about any oral hearing of the complaint, manner and date of resolution of the complaint, etc.).

SCIENTIFIC RESEARCH ACTIVITIES

Motol University Hospital supports scientific research activities as an integral part of its activities stipulated in the hospital's articles of association. In this sense, Motol University Hospital is also on the national list of research organizations, **http://www.msmt.cz/vyzkum-a-vyvoj-2/fakultni-nemocnice-v-motole**. Scientific research projects are conducted throughout the entire range of the hospital's specializations and almost all of the departments and institutes of the university hospital are involved. In its scientific activities the hospital works with medical faculties, primarily the Second Faculty of Medicine, Charles University, the First Faculty of Medicine, Charles University and a number of other research organizations in the Czech Republic and abroad. It supports innovation and integration of research outcomes in practice in accordance with new trends in the application of outcomes of scientific research activities.
Science, research and innovation is supported at Motol University Hospital through combined financing using institutional and special purpose funds obtained mainly from grants. Research teams at Motol University Hospital participate in international projects, especially within the EU, where projects of the Horizon 2020 programme, Horizon Europe and other schemes are carried out. Motol University Hospital teams are also significantly involved in the European Reference Networks for Rare Diseases (ERN).

Institutional Support for Research and Grants

- Motol University Hospital has received institutional support administered by the Ministry of Health of the CR every year since 2012.
- Institutional support of the research organization is organized at MUH through a system of internal grants at the hospital's individual departments and institutes.
- **In 2024, the hospital carried out 25 projects of the Czech Health Research Council of the Ministry of Health of the CR as the principal investigator and 36 projects as the cooperating investigator. 31 internal grant projects and 1 JUNIOR project were conducted in 2024 under institutional support. The hospital also worked on Technology Agency of the Czech Republic and Czech Science Foundation projects and was significantly involved in Horizon 2020 and Horizon Europe within the EU. Activities were also carried out within the European Reference Networks Centres.**
- Support of research activities is directly conditional on the outputs of scientific assessments reported to the national databases of the Research, Development and Innovation Council. The outcomes from the RIV are used for comparisons within the CR and for distributing funds in the Internal Grant system to ensure that individual research facilities are supported in accordance with their performance. **In 2024, Motol University Hospital**

reported a total of 452 outputs in the RIV database. The average impact factor this publication year was 6.09 points. According to the 2017 Methodology, the vast majority of papers are in the first and second quartiles, and the first decile is also significantly represented.

- In 2024, the now traditional assessment according to Metodika17+ was carried out, with Motol University Hospital taking the leading positions especially in the assessment of quality of scientific results with significant representation of the hospital's outputs in the first decile in medical sciences.
- In 2024 there was also Research Organization Evaluation by the founder, the Ministry of Health of the Czech Republic, where Motol University Hospital was awarded an A in both the 5-year evaluation 2018-2022 and the evaluation of outputs in the previous year.
- In 2024, Motol University Hospital managed the following allocated and distributed funds in science and research (in CZK):

Agency	Number of grants	CZK / Euro
Czech Health Research Council as the principal investigator	25	67,034,000.00
Czech Health Research Council as the cooperating investigator	36	22,211,000.00
Technology Agency of the Czech Republic as the cooperating investigator	4	2,514,877.00
Czech Science Foundation as the cooperating investigator	2	630,000.00
IP	1	83,629,679.00
ZD-ZDOVA2	1	19,563,645.00
EU Crane	1	€ 17,280.50
IDEA4RC-Horizon RIA	1	€ 227,996.25
EU JANE	1	€ 74,900.00
IntReALL 2020	1	€ 107,500.00
EDENT1FI	1	€ 813,125.00
MONALISA	1	€ 374,656.00
Salvage	1	33,194,247.00
ERDERA	1	€ 313,600.00
InterReg Central Europe-MedWaveImage	1	€ 241,800.00

The priorities for scientific research activities were gradually defined at the Motol University Hospital. Paediatric specializations appear to be the strongest directions in research. The Department of Paediatric Haematology and Oncology with its laboratory and research facility at the CLIP site is the dominant actor in research. General paediatric, paediatric neurology and other fields traditionally have strong representation. Of the adult medicine disciplines, neurology and urology stand out strongly in terms of scientific output. The orthopaedic departments have a significant share of the translation outputs. The hospital's main research activities take place especially in the laboratory facilities of the Department of Paediatric Haematology and Oncology, Department of Immunology, Department of Microbiology, Department of Biology and Medical Genetics and Department of Pathology

Within the framework of building the Motol Oncology Centre and the associated Research and Diagnostic Centre at Motol University Hospital, the hospital is strengthening the oncology research fields at the Department of Oncology itself, as well as at specialised departments such as ENT, urology, pneumology, surgical departments, immunology and others.

Modern Therapies Projects

- MUH has introduced a system of "Modern Therapies" projects in accordance with the support for innovation and integration of scientific research outcomes in practice. Under this scheme, 7 projects were conducted in 2024 and practical output in the form of new diagnostic or therapeutic options is expected from all five projects.
- In 2017, together with the Institute of Organic Chemistry and Biochemistry, an invention application was filed with an application for a national patent: Method for detecting joint disease, a device for detecting joint disease, a substance for determining the cause of joint disease, its monitoring and the use of the method, substance and device. We subsequently requested a European patent. Utility model number 32064 was granted in 2018 under the title: A device for detection of joint disease and/or determining the appropriate treatment for joints and a substance for determining the cause of joint disease and its monitoring, and in 2019 a licensing agreement with I.T.A. was concluded. – Intertact s.r.o. The duration of the utility model's registration was extended until 2024.
- In 2021, a new Patent was filed, based on the work of the Department of Orthopaedics of the 1st Faculty of Medicine, Charles University and Motol University Hospital and the Department of Biochemistry of the 2nd Faculty of Medicine and Motol University Hospital, entitled Use of vitamin K2 form MK-7 for the treatment and prevention of calcifications in the musculoskeletal system, in particular for the treatment and prevention of calcareous tendinitis of the shoulder and knee The patent is also valid in 2024.
- In 2022, a Patent was filed, again coming from the Department of Orthopaedics of the 1st Faculty of Medicine, Charles University and Motol

University Hospital, entitled “Method for determining the cause of joint disease by detecting the level of alpha-defensin obtained from joint effusion” and it is valid in 2024.

- In 2023, the Czech invention application PV 2023-108 was filed with the University of Pardubice – the Department of Paediatric Haematology and Oncology of the 2nd Faculty of Medicine, Charles University and MUH participated in the collaboration on behalf of MUH. The patent is entitled Staple fibres cross-linked with temozolomide, their preparation and use. Work was done on its application in 2024.

Combined Programme for Educating Physicians MD/Ph.D. Programme

The combined MD/Ph.D. programme has been running at Motol University Hospital since 2004. A total of 151 students have been educated through the 21 years of the program’s operation and 73 students have obtained the Ph.D. title and postgraduate certification in their specializations. 35 active students are enrolled in the programme.

International Activities

In the field of research, we continued to develop international activities, mainly at the level of individual departments and institutes, which is reflected in excellent publication outputs listed in the RIV.
As regards international activities, Motol University Hospital was also actively involved in the system of European Reference Networks for Rare Diseases, ERN. The involvement of 4 new centres brought the total number of ERN sites to 16 in 2022.

Creative Act

Motol University Hospital monitors and appreciates quality and success in medicine and scientific research progress. The best creative act for the previous year was acknowledged in 2024 for the sixteenth year running with the award being granted in the Junior Creative Act category to MUDr. Hana Mojžíšová from the Department of Neurology for the work “*Introduction of a research method for testing neural autoantibodies to surface antigens for diagnosis of autoimmune encephalitis and associated diseases”.*

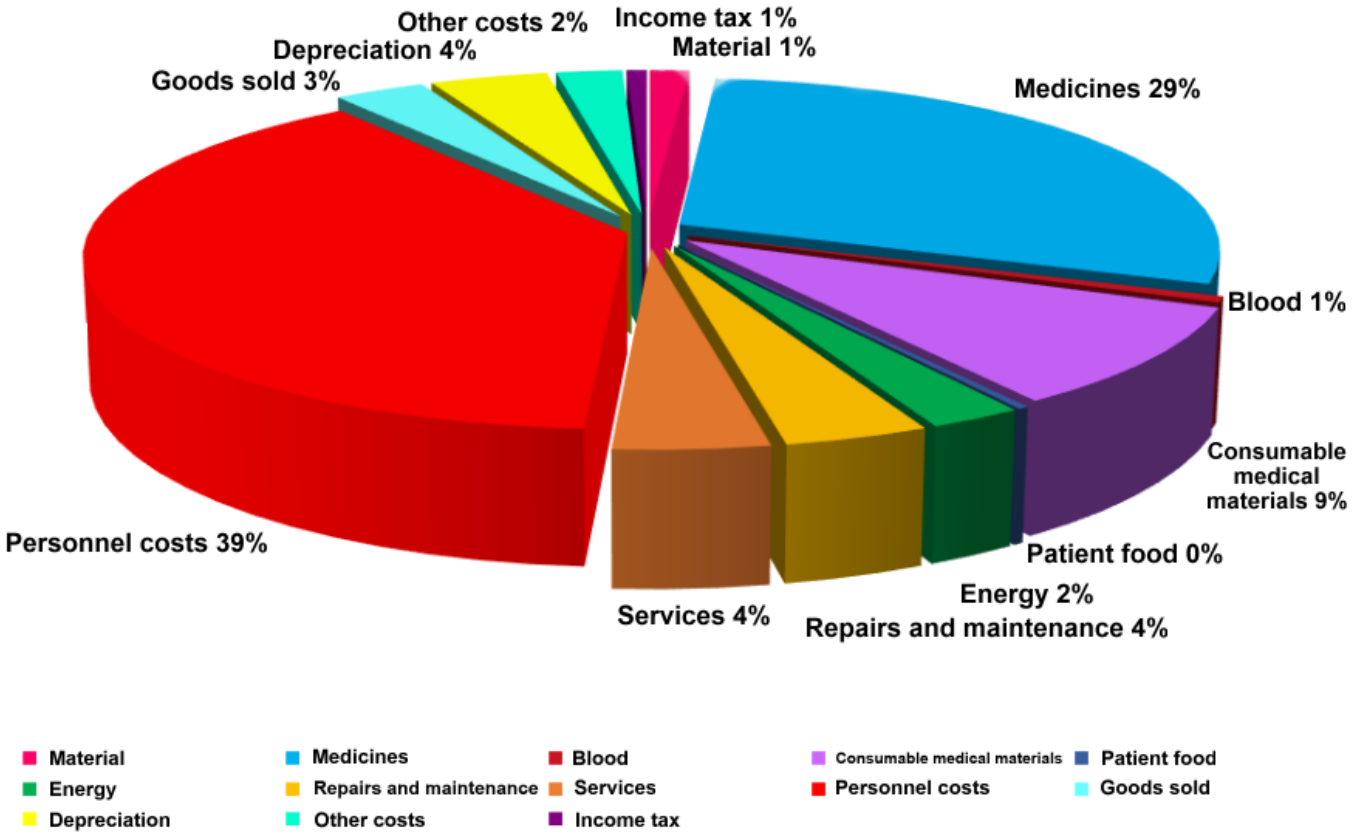
ECONOMIC ACTIVITIES

BALANCE SHEET (abbreviated balance sheet in thous. CZK)

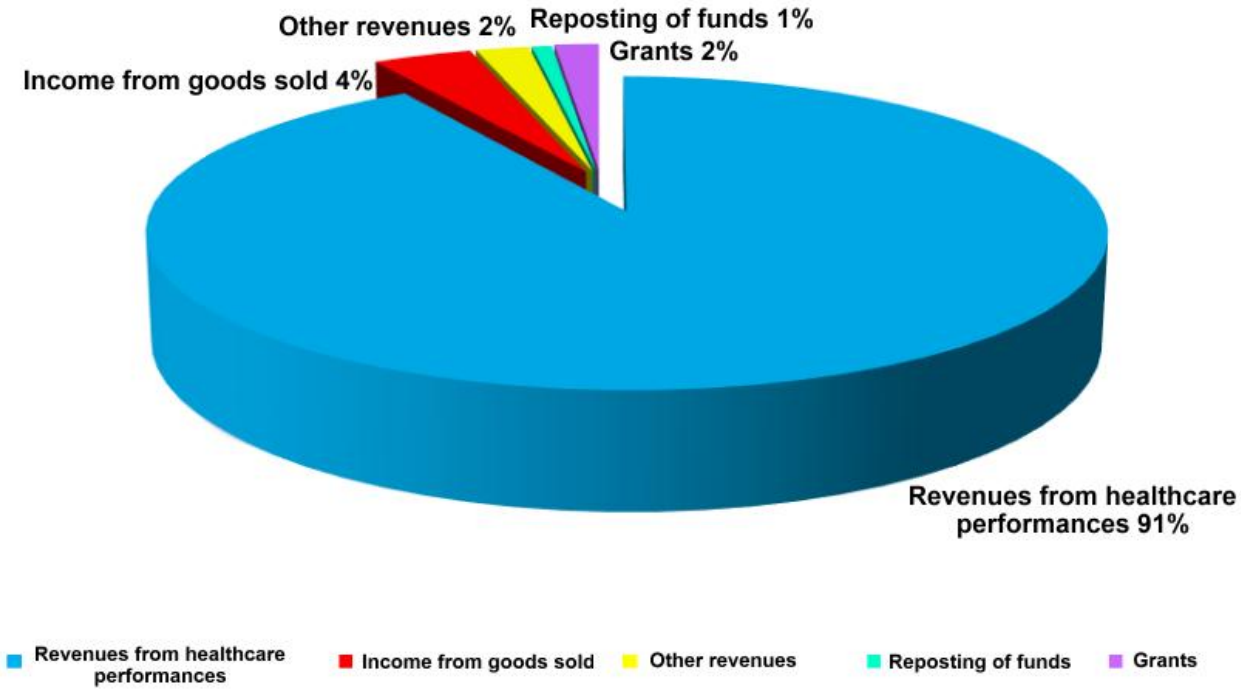
	status as at 1. 1. 2024	status as at 31. 12. 2024
ASSETS	**15,293,916.67**	**17202 833.36**
Fixed assets	**11,010,991.10**	**12,046,902.53**
Long-term intangible assets	17,921.23	35,515.83
Long-term tangible assets	10,975,434.63	11,990,184.58
Long-term financial assets	0.00	0.00
Long-term claims	17,635.24	21,202.12
Current assets	**4,282,925.57**	**5,155,930.83**
Stock	380,774.67	562,528.92
Claims	2,267,948.95	2,997,805.29
Financial assets	1,634,201.95	1,595,596.62
LIABILITIES	**15,293,916.67**	**17,202,833.36**
Own resources	**12,804,620.36**	**14,129,690.14**
Entity's assets	11016 820.01	11,944,168.60
Entity's funds	2,510,724.63	2365 733.18
Profit (loss) for current accounting period	510,409.94	542,712.64
Accumulated loss of previous years	(1,233,334.22)	(722,924.28)
Profit (loss) in approval procedure	0.00	0.00
Borrowed funds	**2,489,296.31**	**3,073,143.22**
Provisions	152,500.00	304,439.79
Long-term liabilities	1,592.52	1,352.52
Short-term liabilities	2,335,203.79	2,767,350.91
Bank assistance and loans	0.00	0.00

STATEMENT OF PROFIT AND LOSS (abbreviated – in thous. CZK)	status as at 31. 12. 2024
Material costs	7,988,093.27
Costs for repairs and services	1,373,335.86
Personnel costs	6,729,066.80
Taxes and fees	502.34
Other costs	146,317.80
Depreciation, assets sold, provisions, adjustments, small tangible fixed assets, small intangible fixed assets	976,455.72
Financial costs	1,578.99
Costs for uncontested claims on SR, TSU and SF resources	0
Total costs	**17,215,350.78**
Revenue from own performance and goods	17,110,858.01
Other revenues	451,154.40
Financial returns	656.89
Revenues from undisputed claims on SR, USC and SF resources	314,268.32
Total revenue	**17,876,937.62**
Pretax profit	661,586.84
Income tax	118,874.20
Additional income tax deductions	0.00
After tax profit	**542,712.64**

2024 overview of costs of Motol University Hospital



2024 overview of revenues of Motol University Hospital



Summary of economic indicators **in thous. CZK**

Indicator	2020	2021	2022	2023	2024	24/23 as a %
Revenues	11,765,066	14,230,289	14,404,007	16,409,281	17,876,937	108.94
Costs	11,752,218	14,171,748	14,323,748	15,898,871	17,334,224	109.03
Profit (loss)	12,848	58,541	80,259	510,410	542,713	106.33
Unreimbursed loss from previous years	(1,372,134)	(1,313,593)	(1,233 334)	(722,924)	(180,212)	24.93
Tangible fixed assets	9,145,408	8,908,108	9,582,789	10,975,435	11,990,184	109.25
Stock	243,779	263,747	301,837	380,775	562,529	171.10
Short-term receivables	705,655	653,901	1,349 578	2,267,949	2,997,805	132.18
Short-term liabilities	1,191,945	1,356,187	1,720,549	2,335,204	2,767,351	118.51
Financial assets	1,361,786	1,818,392	1,382,638	1,634,202	1,595,597	97.64
Remuneration fund	0	0	0	0	0	0.00
Cultural and social needs fund	93,122	78,081	44,477	27,818	34,417	123.72
Reserve fund	66,419	51,210	64,588	65,849	66,454	100.92
Asset replacement fund	2,109,132	2,437,291	2,515,755	2,417,057	2,264,862	93.70

The trading of Motol University Hospital was balanced as at 31.12.2024, and the accounting period this year ended with a profit of CZK 542.71 million, of which the hospital's main activity reported a loss of CZK 476.42 million and the profit of economic activity was CZK 66.28 million.

The biggest impact on the hospital's profit for 2024 was the settlement of the previous year, 2023, from health insurance companies totalling CZK 997 m and an estimated additional payment of CZK 64.48 m from VoZP and Revírní bratrská ZP. Revenues from health insurance companies included increased advances for health care provided for 2024 and services performed at the centres in accordance with the reimbursement decree valid for 2024.
Despite the ongoing reconstruction work, the departments managed to increase the number of medical procedures performed, in particular surgeries. All the hospital's employees contributed to the positive financial performance.

On the cost side, the result was affected by the increase in energy prices, a statutory increase in the minimum wage and, to some extent, inflation. These factors contributed to the increase in the prices of materials, goods and services. The hospital's financial performance was significantly affected by the increase in centre drug reimbursement pursuant to Section 16 of the Decree under Act No. 45/1997 Coll., on public health insurance. The marked increase in personnel costs (by 9% year-on-year) was mainly due to the increase in personal allowances based on an agreement between the Ministry of Health CR, VZP, OSZSP CR and the Trade Union of Doctors following the young doctors' action, graded according to the category of doctor. At the same time, personal allowances for all employees were increased by 5% of the pay tariff with effect from 1 January 2024.

Motol University Hospital has long been an economically stable hospital and has no tax arrears, and the level of liabilities has only increased due to extensive reconstruction. The hospital's cash flow continues to be affected by the financing of investments from its own resources and the high backlog of investment projects, where the extra work caused affects the hospital's budget.

In the field of investment development, the insulation of the adult section of the hospital associated with the replacement of windows, insulation of the building and replacement of lights and electrical wiring in the corridors, was completed and accounted for in 2024. At the same time, the reconstruction of the Department of Long-term Treatment – Aftercare was underway, where an energy reduction and reconstruction project was implemented, reducing patient capacity by up to 50%. The reconstruction of the Department of Pneumology building was completed, where an energy reduction project was also implemented. The employee car park was completed at the same time. These investments were approved with the hospital's participation.
In addition, the NPO projects – Simulation Centre for Intensive Medicine and Motol Oncology Centre, partly financed by the EU and partly from the hospital's own funds, were implemented. The project for the Scientific and Diagnostic Oncology Centre was also approved, to be financed with a contribution by The Kellner Family Foundation, SR and own resources. We expect these projects to have a significant impact on the hospital's operations and especially on its balance sheet in the next two years.

Motol University Hospital performs its activities in accordance with national accreditation standards. In January 2024, the hospital was re-accredited by SAK o.p.s. This represents a commitment to further improving the quality of care provided to our patients and ensuring a safe environment for patients and hospital employees. Motol University Hospital is the largest hospital in the Czech Republic with high quality, modern equipment and professional staff in their fields, ensuring the provision of specialized and superspecialized health care, pre- and postgraduate education and the development of science and research.

HUMAN RESOURCE ACTIVITIES

In 2024 Motol University Hospital employed:

in converted figures: **5 887 employees, of which 4 696 medical staff**
in natural persons: **6 719 employees, of which 5 469 medical staff**

Structure of employees' professions

	2022	2023	2024	2022	2023	2024	INDEX 24/23	
	NP	NP	NP	AC	AC	AC	NP	AC
Total	6 354	6 494	6719	5 616	5712	5887	1,03	1,03
PHYSICIANS	6,354	6,494	6719	5,616	5,712	5,887	1.03	1.03
PHARMACISTS	1,337	1,381	1,459	1,027	1,059	1,119	1.06	1.06
NURSES	42	46	58	38	41	52	1.26	1.27
QUALIFIED MEDICAL STAFF	2,005	2,055	2,085	1,789	1,818	1,842	1.01	1.01
SPECIALIZED MEDICAL STAFF	742	760	795	689	696	719	1.05	1.03
SUPERVISED MEDICAL STAFF	285	303	312	227	243	252	1.03	1.04
OTHER QUALIFIED STAFF	691	699	698	659	669	672	1.00	1.00
TECHNICAL AND ECONOMIC STAFF	75	67	61	53	47	40	0.91	0.85
WORKERS	875	898	980	840	860	927	1.09	1.08

(NP) average number of natural persons, (AC) average converted number

Employees according to age and gender – status as at 31. 12. 2024

age	men	women	total	%
20	15	62	77	1.12
21-30	361	943	1,304	18.93
31-40	438	858	1,296	18.82
41-50	444	1,324	1,768	25.67
51-60	365	1,157	1,522	22.10
61	293	628	921	13.37
Total	**1,916**	**4,972**	**6,888**	**100**
%	**27.82**	**72.18**	**100**	

Employees according to education and gender – status as at 31.12.2024

education achieved	men	women	total	%
basic	137	161	298	4.33
vocational certificate	287	274	561	8.14
vocational secondary	35	9	44	0.64
completed secondary education	23	46	69	1.00
complete vocational secondary education	363	1,988	2,270	34.13
higher vocational	66	324	390	5.66
tertiary	1,031	2,144	3,175	46.09
of which bachelors	124	650	774	
masters	907	1,494	2,401	
Total	**1,916**	**4,972**	**6,888**	**100.00**

Length of employment as of 31.12.2024

duration	number	%
up to 5 years	**2,946**	**42.77**
up to 10 years	**1,086**	**15.77**
up to 15 years	**698**	**10.13**
up to 20 years	**671**	**9.74**
more than 20 years	**1,487**	**21.59**
total	**6,888**	**100.00**

Qualification structure – status as at 31.12.2024

Achieved education among nurses and midwives	Total	%	of which with specialization	%
Secondary medical	1,104	52.15	682	61.78
Further medical	275	12.99	144	52.36
Tertiary bachelor's	507	23.95	284	56.02
Tertiary master's	231	10.91	184	79.65
Total	**2,117**	**100.00**	**1,294**	61.12

1) **Medical staff pursuant to Act No. 95/2004 Coll.** = physicians, dentists and pharmacists: **total 1,565.**
   Of the 1,501 physicians in total, **443 (29.5%) only have professional competence** and **982 (70.5%) physicians have a specialized competence** (i.e. 2nd level of postgraduate certification, additional certification, Czech Medical Chamber licence, certification from the Ministry of Health CR).
2) **Medical staff pursuant to Act No. 96/2004 Coll. Medical staff pursuant to Act No.** = medical professions other than physicians: **4,042** in total of which **2,117 general nurses and midwives.**

Wages

A total of **CZK 4,931,304,327** (excluding other personnel expenses – remuneration for work performed outside employment) was expended on wages in 2024.
Compared with 2023, there was an increase in wage costs by CZK 446,294,044, **i.e. by 10%.**
The increase in wages in 2024 compared to 2023 was caused by the recruitment of additional doctors and pharmacists to ensure 24-hour operation in connection with the amendment to the Labour Code and the granting of personal allowances according to a decision of the Ministry of Health CR dated 8 December 2023.
The average gross salary in the hospital as at 31.12.2024 was CZK 69,805. This is an **increase by 6.7%** compared to 2023.

Trends in average salary over the last 10 years

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
TOTAL	36,302	38,529	42,111	46,657	50,237	57,346	63,100	60,473	65,431	69,805
PHYSICIANS	68,962	71,753	76,316	81,758	85,284	92,394	101,533	101,931	108,959	121,166
NURSES	33,425	36,390	40,317	45,637	50,681	59,221	66,641	62,634	66,302	68,238

Motol University Hospital
V Úvalu 84, 150 06 Prague 5 - Motol

Annual report on the activities of Motol University Hospital in the area of providing information according to Act No. 106/1999 Coll., on free access to information for the year 2024

The data are provided in accordance with Section 18 of Act No. 106/1999 Coll., on free access to information.

The fee schedule is published on the website – https://www.fnmotol.cz/o-nas/informace-106/uhrady- za-poskytovani-informaci/

The information provided is published on the website – https://www.fnmotol.cz/o-nas/informace- 106/zadosti-a-odpovedi-dle-zakona-c-106-1999-sb/

A.1.	Total number of requests for information submitted	31
A 2.	Number of decisions to totally/partially refuse a request	4/4
B.	Number of appeals lodged against decisions	2
C.	Description of the essential parts of court judgements on the review of the legality of the Motol University Hospital's decision to reject an application, including the costs involved	0 – no action was brought
D.	List of exclusive licences granted, including justification of necessity	0
E.	Number of complaints filed under the provisions of Section 16a of the Freedom of Information Act, incl. justification	1- for a reason pursuant to Section 16a/1(a) and (d) – forwarded to the appeal body
F.	Number of charges for information provided in accordance with Section 17 of the FOI Act	3

DONORS AND FOUNDATIONS

Donors and Foundations - donations over CZK 100 000

Astellas Pharma s.r.o.
Boehringer Ingelheim, spol. s r.o.
CLEOPATRA MUSICAL, s.r.o.
COCHLEAR EUROPE LIMITED, organizační složka
complexRE development 2 s.r.o.
complexRE s.r.o.
CSL BEHRING s.r.o.
Dasbach Smits s.r.o.
Dřevoplast Ludvík s.r.o.
FOLDA, s.r.o.
HAPRO-mont s.r.o.
CHEIRÓN a.s.
Chiesi CZ s.r.o.
Ing. Ivana PECHÁČKOVÁ
Ing. Miroslav Bačík a Věra Bačíková
L I N E T spol. s r.o. M unchained SE
Martin Koubek, MBA
MyDevice CZ s.r.o.
Nadace Mubea
Nadace Pohyb bez pomoci
Nadační fond Healthy Heart
Nadační fond Nadace Bátor Tábor Česká republika
Nadační fond Nina
Otakar David
Pavel Kasík
Rythm & Keys HElp through ART z. s.
Řízení letového provozu České republiky, státní podnik (ŘLP ČR, s.p.)
ÚAMK BIKROSCLUB ŘEPY
WELKIN stavební s.r.o. WPM GROUP s.r.o.
Život dětem, o.p.s.

Donors and Foundations - donations over CZK 500 000

FTMO s.r.o.
Nadace "Národ dětem"
Nadace Archa Chantal
Nadace rodiny Holečkových
Nadace rodiny Vlčkových
Nadační fond 2091
Nadační fond Be Charity
Nadační fond Kapka naděje
Nadační fond OReL
Nadační fond Profesora Pavla Pafka

Motol University Hospital thanks all donors listed above for providing their financial donations or donations in kind last year to improve the conditions for caring for patients at our hospital. We also thank all other donors whose names could not be listed here for technical reasons, but are listed on our website.

WE CARE FOR
GENERATIONS!

FN MOTOL

www.fnmotol.cz