



# ANNUAL REPORT 2019

## MOTOL UNIVERSITY HOSPITAL



FN MOTOL

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## INTRODUCTION

Dear Friends,

As I am writing this foreword to our 2019 Annual Report, we are all facing the threat of the SARS-CoV-2 virus which has caused the worldwide Covid-19 pandemic, affecting virtually everyone, including Motol University Hospital. The healthcare system has been literally flooded with information and burdened by countless measures required to implement emergency orders that can change from day to day. It has been a little difficult for me to pull away from these chaotic, life-changing events and to recall in comparison the peaceful year of 2019. In last year's foreword, I called the year 2018 a turning point in our hospital's history – and rightfully so: we had managed to complete the largest-ever investment project in a Czech medical facility, the reconstruction and modernization of the Motol Children's Ward. Compared to that, the year 2019 was not nearly as ground-breaking but it was certainly important for our little patients and their parents, who could finally make full use of the state-of-the-art facility. The most important thing for our patients is the first-rate medical care we provide. Our excellent doctor and nurse teams are capable of providing surgeries and treatment using the latest medical procedures. Despite a nationwide shortage of nursing staff, I am happy to say that we have managed to stabilize our staff numbers and maintain all of our highly qualified teams, both in the Children's Ward and the Adult Ward. Pleasant working environment, state-of-the-art equipment and great teamwork are not the only incentives, however. The hospital has increased its year-on-year wage funds by 10 percent. The doctors' gross wages have grown by an average of 4.5 percent, and the wages of other medical staff have grown by a whole 11 percent. Despite that, MUH has still managed to turn a profit and has no outstanding debts. The hospital administration considers it their priority and a long-term goal to maintain the hospital's financial health. MUH has maintained a consistently high standard in super-specialized treatment. At some departments, the medical procedures employed to treat patients are provided exclusively by MUH. The hospital administration strives to support these state-of-the-art, innovative procedures as much as possible, by implementing the required organizational measures and providing the requisite technology, as well as by negotiating with health insurance companies for coverage of such procedures, either through amendments to insurance contracts or by giving consent to such treatment or a specific treatment program in accordance with Section 16 of the Public Health Insurance Act. To name but a few, the Third Surgery Department has performed a record number of lung transplants, due in part to admitting patients from Slovakia; we have also managed to launch the robotic surgery program and expand its scope beyond the Department of Urology to other surgical departments, including the Department of Obstetrics and Gynaecology. The Children's Heart Centre has successfully continued its unique program of heart transplants and the program for providing mechanical heart support implants to patients with terminal heart failure. The Department of Paediatric Neurology treated its first patient for spinal muscular atrophy using gene therapy. As you can see, Motol University Hospital has managed to retain its reputation as a prominent European hospital, as evidenced by the results of several surveys, and the continued requests for collaboration by foreign medical facilities, both from Europe and overseas. I am firmly convince that this favorable trend will continue even in the "post-pandemic" era.



*JUDr. Ing. Miloslav Ludvík, MBA*

## MANAGEMENT OF MOTOL UNIVERSITY HOSPITAL

### HOSPITAL DIRECTOR

JUDr. Ing. Miloslav Ludvík, MBA

### DEPUTY DIRECTOR FOR OPERATIONS AND TECHNICAL MATTERS

MUDr. Pavel Budinský, Ph.D., MBA

### DEPUTY DIRECTOR FOR PREVENTIVE THERAPEUTIC CARE

MUDr. Martin Holcát, MBA

### DEPUTY DIRECTOR FOR NURSING

Mgr. Jana Nováková, MBA

### DEPUTY DIRECTOR FOR ECONOMIC MATTERS

Ing. Jiří Čihař

### DEPUTY DIRECTOR FOR HUMAN RESOURCES

Ing. Jindřiška Feldmanová

### DEPUTY DIRECTOR FOR SCIENCE AND RESEARCH

prof. MUDr. Anna Šedivá, DSc.

### DEPUTY DIRECTOR FOR SALES

Ing. Jana Bašeová



## HOSPITAL'S SCIENTIFIC COUNCIL

**Prof. MUDr. Anna Šedivá, DSc.**

Chair of the Scientific Council of Motol University Hospital

**Prof. MUDr. Marek Babjuk, CSc.**

Department of Urology, 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. Dagmar Dotřelová, CSc.**

Department of Ophthalmology for Children and Adults, 2nd 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

**Prof. MUDr. Tomáš Eckschlager, CSc.**

Clinic of Pediatric Hematology and Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

**Senior Doctor MUDr. Markéta Havlovicová**

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

**MUDr. Martin Holcát, MBA**

Deputy for Preventive Therapeutic 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. David Jahoda, CSc.**

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

**Doc. MUDr. Tomáš Kalina, Ph.D.**

Clinic of Paediatric Hematology and Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

**Doc. MUDr. Radan Keil, Ph.D.**

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

**MUDr. Adam Klocperk**

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. Jan Lebl, CSc.**

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

**Doc. MUDr. Štěpánka Průhová, Ph.D.**

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

**Doc. MUDr. Oleg Reich, Ph.D.**

Children's Heart Centre of MUH

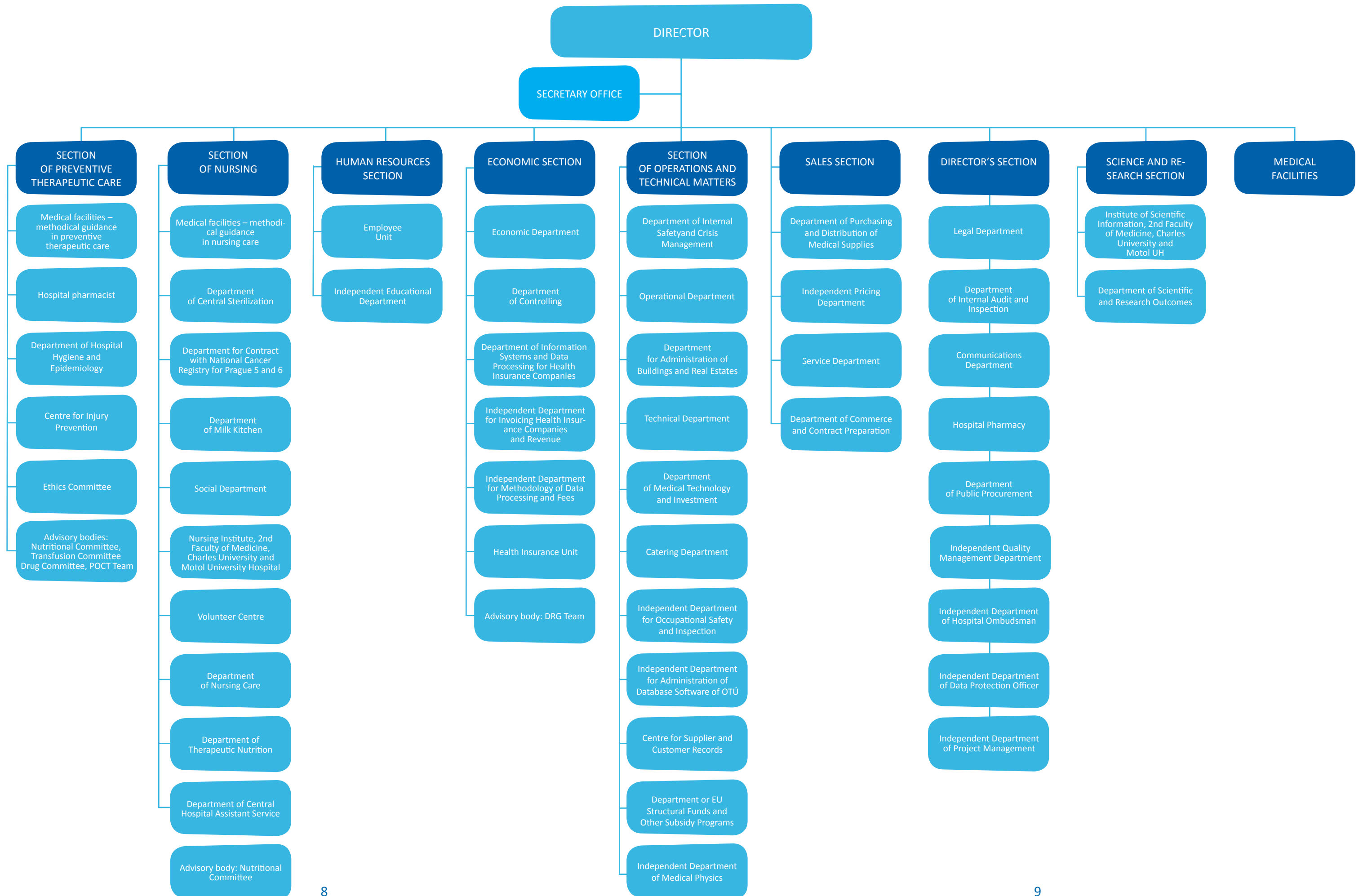
**Doc. MUDr. Tomáš Vymazal, Ph.D.**

Clinic of Anesthesiology, Resuscitation and Intensive Medicine, 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

# BASIC ORGANIZATIONAL STRUCTURE AS OF 31/12/2019



## BASIC DETAILS AS AT 31/12/2019

Area of the premises (m <sup>2</sup> )	348 000
Assets /in thous. (in thousand CZK)	11 283 197
Total turnover /in thous. (in thousand CZK)	10 348 373
Employees /natural persons/ (FO)	5 954
Employees /converted numbers/ (PP)	5 442
Beds	2 231

### Beds

Of which:	Children	Adults	Total
acute standard	457	1017	1474
acute intensive	146	216	362
<b>acute total</b>	<b>603</b>	<b>1233</b>	<b>1836</b>
aftercare intensive	4	10	14
long-term	-	361	361
long-term intensive	-	20	20
<b>beds total</b>	<b>607</b>	<b>1624</b>	<b>2231</b>

Number of hospitalizations	80 354
Number of outpatient treatments	1 251 485
Number of treatment days /excl. Department of Long-term Treatment - Aftercare Centre/	570 594
Number of anesthesiology procedures	36 821
Number of births	3 186
Percentage of deceased	1,61

## LIST OF DEPARTMENTS

### Paediatric Inpatient Part

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

Head - prof. MUDr. Jan Janoušek, 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.

**The Clinic of Pediatric Hematology and Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital**

Head - prof. MUDr. Jan Starý, DrSc.

**Bone Marrow Transplantation Unit**

Chief physician - Prof. MUDr. Petr Sedláček CSc.

**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 - MUDr. Jiří Skřivan, CSc.

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

Head - prof. MUDr. Jan Lebl, CSc.

### Adult Inpatient Part

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

Head - prof. MUDr. Jiří Hoch, CSc.

**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. Milan Kvapil, CSc., MBA

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

Head - doc. MUDr. Vilém Rohn, CSc.

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

Head - prof. MUDr. Josef Veselka, CSc.

**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 Doctor - 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 - doc. MUDr. Jana Prausová, Ph.D., MBA

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

Head - prof. MUDr. Ivan Landor, CSc.

**Traumatology**

Senior Doctor - MUDr. Jaroslav Kalvach

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

Head - 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 Parts**

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

Head - MUDr. Roman Chmel, Ph.D.

**Department of Neonatology**

Chief Physician - MUDr. Miloš Černý

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

Head - doc. MUDr. Tomáš Vymazal, Ph.D.

**Department of Subsequent Intensive and Long-term Intensive Nursing**

Senior Doctor - MUDr. Kateřina Čadová

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

Head - prof. MUDr. Tomáš Trč, CSc., MBA

**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 Doctor - MUDr. Martina Kövári

**Department of Pain Research and Treatment**

Senior Doctor - MUDr. Jiří Kozák, Ph.D.

**Spinal Unit**

Senior Doctor - MUDr. Jiří Kříž

**Department of Sports Medicine**

Senior Doctor - doc. MUDr. Jiří Radvanský, CSc.

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

Head - prof. MUDr. Dagmar Dotřelová, CSc.

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

Head - doc. MUDr. Michal Tichý, CSc.

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

Head - prof. MUDr. Taťjana Dostálová, DrSc., MBA

**Common Examination and Therapeutic Units**

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

Head - prof. MUDr. Miloslav Roček, CSc.

**Department of Clinical Hematology**

Senior Doctor - MUDr. Jitka Segethová

**Blood Bank Department**

Senior Doctor - MUDr. Eva Linhartová



**Department of Clinical Psychology**

Head - Mgr. Zuzana Kocábová

**Department of Rheumatology for Children and Adults**

Senior Doctor - MUDr. Rudolf Horváth, Ph.D.

**Department of Transplantations and Tissue Bank**

Chief Physician - MUDr. Jan Burkert, Ph.D.

**Institute 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 LF (Faculty of Medicine) and FN Motol (University Hospital Motol)**

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. Roman Kodet, CSc.

**Outpatient sector**

**Department of Dermatology for Children**

Senior Doctor - MUDr. Jana Čadová

**Department of Central Operating Theatres for Children**

Ward Nurse - Bc. Alice Podařilová

**Department of Central Operating Theatres for Adults**

Ward Nurse - Mgr. Vladana Roušalová

**Department of Dermatovenereology for Adults**

Senior Doctor - MUDr. Alena Machovcová, Ph.D., MBA

**Emergency Department and Medical First Aid Service for Children**

Senior Doctor - MUDr. Jitka Dissou

**Emergency Department and Medical First Aid Service for Adults**

Senior Doctor - MUDr. Lenka Kozlíková

**Primary Care Department**

Senior Doctor - MUDr. Jaroslava Kulhánková





## PREVENTIVE THERAPEUTIC CARE

### Paediatric Inpatient Part

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

Head - prof. MUDr. Jan Lebl, CSc.

Senior Doctor - MUDr. Jana Tejnická, MBA

Ward Nurse - Bc. Jitka Kaplická

#### Basic description:

The Department of Paediatrics provides diagnostics, treatment and after care for paediatric patients from various places in the Czech Republic in almost all internal medicine specializations. **During 2019, 5,129 patients were hospitalized at the department, and 25,963 examinations were performed on an outpatient basis. 6 patients successfully underwent kidney transplantation, 1 female patient successfully underwent lung transplantation and 4 children were prepared for liver transplantation in IKEM.**

#### Specialized outpatient units:

17 specialized outpatient units (including outpatient units for children after organ transplantation) and a facility for elimination methods are incorporated in the department.

#### New methods and procedures:

- The nephrology workgroup provided comprehensive care for children with kidney failure – cares for 13 patients using home peritoneal dialysis (the only facility in the Czech Republic that also treats infants), children using hemodialysis and patients using immunoabsorption.
- The pneumology team successfully focused (as the only workplace in the CR) on diagnostics and treatment of patients with primary ciliary dyskinesia. The team continues to care for patients with cystic fibrosis, and has been successful in treating these patients with Kalydeco and Orkambi medicaments. Furthermore, the team cares for 31 children with severe neurological issues using home non-invasive ventilation.
- The gastroenterological team successfully continues in its intensive endoscopic program, including the introduction of percutaneous endoscopic gastrostomy in combination with jejunal tube (PEG-J), in dilatations of esophageal structures. It cares for children with severe hepatopathy, including indications for liver transplantation. The doctors were the first in the Czech Republic to start a new method of treatment with Revestive drug for short bowel syndrome.
- In 2019, the Diabetology and Endocrinology Team successfully continued the development and clinical application of the AndroidAPS hybrid artificial pancreas software. The project was successfully presented at symposia in the EU and the USA. This working group deals very successfully with the issue of disorders of bone metabolism in children.

#### Unique equipment:

- The gastroenterological and pneumological teams are currently equipped with the latest technology, including endoscopes for the examination of children of the youngest age and weight categories. The Pediatric Department is the only children's workplace in the Czech Republic equipped with a simulator of endoscopic procedures for the field of gastroenterology and pneumology. The simulator is used to improve the manual skills of the doctors of the mentioned work teams. The nephrology team started using an automated PD-Harmony device for their patients and a multiFiltrat PRO device for CVVHD.

#### Major event in 2019:

- In November 2019, a multidisciplinary intensive care unit of the Pediatric Department was opened. This department is able to comprehensively care for patients with renal failure, liver failure, heart failure, pulmonary failure, severe septic conditions, meningitis, etc.
- During 2019, almost all working groups participated in EU - ERN rare disease projects.
- The doctors of the Pediatric Department organized a number of domestic scientific events, participated in many international congresses, where they very successfully presented the results of their work. They have published a number of original works in international and Czech literature.

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

Head - prof. MUDr. Jan Janoušek, Ph.D.

Senior Doctor of the Department of Cardiology - MUDr. Peter Kubuš, Ph.D.

Senior Doctor of the Cardiovascular Surgery - MUDr. Roman Gebauer

Ward Nurse - Mgr. Jana Matušíková

#### Basic description:

Children's Heart Centre, 2nd The 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 of non-invasive diagnostic procedures (ECHO, MRI, CT) and primary correction of defects at an early age is typical for this site. **In 2019, 472 surgeries (of which 5 heart transplantations) were performed, 25 ligation procedures for patent ductus arteriosus for newborns with low birth weight were performed at different sites, 364 catheterizations were performed (of which 284 were intervention procedures), 901 patients were hospitalized (+531 accompanying persons) and 3,762 patients were treated in the outpatient service.** These numbers confirm continued increasing trend in the number of procedures in operations and catheterization interventions compared to the previous years, despite the lack of staff in particular in the category of medical staff other than physicians. **The department participates in a unique international quality control system for pediatric 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 related to the complexity of surgery. **In this comparison, the children's cardio center has an excellent early mortality of only 0.72% for the period 2012–2018.**

In 2019, the department again provided care to foreign patients as part of humanitarian and development programs, and a total of 35 patients with congenital heart disease were operated on. A total of 12 patients underwent surgery in Amman, Jordan, under the Medevac Ministry of Interior of the Czech Republic program, 14 patients in cooperation with Healing Little Hearts, UK in Bangalore, India, and another 9 children with congenital heart disease in cooperation with Slovak Aid in Nairobi, Kenya.

The agreement on cooperation in surgical and cardiological treatment of pediatric patients with heart disease was fulfilled, which was signed with the University Hospital in Ljubljana in 2017, in the form of regular trips of Children's Heart Centre cardiac surgeons to Slovenia and surgical and catheter treatment of more complex cases in Children's Heart Centre of Motol Faculty Hospital.

#### Specialized outpatient units:

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

#### New methods and procedures:

- The program of long-term implantable mechanical support of the heart continues - since 2014 it has been used in 5 patients with terminal heart failure, 4 of them have already been successfully transplanted, the fifth patient is on the waiting list.
- Heart transplantation in children - since the introduction of the program in 2014, a total of 17 pediatric patients have been transplanted (five patients in 2019). The 5-year probability of survival after transplantation is so far 95%;
- Program for tracheoplasty for congenital tracheal malformations in cooperation with the tracheal team of Motol University Hospital (since 2016);
- Program for molecular and genetic examination of families with occurrence of hereditary arrhythmias and cardiomyopathies using a new generation sequencing method (NGS) in cooperation with Department of Biology and Medical Genetics, 2nd Charles University Medical Faculty and Motol University Hospital;
- Program for minimally invasive heart surgeries;
- Program of fetal interventions in congenital heart defects in cooperation with dept. Pediatric Cardiology of Kepler University Clinic in Linz (so far treated 5 patients with congenital critical aortic stenosis with 100% survival).

#### Unique equipment:

- Rotaflow centrifugal pump for ECMO and short-term mechanical cardiac support
- GE Vivid E95 ultrasound device

#### Major event in 2019:

- Participation of the Children's Heart Centre as a member of the European Reference Network GuardHeart focusing on hereditary arrhythmias and cardiomyopathies;
- Organizing the interdisciplinary symposium 32nd ŠAMÁNEK'S PODĚBRADY and 42nd MOTOL SEMINAR in the spa colonnade in Poděbrady, 10 -12 January 2019;
- Minisymposium for the 85th birthday of prof. Bohumil Hučín and prof. Stanislav Tůma, Prague 29 April 2019;
- Seminar Congenital arrhythmic syndromes and cardiomyopathy for patients and family members, for ERN GuardHeart, Prague 26 January 2019;

- IGA grant no. 15-28029A: Resynchronization of failing subpulmonary right ventricle in congenital heart defects, 2015-2019, principal researcher prof. MUDr. Jan Janoušek.

#### ■ 10 publications in international magazines with an impact factor:

- Escudero CA, Mah DY, Miyake CY, Stephenson EA, LaPage MJ, Kubuš P, I Cohen M, Atallah J., Riata lead failure in pediatric and congenital heart disease patients. *J Cardiovasc Electrophysiol.* 2019 Mar;30(3):320-325. doi: 10.1111/jce.13812. Epub2019 Jan 4 **IF 2,91**
- Fabian O, **Gebauer R**, Koblizek M, Hornofova L, **Janousek J.**, Histopathological evidence of aortopathy in newborns and infants with Tetralogy of Fallot at the time of the surgical repair, *Cardiovasc Pathol.* 2019 May - Jun;40:59-64. doi: 10.1016/j.carpath.2019.02.004, Epub 2019 Feb 28, Epub 2019 Feb 28. **IF 1,76**
- **Janoušek J, Kovanda J, Ložek M, Tomek V, Gebauer R, Kubuš P**, Delhaas T. ,Cardiac Resynchronization Therapy for Treatment of Chronic Subpulmonary Right, Ventricular Dysfunction in Congenital Heart Disease. *Circ Arrhythm Electrophysiol.* 2019 May; 12(5):e007157. doi: 10.1161/CIRCEP.119.007157 **IF 4,9**
- **Materna O**, Suchanek V, **Reich O.**, Unexpected ischemia during transcatheter patent arterial duct closure. *Cardiol Young.* 2019 Nov;29(11):1410-1411. doi: 10.1017/S104795111900218X. Epub 2019 Sep 23. **IF 0,9**
- Balaji S, DiLorenzo MP, Fish FA, Etheridge SP, Aziz PF, Russell MW, Tisma S, Pflaumer A, Sreeram N, **Kubus P**, Law IH., Risk factors for lethal arrhythmic events in children and adolescents with hypertrophic cardiomyopathy and an implantable defibrillator: An international, multicenter study. *Heart Rhythm.* 2019 Oct;16(10):1462-1467. doi: 10.1016/j.hrthm.2019.04.040. Epub2019 Apr 23. **IF 4,74**
- Balaji S, DiLorenzo MP, Fish FA, Etheridge SP, Aziz PF, Russell MW, Tisma S, Pflaumer A, Sreeram N, Kubus P, Law IH, Katcoff H, Shah M., Impact of Obesity on Left Ventricular Thickness in Children with Hypertrophic Cardiomyopathy. *Pediatr Cardiol.* 2019 Aug;40(6):1253-1257. doi: 10.1007/s00246-019-02145-9. Epub 2019 Jul 1. **IF 0,74**
- Norrish G, Ding T, Field E, Ziolkowska L, Olivotto I, Limongelli G, Anastasakis A, Weintraub R, Biagini E, Ragni L, Prendiville T, Duignan S, McLeod K, Ilina M, Fernández A, Bökenkamp R, Baban A, **Kubuš P**, Daubeney PEF., Development of a Novel Risk Prediction Model for Sudden Cardiac Death in Childhood Hypertrophic Cardiomyopathy (HCM Risk-Kids). *JAMA Cardiol.* 2019 Aug 14. doi: 10.1001/jamacardio.2019.2861. **IF 11,8**
- **Kovanda J, Ložek M**, Ono S, **Kubuš P, Tomek V, Janoušek J.**, Left ventricular apical pacing in children: feasibility and long-term effect on ventricular function. *Europace* 2019 Dec 6. pii: euz325. doi: 10.1093/europace/euz325. **IF 5,2**
- **Poruban R, Materna O, Gebauer R.**, Isolation of the Right Subclavian Artery. Mini-invasive Repair. *Rev Esp Cardiol (Engl Ed).* 2019 Apr 15. pii: S1885-5857(18)30484-5. doi:10.1016/j.rec.2018.11.007. **IF 5,12**
- Baggen VJM, Venema E, Živná R, van den Bosch AE, Eindhoven JA, Witsenburg M, Cuyper JAAE, Boersma E, Lingsma H, Popelová JR, Roos-Hesselink JW. Development and validation of a risk prediction model in patients with adult, congenital heart disease. *Int J Cardiol.* 2019 Feb 1;276:87-92. doi: 10.1016/j.ijcard.2018.08.059. Epub 2018 Aug 22 **IF 4,0**

#### ■ 14 articles in peer-reviewed journals



- **1 book and 4 chapters in books:**

- Rubáčková Popelová J. et al., Monograph Congenital heart defects in adulthood, 2nd completely revised and supplemented edition, Grada, 2018 (but published in 2019). ISBN 978-80-271-0696-7, 540 pages.
- Rubáčková-Popelová J., Janoušek J., Hučín B., Harrer J, Němec P, Zatočil T, Antonová P, Rubáček M, Hegarová M, Melenovský V., Gebauer R.. Congenital heart defects in the past and today. In: 90 years of Czech cardiology, pp. 288-309, Mladá Fronta, 2019
- Janoušek J., Profesor Milan Šamánek. In: 90 years of Czech cardiology, pp. 114-127, Mladá Fronta, 2019
- Chaloupecký V., Examination of the cardiovascular system, In Bláhová K. et al. Pediatric Propaedeutics, 3rd edition, Galén 2019. pp. 123–132
- Rubáčková Popelová J., Rubáček M., Mates M., Škoda J., Neužil P., Vojáček J., Congenital heart disease, Clinical Cardiology, 4th edition, Maxdorf Jessenius, 2019, pp. 749- 828

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

Head - prof. MUDr. Michal Hrdlička, CSc.

Senior Doctor - MUDr. Jiří Koutek, Ph.D.

Ward Nurse - Radka Raisová

### Basic description:

The Department of Paediatric Psychiatry is the only independent clinical facility of its kind in the Czech Republic. The department provides diagnostics, treatment and prevention of mental disorders in childhood and adolescence, focusing especially on autism in children, food intake disorders, hyperkinetic disorder, psychotic disorders and suicidal behavior in children and adolescents. The Family Centre integrated in the department focuses on family therapy. The department also operates as a pregraduate and postgraduate educational institution. In postgraduate tuition, the department is certified for psychiatry for children, adolescents and adults. **A total of 6,900 inpatient procedures and 1,840 medical consultations were carried out and 515 patients were hospitalized at the inpatient section in 2019.**

### Specialized centres:

- family centre focusing on family therapy for paediatric psychiatric patients

### New methods and procedures:

- Routine use of the diagnostic method - Autism Diagnostic Observation Schedule (ADOS). As regards autism screening, employees of the department furthermore contributed to translating, standardizing and publishing the CAST screening test for school-aged children (Dudová, I., Beranová, Š., Hrdlička, M., Urbánek, T.: CAST – screening test for autistic spectrum disorders. 1st edition, Prague, Národní ústav pro vzdělávání 2013. 54 pages) and translated and published the M-CHAT screening test for 2-year-old children (Dudová, I., Beranová, Š., Hrdlička, M.: Screening and diagnostics of children's autism in early childhood. *Pediatric pro praxi*, 14, 2013, no.3, p. 153-156.). Both methods are used regularly at the department.
- Since 2016, the department has been solving the grant AZV 16-31754A focused on the use of modern imaging methods in the research of social and language deficits in neurodevelopmental disorders.
- The department continues research into early markers of bipolar affective disorder

der in high-risk offspring under the leadership of MUDr. Michal Goetze, Ph.D. The project is supported by grant AZV 17-32478A. The department cooperates with the National Institute of Mental Health in this area.

- In collaboration with the National Institute of Mental Health, Dr. Goetz is preparing a validation study of the Screen for Child Anxiety Related Disorders (SCARED) questionnaire for children. As part of this collaboration, a validation study of the Children's Depression Inventory (CDI-2) questionnaire for children is also underway.
- Comprehensive therapy and research of food intake disorders was also carried out with the department's activities having national significance in this field.
- The diagnosis and complex therapy of psychotic states is of supraregional importance.

### Unique equipment:

- Thymatron DG device for electroconvulsive therapy

### Major event in 2019:

- A publication from the project Research of Early Markers of Bipolar Affective Disorder (AZV 17-32478A, principal researcher Michal Goetz, MD, PhD) Decreased need for sleep as an endophenotype of bipolar disorder: an actigraphy study. Sebelá, A, Kolenic, M, Farkova, E, Novak, T & Goetz M. (2019): *Chronobiology International*, DOI: 10.1080 / 07420528.2019.1630631 received the European Psychiatric Association Award for the best scientific work in 2019 in the field of children and adolescents psychiatry.





## The Clinic of Pediatric Hematology and Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head - prof. MUDr. Jan Starý, DrSc.

Senior Doctor - MUDr. Vladimír Komrská, CSc.

Senior Doctor - MUDr. Vratislav Šmelhaus

Ward Nurse - Bc. Jitka Wintnerová

### Basic description:

The department focuses on diagnostics, treatment and research of tumorous diseases in children, benign blood disorders, such as anemia, bleeding disorders and congenital coagulation disorders (hemophilia). Allogeneic and autologous transplantations of hemopoietic stem cells in the treatment of high-risk leukemias, selected solid tumors, congenital immunity disorders and metabolic defects are carried out at the transplantation unit.

**A total of 19,184 examinations and treatments were carried out in the outpatient section, 2,971 patients with tumorous diseases and 2,008 patients with non-tumorous diseases were treated in 2019. 151 children with malign solid tumors, 54 children with leukemia and myelodysplastic syndrome, 344 patients with benign tumors and 844 children with non-tumorous diseases were newly diagnosed. The total number of hospitalized patients was 2,675 with 1,797 accompanying persons. 31 allogeneic bone marrow transplantations were carried out, of which 24 patients received bone marrow from unrelated donors from registers, 7 from identical siblings, and 18 patients received autologous grafts.**

### Specialized outpatient units:

- oncology outpatient unit
- outpatient unit for late consequences
- outpatient unit for hemangiomas and lymphangiomas
- outpatient unit for CNS tumors
- outpatient unit for LCH
- hematologic outpatient unit
- hematologic daycare centre
- outpatient unit for congenital coagulation defects and bleeding disorders
- outpatient unit for patients after bone marrow transplantation
- outpatient unit for palliative care

### New methods and procedures

- The transplant unit of the clinic received the prestigious international JACIE accreditation of the European Society for Blood and Bone Marrow Transplantation EBMT.
- The clinic is the national coordination center of the academic treatment study of the most common cancer in children - acute lymphoblastic leukemia - launched in 2019. The study is carried out in international cooperation, the next generation NextGen sequencing methods performed in the laboratory center of the CLIP clinic are used in diagnostics, and chemotherapy with monoclonal antibody immunotherapy is combined in the treatment for selected groups of patients.

### Major event in 2019:

- Doc. Ondřej Hrušák received the Czech Hematological Society Award for the best original scientific work in the field of hematology in 2019 and the Bedřich Hrozný Award for the publication of a worldwide study on the treatment of children with leukemia of unknown lineage in the prestigious journal Blood.

- In May 2019, we celebrated the 30th anniversary of the hematopoietic stem cell transplantation at Motol University Hospital by meeting cured patients and their families at Zbiroh Castle.
- In February 2019, the staff of the clinic, together with the parent organization HAIMA, organized the fifth year of the Day of Pediatric Oncology, with the aim of spreading awareness of pediatric oncology and showing respect to pediatric patients and their families.
- Doc. Kalina and dr. Veronika Kanderová and the co-researchers from a grant from the Institute of Immunology of the 2nd Faculty of Medicine and Motol University Hospital received the Award of the Minister of Health for research in 2019.
- The clinic staff participated in the organization of the first European Conference on Pediatric Oncology SIOPE, which took place at the Congress Center in Prague in May 2019, and also organized a meeting of 50 representatives of the world's leading leukemia groups (Ponte di Legno initiative) at Zbiroh Castle.

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

Head - prof. MUDr. Michal Rygl, Ph.D.

Senior Doctor - MUDr. Luboš Zeman

Ward Nurse - Mgr. Ilona Mayerová

### 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 – provide care for young patients from the entire CR and for patients from abroad through the process of medical consultation. The Department of Pediatric Surgery has the highest accreditation for specialization education in the field of pediatric surgery in the Czech Republic and, as the only workplace in the Czech Republic, also the European accreditation UEMS for specialization training in pediatric surgery.

**A total of 3, 238 patients were hospitalized at the department, of which 280 newly born children were hospitalized at the surgical intensive care unit for newborns in 2019. Surgeries were performed on 2,167 children. Specialized outpatient units treated 13,387 children and the emergency service provided care for 5,882 children.**

### Specialized outpatient units:

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

### New methods and procedures:

- Program of robotic pyeloplasty in children in cooperation with the Department of Urology of the 2nd Medical Faculty of Charles University and University Hospital Motol
- Extended spectrum of minimally invasive surgery
  - SINGLE PORT surgery (appendectomy, cholecystectomy, IC resection)
  - surgery of inguinal hernia using the PIRS method
  - surgery of pilonidal sinus using the PEPSIT method
  - laparoscopically assisted ileocecal resection in children with Crohn's disease
  - laparoscopically assisted proctocolectomy with ileal plaque
  - Japaroskopically assisted subtotal colectomy

### Unique equipment:

- equipment for minimally invasive surgery with 3D image (by B. Braun)
- advanced electrocoagulation systems (Covidien/Medtronic, Ligasure, Voyant)
- Duet Encompass device - modern video for urology and pelvic floor EMG with simultaneous connection to X-ray devices
- cystoscope with endoresector for the youngest children, which allows mini-invasive surgery of the youngest children (Olympus/ Wolf)
- mobile pumps for children using home parenteral nutrition (by B. Braun)
- mobile pumps for home enteral nutrition (by Nutricie)
- mobile pumps for home enteral nutrition (by Nutricie)

### Major event in 2019:

- Top-level re-accreditation for specialization education in the field of pediatric surgery in the Czech Republic;
- UEMS re-accreditation for specialized education in pediatric surgery in the European Union;
- International workshop Surgical Management of Incontinence at the Department of Pediatric Surgery of the 2nd Medical Faculty of Charles University and Motol University Hospital led by the supervisor Professor Henri Lottmann. The course focused on operations on children with bladder disorders and urinary incontinence (March 2019).
- Cooperation with Doctors Without Borders - MUDr. Jan Trachta led a humanitarian mission in Liberia focusing on the examination, surgery and postoperative care of pediatric urological patients (December 2019).
- Participation in the international study of congenital malformations: Global PaedSurg;
- MUDr. Barbora Frýbová has successfully completed postgraduate studies in experimental surgery and obtained a Ph.D.
- MUDr. Lenka Kučerová passed the attestation in Paediatrics.
- MUDr. Kristýna Cejnarová passed the attestation in Paediatrics.
- MUDr. Jiří Trčka passed the attestation in the field of Paediatric Surgery.
- MUDr. Barbora Frýbová won the 1st prize for the best lecture at the Congress of Gastroenterological Case Studies.
- MUDr. Vojtěch Dotlačil won the 1st prize for the best lecture in the section of

young surgeons at the 65th Congress of Czech and Slovak Pediatric Surgeons in Kurdějov for the lecture: „Treatment of pilonidal sinus with the PEPSIT technique“.

- Other scientific activities:
  - Monograph: prof. Škába R. et al.: „Pediatric proctology for practice“
  - 2 chapters in a book
  - 6 publications in a foreign journal with IF
  - 5 publications in a local journal

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

Head - prof. MUDr. Pavel Kršek, Ph.D.

Senior Doctor - MUDr. Věra Sebroňová

Ward Nurse - Gabriela Pavlová

### Basic description:

The Department of Paediatric Neurology (DPN) is a reference consultation site for all neurological diagnoses in children throughout the CR and provides care for patients from abroad in certain diagnostic and therapeutic programs (such as surgical treatment of epilepsy). We now have two fully reconstructed inpatient units with a total of 40 beds for patients, including 6 beds for lower level of intensive care and 6 beds with video/EEG and polygraphic monitoring. The department also has a fully equipped electrophysiological laboratory and polyclinic with specialized outpatient units listed below. The DPN is also a pregraduate and postgraduate educational institute and a scientific and research centre involved in many interdisciplinary and international projects. **In 2019, a total of 1,200 children were hospitalized at our department with a total number of hospitalization accounts of 1,562. A total of 18,184 outpatient examinations were performed on 7,495 patients (unique personal ID numbers). A total of 5,909 procedures were performed in the electrophysiological laboratory, of which 3,405 were EEG, 553 were EMG, 1,456 were EP and 495 were long-term video/EEG and polygraphs. 28 resection surgeries, 7 long-term intracranial video/EEG studies and 6 primo-implantations of a vagus nerve stimulator were performed under the epilepsy surgery program.**

### Specialized outpatient units:

- 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:

- ERN for rare and complex epilepsies (ERN EpiCARE)
- ERN for rare neuromuscular diseases (ERN NMD)
- Centre for hereditary ataxias (under ERN RND)

## Centres recognized by the Ministry of Health CR/Czech Medical Association of J. E. Purkyně/other:

- Centre for highly specialized care for pharmacoresistant epilepsies
- Centre for sleep disorders in children
- Neuromuscular centre for paediatric patients
- Highly specialized care center for multiple sclerosis and neuromyelitis optica
- Epilepsy Research Centre Prague (EpiReC) - consortium of the 2nd Faculty of Medicine, Charles University, University Hospital Motol, CAS and CTU

## New methods and procedures:

- The first patient with spinal muscular atrophy underwent gene therapy. The first and so far only Czech child successfully underwent a unique gene therapy for spinal muscular atrophy. The treatment was performed in a clinical study in Boston, USA.
- The DPN DNA laboratory introduced a whole genome sequencing methodology. Evaluation of whole genome sequencing (WGS) data has been introduced in our DNA laboratory. The methodology enables the diagnosis of rare, as yet undiagnosed diseases.
- A new clinical study in Duchenne muscular dystrophy. The Neuromuscular Centre for Pediatric Patients opened a clinical study of experimental treatment with vamorolone in Duchenne muscular dystrophy. Vamorolone is an anti-inflammatory experimental drug based on the principle of inhibition of NF- $\kappa$ B, which could replace commonly used corticosteroid drugs in the future.

## Unique equipment:

- cough assistant for children with respiratory insufficiency - obtained under a grant

## Major event in 2019:

- The honorary recognition of the Minister of Health for medical research and development for 2019 was awarded to a team led by prof. Pavel Seeman for extraordinary results achieved in the project of applied medical research and development (grant AZV 15-33041A: „Use of MPS panel of genes associated with childhood epilepsy and epileptic encephalopathy for the diagnosis of the causes of epilepsy in the Czech Republic“).
- Results of our scientific research activities in 2019: 33 primary publications in journals with IF with a total IF of 167.65; MUDr. Barbora Beňová and MUDr. Marie Glombová successfully obtained a PhD degree.
- An interdisciplinary team led by Prof. Pavel Kršek received the AZV grant NV19-04-00369 „Stratification of patients with focal cortical dysplasia to optimize epileptosurgery“ for the years 2019-2022.
- The department became an official member of the international consortium of the COST CA16118 project focused on the standardization of clinical care and basic and applied research in patients with cortical developmental malformations.
- The Neuromuscular Centre for Pediatric Patients was the first European centre (and the second centre outside the United States after South Africa) to be accredited by the international patient organization PPM (Parent Project Muscular Dystrophy). Accreditation placed the clinic among the world's highly qualified neuromuscular centres for patients with DMD.

- MUDr. Vilém Novák (Ph.D. student of Prof. Kršek) won the Jiří Diamant National Neuropsychological Prize awarded by the Neuropsychological Section of the ČMPS for the best work in the field of neuropsychology (Novák et al., Generalized quasi-periodic epileptiform activity in sleep is associated with cognitive impairment in children with drug-resistant focal lesional epilepsy. *Epilepsia*, 2019).
- Ing. David Staněk received the Ervín Adam Award from the 2nd Faculty of Medicine of Charles University for the best publication of an author under 35 (Staněk et al., Detection rate of causal variants in northern childhood epilepsy is highest in patients with seizure onset within the first four weeks of life. *Orphanet J Rare Dis.*, 2018).

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

Head - MUDr. Jiří Skřivan, CSc.

Senior Doctor - MUDr. Michal Jurovčík

Ward Nurse - Adriana Laudátová

### Basic description:

The facility focuses on diagnostics and conservative and surgical treatment of ENT diseases in paediatric patients from birth to 18 years of age. The department operates as a medical consultation facility, providing care for children with poorly diagnosable or treatable diseases from all over the CR. The Centre for Cochlear Implants for Children (CCIC) operates within the phoniatic part of the department. The department arranges surgeries on newborns with 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 of the MUH.

**In 2019, 2,039 surgeries were performed, 2,334 patients were hospitalized, and 10,209 patients were treated in the outpatient unit, 667 at the phoniatics unit and 5,829 at the emergency unit. The Department of Phoniatics and Rehabilitation Centre for Cochlear Implants in Children is part of the ENT department. In 2019, the organizational structure was changed. The department left the Na Mrázovce building and moved completely to the department's premises in Motol. The facility focuses in particular on selection of candidates for cochlear implants in children and on preoperative and long-term postoperative care for cochlear implant users, who receive comprehensive phoniatic, speech therapy and psychological care including speech processor programming. The facility also arranges additional rehabilitation in speech therapy in their home towns throughout the CR. MUDr. Petr Myška is the head.**

### Specialized outpatient units:

- otosurgical outpatient unit
- audiology outpatient unit
- outpatient unit assessing candidates for cochlear implants and rehabilitation centre after cochlear implantation
- outpatient unit assessing candidates for the Baha implant
- outpatient unit for addressing developmental defects in the neck and head
- outpatient unit for monitoring nodular swelling
- phoniatics outpatient unit
- thyroidology outpatient unit
- outpatient unit for comprehensive solution of lymphangiomas and hemangiomas of the head and neck



- outpatient unit for GERD diagnostics
- somnology outpatient unit
- outpatient unit of plastic surgery

#### New methods and procedures:

- Addressing choana atresia using a BD stent;
- Application of a BD stent in the upper respiratory tract in children;
- Laryngotracheal reconstruction using Monnier LT-molde stents;
- Application of the Baha implant in clinical practice;
- Sleep monitoring in people with apnoea /PSG/;
- New hearing diagnostic method based on DPOAE – CochleaScann and using bone (BC) module in the SSEP measuring technology;
- Program for early surgery of cleft defects in newborns, timely detection and study of the demonstrations of secretory otitis in patient with a cleft;
- Introduction of a wireless device for automatic perioperative measurement of impedance and NRT in Nucleus cochlear implants;
- Establishment of a multidisciplinary group for comprehensive surgical and conservative treatment of lymphangiomas and hemangiomas of the head and neck;
- Introduction of balloon dilations of tracheal stenosis;
- Introduction of plasma coblation as an alternative solution to traditional procedures /ToT AT and others/.

#### Unique equipment:

- plasma generator – plasma coblation
- Aeris balloon catheter – used for gentler dilation of stenosis of the respiratory tract in children
- pH impedance meter
- microinstrumentarium for laryngeal surgery in children
- mikroinstrumentarium for FESS in children
- high-frequency tympanometer Maico MI 34
- Neo Laser with microfiber
- 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 – gently tissue preparation, UZ 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

#### Major event in 2019:

- Organizing a full-day multidisciplinary seminar with international participation: Foreign bodies in the aerodigestive tract and esophageal burns in children - multidisciplinary view, 1 November 2019. Motol, Prague
- Active participation in the 3rd Czech-Slovak Rhinological Congress and XXVIII South Bohemian ENT Days, April 25-26, 2019, Clarion Congress Hotel, České Budějovice. (MUDr Jurovčík, MUDr Katra, MUDr Brzybohatá)

- Lecturing at the 9th bronchoscopic course organized under the guidance of prof. Pohunek, 11-13 March 2019, Prague, Motol (MUDr Jurovčík)
- Active participation in ECPCA 2019, European cleft palate craniofacial association, 12-15 June 2019, Utrecht, The Netherlands (MUDr. Borský, MUDr. Jurovčík)
- Active participation in 16th Symposium on Cochlear Implants in Children, 10-13 July 2019, Miami, Florida, USA (MUDr Jurovčík, MUDr Dytrych)
- Active participation in the 8th Czech-Slovak Otorhinolaryngological Congress, 4-6 September 2019 Šamorín, Slovakia, (MUDr Skřivan, MUDr Jurovčík, MUDr Katra, MUDr Brzybohatá, MUDr Murgašová)
- Active participation in the 18th Conference of Pediatric Pneumology 30 March 2019, Hotel DAP, Prague (MUDr Jurovčík)
- Active participation in the 14th European Symposium on Pediatric Cochlear Implantation, 16-19 October 2019, Bucharest, Romania (MUDr Skřivan, MUDr Jurovčík, MUDr Dytrych)
- Best poster award: Jurovčík M., Borský J., Dytrych P., Černý M., Maciak M., Kotaška K., Skřivan J.: 300 newborns operated on for cleft palate - early detection and study of the manifestations of secretory otitis. 8th Czech-Slovak Otorhinolaryngological Congress, 4-6 September 2019 Šamorín, Slovakia
- Successful defense of the ongoing project Institutional Support of Research Organizations, FN Motol 6024: „Improving accurate diagnostics and comprehensive rehabilitation of children with severe congenital and acquired hearing impairment“ (MUDr Jurovčík). Educational Implantation Academy at the Republic Pediatric Institute in Tashkent, Uzbekistan (prof. Shavkat Ergashevich Amonov)
- Chapters in the monograph: Lexicon of surgical procedures, Maxdorf Jesenius, 2018. Cochlear implantation (MUDr. Skřivan);
  - Eustachian tube, published by Tobias, 2019: Eustachian tube disorders in craniofacial malformations (MUDr. Jurovčík);
  - Pediatric pneumology, Mladá fronta a.s. 2018: Aspiration of a foreign body (MUDr. Jurovčík)
  - Pediatric pneumology, Mladá fronta a.s. 2018: Care of a child with tracheostomy (MUDr. Jurovčík)
  - Pediatric pneumology, Mladá fronta a.s. 2018: Rigid bronchoscopy from the ENT doctor perspective (MUDr. Jurovčík)
  - Pediatric propaedeutics, Galén 2018: Examination of hearing (MUDr. Jurovčík)



## Common Inpatient Sites of Paediatric and Adult Parts

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

Head - doc. MUDr. Tomáš Vymazal, Ph.D., MHA

Senior Doctor - MUDr. Radka Klozová

Ward Nurse - Mgr. Taťána Maňasová

#### Basic description:

The department provides anesthesiologic and resuscitation care in the paediatric and adult parts 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 CR. The department ensures specialized care for medical facilities of a lower level throughout the CR upon request. It is the managing and coordinating facility for postgraduate education of physicians and nurses and ensures tuition for anesthesiologists and physicians with other specializations. The workplace was repeatedly granted accreditation II type. The head was re-elected to the position of Chairman of the Accreditation Commission at the Ministry of Health of the Czech Republic. The department provides tuition for medical and bachelor's students at the 2nd Faculty of Medicine of Charles University in the range of more than 1100 hours/year as well as within international educational and research projects. **In 2019, a total of 1,403 patients were hospitalized at the department, of which 851 were adults, 552 were children. 73 patients received intensive and nursing aftercare.** The number of anesthesia administered is growing slightly year-on-year, as is the number of hospitalizations. However, the medical and economic demands of these patients are increasing dramatically. **In 2019, anesthesia was administered to 36,821 patients, of which 11,523 were children.**

#### New methods and procedures:

- In 2019, the ECMO center of Motol University Hospital for adult patients was established, and KARIM is a coordinating workplace.
- Acquired unique PFA device for functional analysis of platelets - part of robust implanted research in the department;
- Routine technology HighFlow Oxygen Therapy in the care for patients under resuscitation care with failing respiration;
- Extension of the activities of the Simulation Medicine Laboratory - we train doctors and nurses of Motol University Hospital and organize optional courses for undergraduate students;
- Standard introduction of long-term pediatric peripheral catheters - PICC;
- In cooperation with the Department of Surgery, 2nd Faculty of Medicine, Charles University and MUH, consistent application of ERAS procedures in large abdominal procedures with a clear impact on the quality of hospitalization, including publication of results in the form of articles and workshops;
- In 2019, collection of multiple organs was performed in 14 cases - a total of 27 organs were subsequently transplanted;
- In 2019, 42 patients after lung transplantation were hospitalized, more than a half on ECMO.
- Routine application of the ECMO technology not only in lung transplantation, but also in other conditions associated with acute life threatening lung and heart failure in intensive medicine for adults and children;

- Routine use of sonography in US guided vascular punctures and regional nerve block techniques in adults and children;
- Wide use of electrocardiography in patients undergoing cardio-surgery and other procedures, including lung transplantation.
- 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 hundreds of thousands CZK per year, procedures also implemented in the internal rules of the MUH;
- Extensive modernization of the equipment in anesthesiology theatres, including the use of the latest anesthetics;
- 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;
- Routine use of the available reliable reversal of the neuromuscular block following anesthesia;
- 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 event in 2019:

- KARIM has 2 ongoing grants (TAČR and UH Motol), 2 local academic studies (both approved by the Ethics Committee of UH Motol and 3 multicentre international studies organized by ESA (European Society of Anesthesiology)).
- Defending the dissertation of 2 colleagues and obtaining the title of Ph.D.
- Organizing a pre-certification and core course, including for the first time in history, an examination at the end of the core course;
- Participation in the organization of regular nationwide workshops „Ultrasound in anesthesia and intensive care“;
- The fourth year of the interdisciplinary seminar with foreign participation on the topic of PICC in child intensive care;
- 4 book publications with author chapters of department physicians published.
- Two publications from 2018 won 2nd and 3rd place in a national professional competition.
- Extension of technology for electronic documentation on children's resuscitation beds.
- Published 10 original works in peer-reviewed and impact journals.
- Finalization of a textbook for medical students of the 2nd Faculty of Medicine, Charles University.



## The NIP-DIOP aftercare department is a part of the workplace

Senior Doctor MUDr. Kateřina Čadová  
Ward Nurse Mgr. Soňa Hájková

### Basic description:

Intensive care for patients using long-term ventilation, disconnection from the ventilator, stabilization of hemodynamics, adjustment of the internal environment, neurorehabilitation, physiotherapy, occupational therapy, reconditioning with mobilization; artificial nutrition, basal stimulation. **73 patients were hospitalized in 2019. The workplace operates 10 beds NIP 10 + 20 beds DIOP.**

### Specifics of the facility:

- Advisory service for patients and families in a critical situation, training alternative communication, development of the home artificial pulmonary ventilation program (DUPV) and follow-up supervision of patients using DUPV;
- Training for home artificial nutrition - PEG, training for patients in the chronic tracheostomy care and tracheostomy cannula;
- Acute consultancy service in emergency cases in building 22 ("former infection department"), training physiotherapists under the Bc. program in special issues associated with NIP-DIOP patients.

### Unique equipment:

- miniature capnometer for checking the training of spontaneous breathing and outpatient check-ups for patients with DUPV
- electrolarynx for training an alternative voice in patients with tracheostomy
- sonography

## 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, Spinal Unit, Department of Sports Medicine and Department of Pain Research and Treatment.**

### 1 Department of Rehabilitation

Senior Doctor - MUDr. Martina Kővári, MHA  
Ward Nurse - Mgr. Hana Jirků

### Basic description:

The Department of rehabilitation provides physiotherapy and therapeutic rehabilitation to adults and children throughout the entire spectrum of medical specializations. 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 also has a section for acute inpatient rehabilitation care.

**During 2019, a total of 632 patients were hospitalized in the adult inpatient department of the department, a total of 150 patients in the pediatric inpatient department, a total of 7,352 patients were treated in the outpatient department and we provided rehabilitation care to 15,400 patients in other workplaces.**

### Specifics of the facility:

Respiratory physiotherapy is one of the department's dominating activities. Additional specific procedures include the treatment of spasticity, including the application of botulinum toxin, therapy of pelvic floor defects, therapy of vestibular defects, visceral rehabilitation, therapy and diagnosis of swallowing disorders, lymphological program, etc.

Other specialized programs are also implemented at the department. Serious forms of cerebral palsy are assessed at interdisciplinary seminars with a consultation character (for patients up to 18 years of age from the entire CR). Consultation seminars for adult patients have newly been introduced.

A diagnostic and therapeutic concept Dynamic and Neuromuscular Stabilization based on the principles of developmental kinesiology was created within the department and introduced into practice. Professor Kolář, the head of the department is the founder of this concept. The facility is involved in lecturing on this concept in the CR and abroad.

In 2019, a specialized outpatient clinic for adult and pediatric patients after surgery for congenital heart defects was established, a new pediatric inpatient department for acute rehabilitation was opened, and a new doctoral program in Kinesiology and Rehabilitation was established within the school section.

### New methods and procedures:

- Establishing cooperation with the Department of Neurology, 2nd Faculty of Medicine, Charles University and Motol University Hospital in testing adult patients with SMA - for the application of Spinraza;
- Functional electric stimulation for patients with central paresis using neurostimulator of peroneal nerve;
- Examination and therapy of standing and walking disorders on a dynamic path with integrated pressure sensors and virtual feedback;
- Use of instruments with biofeedback in patients with stool incontinence; biofeedback is also offered for use in home therapy;
- Creation of a manual and video for e - learning training within rhb nursing, prevention of back pain and ergonomic manipulation with patients - for nursing staff in the hospital.
- A comprehensive rehabilitation program for hematological children and a system of care for premature babies is being newly developed.
- Standardized testing of children using walking tests (timed up and go test, 6-minute walking test);
- The ongoing program of NORA seminars (neurological, orthopedic and rehabilitation seminars) focusing especially on paediatric patients with cerebral palsy is unique in the Czech Republic. Similar interdisciplinary seminars began in the adult part.
- Therapeutic multisensory rooms Snoezelen;
- Establishing cooperation with the neurological department of the 2nd Faculty of Medicine of the Charles University and MUH in caring for patients with ALS – targeted respiratory physiotherapy.

### Unique equipment:

- Simeox device for children - used to clear the airways
- functional electrical stimulation for stimulation of the peroneus nerve in patients with „drop foot“
- dynamic path with integrated pressure sensors and virtual reality



- training machine for training hand function
- Balance Master device for therapy of stability disorders and vertigo conditions
- “X box” device and “Wee” system for training stability and coordination skills in children
- myofeedback and biofeedbacks for electrical stimulation of pelvic floor muscles
- new sonographic device used to navigate the application of botulinum toxin in the therapy of spastic patients with a high-frequency head and share-wave elastographic probe

#### Major event in 2019:

- Opening of the first year of the new doctoral study program Kinesiology and Rehabilitation with the participation of other medical faculties (1st Medical Faculty of Charles University, 2nd Medical Faculty of Charles University, 3rd Medical Faculty of Charles University and Medical Faculty of Hradec Králové, Charles University). The chairwoman of the subject council and the guarantor of the study is doc. MUDr. Alena Kobesová, Ph.D. (school deputy head);
- Opening of the first acute children’s rehabilitation beds in the Czech Republic, May 2019;
- Organizing the International Rehabilitation Congress Los Angeles 31 October - 3 November 2019;
- Realization of foreign internships for physiotherapists: 1/ Vienna, Hospital St. Anna - care of pediatric oncology patients, 2/ Austria (Graz), orthopedic clinic UNI - KLINIK, surgical solution and orthosis of patients with cerebral palsy, 3/ Holland (Máxima Medical Center, Veldhoven) - new perioperative protocol developed in patient care in colorectal surgery;
- Publication of two chapters in a prestigious American monograph: Rehabilitation of the Spine: A patient – Centered Approach;
- Publication of the book: Rehabilitation in Clinical Practice - in Korean.

## 2 Spinal Unit of the Department of Rehabilitation and Sports Medicine, 2nd Faculty of Medicine, Charles University and MUH

Senior Doctor doc. MUDr. Jiří Kříž, Ph.D.  
Ward Nurse Mgr. Hana Jirků

#### Basic description:

The spinal unit ensures therapeutic and rehabilitation care for patients in post-acute stage after spinal injuries and for patients in the chronic stage after spinal injuries, who are experiencing serious health complications.

**In 2019, 77 patients with acute spinal lesion and 16 spinal patients at a chronic stage with acute complications were hospitalized, approx. 250 patients were treated in the outpatient unit as part of follow-up or due to newly developed health problems.**

#### New methods and procedures:

- Continued work on the project “Options of clinical use of restoration of reflexes and mobility during the period of spinal shock” for the period 2015-2017;
- Continued work on the European project “European Multicenter Study about Spinal Cord Injury (EMSCI)”. IFP 2001/P 66;

- **Continued work on the European grant project “Antibodies against Nogo-A to enhance regeneration and functional recovery after acute spinal cord injury, a multicenter European clinical proof of concept trial”. H2020, PHC 15-2015;**
- In cooperation with the Paraple Centre, launch of the evaluation of the validity and reliability of the newly developed Muscle Irritation Scale, which evaluates the phasic (dynamic) component component of spastic motor behavior in spinal patients.
- In cooperation with FBMI CTU, development of a device for early detection of autonomic dysreflexia in spinal patients.

#### Unique equipment:

- CaughAssist device for supporting cough in patients with neck spinal lesion (donation from the foundation “Nadace Pohyb bez pomoci”)
- Pony FX device for spirometry examination of lesions (donation from the foundation “Nadace Pohyb bez pomoci”)
- Misonic SonicOne device for removing necrotic material and devitalized tissue from skin defects (donation from the foundation “Nadace Pohyb bez pomoci”)
- Finapres NOVA device for assessing defects of the autonomous nervous system (subsidy from the Ministry of Health, CR)
- ABPM device - pressure holter (donation from the foundation “Nadace Pohyb bez pomoci”)
- Sunball device - a system for practicing cognitive functions and physical abilities using interactive exercise balls and virtual reality
- voice control of the environment for patients with severe upper limb mobility

#### Major events in 2019:

- The Spinal Unit contributed to organization of a seminar at the Paraple Centre on the occasion of the Day for Spinal Injuries held worldwide on 5 September;
- Organization of an intermittent catheterization course, a wound healing course;
- Organization of 9th professional conferences and meetings of spinal units 6 – 7 June 2019 in the Pyramida Hotel with international participation;
- Publication of a monograph: Kříž J. et al. Spinal cord injury - causes, consequences, organization of care. Galén, 2019, 532 p.

## 3 Department of Pain Research and Treatment

Senior Doctor - MUDr. Jiří Kozák, Ph.D.  
Ward Nurse Soňa Bašová

#### Basic description:

The Department for Pain Research and Treatment (DPRT) has a multidisciplinary character in the care for chronic painful conditions. It is one of the 8 neuromodulation centres in the CR, a pre-graduate and postgraduate teaching institution in algesciology and neuromodulation techniques for IPVZ in pre-certification courses, for teaching in the master’s study of the Department of RHB and sports medicine of 2nd Medical Faculty of Charles University. The DPRT provides outpatient and inpatient care. The DPRT is a consultation facility for departments treating pain in the CR.

**Number of treatments of outpatients 5,205, number of hospitalized patients with chronic painful conditions 116, number of performed neuroaxial blocks (epidural, caudal) 608. Number of neuromodulation procedures: primary implantation 7, replacement of generators in the system 5, electrode modifications - inspection of the neurostimulation system 3, explantation of the entire system 1. Number of consultation examinations 263.**

#### New methods and procedures:

- Multi-contact radiofrequency electrodes - catheters (Pasha type) with the option of continual introduction of an electrode for radiofrequency and with catheter for drug administration have been introduced since 2015.
- Nerve blocks guided by USG and neurostimulator;
- Pain testing with Pain Tracker;
- Peripheral nerve stimulation and spinal stimulation.

#### Unique equipment:

- device for testing intensity of pain - Pain Tracker
- radiofrequency generator - invasive pain treatment
- neurostimulator for detecting nerve structures
- USG device for guiding targeted nerve blocks
- Neurostimulation systems for implants and control of neuromodulation methods

#### Major event in 2019:

- Mgr. Tomáš Kavka was enrolled in post-graduate studies at DPRT .

### 4. Department of Sports Medicine

Senior Doctor Doc. MUDr. Jiří Radvanský, CSc.

#### Basic description:

The Department of Sports Medicine is one of the department's outpatient units. It focuses mainly on functional diagnostics with at the regional level (in the case of congenital heart defects at the national level) and the subsequent mobility recommendations for patients from preschool children to seniors, targeted for example on patients with developed lifestyle diseases involving the metabolic syndrome or chronic respiratory diseases. The facility carries out functional diagnostics of the circulatory system under stress also in wheelchair-bound patients using the winch ergometry and spirometry, functional stress diagnostics in preoperative examinations before major elective and surgical procedures. The workplace is still the largest training center for functional stress diagnostics for the needs of sports medicine and pediatric cardiology in the country. **In 2019, approximately 2,500 sportsmen and sportswomen were examined during preventive sports checks and 2,300 patients with stress problems were examined. 135 patients underwent controlled movement therapy and nutritional intervention was performed in 89 patients.**

#### New methods and procedures:

- Since 2018, determination of speed of blood flow in the aorta under stress in patients with coarctation of the aorta and stress changes in circulation parameters detectable by echocardiograph in other patients after surgical correction of congenital heart defects has been gradually introduced into practice.
- In cooperation with the Children's Cardiac Centre, specialized physiotherapy is introduced in connection with the modification of the locomotor regime in patients with congenital heart defects after surgical correction in early childhood, rehabilitation in older children, adolescents and young adults and individualized according to the need for additional respiratory physiotherapy.

### Department of Ophthalmology for Children and Adults, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Dagmar Dotřelová, CSc., FEBO

Senior Doctor - MUDr. Milan Odehnal, MBA

Ward Nurse - Mgr. Jana Králíčková

#### Basic description:

The Department of Ophthalmology for Children and Adults provides diagnostics, preventive and therapeutic care to patients from birth to advanced age. The facility operates as a medical consultation centre for the CR in paediatric ophthalmology. The Department of Ophthalmology has two specialized ophthalmology outpatient units for adults and children. The inpatient part of the department has 25 beds (including beds for mothers and persons accompanying children) and an orthoptic outpatient unit. The department also has operating theatres used for both, planned and acute cases in children and adults.

**In 2019, 420 surgeries were performed on adult patients and 650 surgeries were performed on children. Surgery of the cataract was the most frequent procedure in adult patients (194) and surgery of strabismus (205) and examination under total anesthesia were the most common in children. 6,850 children and 11,620 adult patients were examined in the outpatient units.**

#### Specialized outpatient units:

- orthoptic outpatient unit
- outpatient ophthalmology unit for children
- care centre for children with retinopathy in immature babies
- advisory centres - strabological, glaucoma, cataract, oncological, vitreoretinal, diabetological, glaucoma

#### New methods and procedures:

- Retinal treatment by laser photocoagulation in premature infants;
- Introduction of a new variant of surgical treatment of congenital eyelid drop;
- Intraarterial and intravitreal therapy (vitreous application) for patients suffering from retinal tumor (retinoblastoma) has been commenced in cooperation with the Department of Radiology and the Department of Paediatric Haematology and Oncology.
- New treatment with a biological preparation - Eyalea - application to the vitreous space at retinal membranes in children.

#### Unique equipment in 2019:

- Iridex-laser device designed to treat the retina of premature babies
- confocal microscope - monitoring of specific corneal changes
- OCT device - optical coherence tomography - enables detailed monitoring of nerve-vascular changes on the retina.

#### Major event in 2019:

- Doc. MUDr. Pochop et al.: a) initiation of infrared treatment of capillary hemangioma b) intraarterial and intravitreal chemotherapy in children with retinoblastoma as a new method of treatment.
- MUDr. Gabriela Mahelková, Ph.D. and MUDr. Marie Česká Burdová, Ph.D. were authors and co-authors of professional papers in journals with a total IF of over 8.0. The topic of the work was dystrophic changes of the cornea.

- MUDr. Jiří Cendelín, CSc and MUDr. Nina Ondrová received first place at the ESCRS (cataract surgery) congress in terms of educational skills.
- Opening of personally and instrumentally equipped new premises of the children's outpatient ophthalmology department at the polyclinic.

## Department of Paediatric and Adult Orthopaedics and Traumatology, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Tomáš Trč, CSc., MBA

Senior Doctor - MUDr. Daniel Rybka

Ward Nurse - Helena Hlásková

### Basic description:

The department provides care in orthopaedics and traumatology for paediatric and adult patients not only within its region, but also throughout the CR through medical consultation.

**In 2019, 1,284 children and 2,362 adult patients were hospitalized, which is 3,646 patients in total. 1,066 surgeries were performed on children and 2,324 on adult patients, which is 3,390 surgeries in total. In the children's outpatient unit, 24,456 children were treated and 18,119 adults were treated in the outpatient unit for adults, i.e. 42,575 patients in total. Number of consultations carried out on the children's section 435, on the adult section 1,000, ie a total of 1,435 consultations.**

### Specialized outpatient units:

- orthopaedic oncology outpatient unit
- scoliosis outpatient unit
- outpatient unit of sports traumatology for children and adults
- specialized outpatient unit for arthroscopic procedures
- outpatient unit for neurogenic defects
- outpatient unit for congenital skeleton defects
- outpatient unit for primary and revision endoprosthesis
- outpatient unit for comprehensive surgeries of the shoulder joint

### New methods and procedures:

- X-ray assisted minimally invasive surgery of leg deformities
- Treatment of cartilage defects with an artificial implant based on collagen
- First experience with magnesium implants - biodegradable screws suitable for traumatology and orthopaedics
- Meniscus transplantation will allograft
- Replacement surgery of the anterior cruciate ligament in children with an open growth gap using a technique without disturbing the growth plate
- Use of NuVasive nail for prolongation of long bones
- Prolongation self-destructing nail based on a magnetic motor
- Complete treatment of hip dysplasia incl. knee arthroscopy approaches
- Application of collagen to arthritic joints

### Unique equipment:

- 2 ultrasonography devices Canon Xario 100 Platinum and Xario 200 Platinum for standard screening of hips in newborns and for specialized ultrasound examination and therapy of the locomotive system.. Several software modules, a wide

spectrum of supplied probes and accessories, including surgical 18MHz probe, allow for comprehensive examination of patients including targeted therapy, for example using bioptic guiding.

- SIMBIONIX ARTHRO surgical simulator for knee arthroscopy operations

### Major event in 2019:

- Author project 2016-2019 FV1065 in cooperation with Grade Medical "Highly functional nanofibre bandage material with barrier function and active drug release".
- Organization of the international event "9th Spring Orthopaedic Symposium" in March 2019 in the National Technical Museum in Prague, including expert guarantee on the topic „Diseases and injuries of the shoulder in children and adults.“
- Organization of the 22nd traditional orthopaedic symposium in Teplice in December 2019, including expert guarantee on the topic: „Pediatric and adolescent skeletal traumatology and overuse syndromes in orthopedics“.
- In August 2019, doc. MUDr. Eduard Šťastný, Ph.D. was appointed docent for the field of orthopedics by the Rector of Charles University.





## Department of Neurosurgery for Children and Adults, 2nd Faculty of Medicine, Charles University and MUH

Head - doc. MUDr. Michal Tichý, CSc.

Senior Doctor - MUDr. Jiří Preis

Ward Nurse on behalf Bc.Dis. Lucie Plocová

### Basic description:

The department focuses on specialized acute and planned neurosurgery care for children and adults and provides medical consultation in its field. It also provides pregraduate and postgraduate tuition and carried out research activities. **Approximately 1,500 patients are hospitalized, approximately 1,300 surgeries are performed and almost 6,000 patients are treated in the outpatient section every year.**

### Specialized outpatient units:

- outpatient unit of neurosurgery for children
- outpatient unit of neurosurgery for adults with a focus on cranial spondylosurgery 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 complex deformities are resolved with the presence of a maxillofacial surgeon.
- Focus on minimally invasive approaches to the treatment of degenerative spinal defects.
- 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.
- Radiofrequency neuromodulation in painful conditions (vertebrogenic, peripheral nerves).
- We treat extensive lesions in the area of the cranial base and face under 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 the patients with craniocerebral injuries in neuro-traumatology.
- The surgical program and endovascular techniques are developed in cooperation with the Department of Radiology as part of the neurovascular program.
- Fine tuning and standard use of frame and frameless stereotactic procedures - application during insertion of deep brain electrodes and during brain biopsies.
- The program for treating refractory epilepsy under the Centre for Epilepsies of MUH. 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

### Unique equipment:

- electromagnetic neuro-guidance Medtronic without the need to immobilize the head at new operating theatres for children (including frameless stereotactic procedures)
- brain neuro-guidance Brain Lab integrated with the Pentero microscope by Zeiss.
- perioperative ultrasound device
- M-Turbo Ultrasound System by Sonosite

### Major event in 2019:

- Active participation of the department's employees at various expert events in the CR and abroad.

## Department of Stomatology for Children and Adults, 2nd Faculty of Medicine, Charles University and MUH

Head prof. MUDr. Taťjana Dostálová, DrSc., MBA

Senior Doctor MUDr. Milan Hubáček

Ward Nurse Mgr. Václava Kolomazníková

### Basic description:

Stomatology for children and adolescents focusing on healthy and handicapped patients – multidisciplinary cooperation between a general dentist, paedostomatologist, periodontologist, prosthodontist, orthodontist, dentoalveolar and craniomaxillofacial surgeon in the treatment of congenital and acquired developmental defects, injuries and tumors, children's centre for distraction osteogenesis of the facial skeleton as congenital developmental defect and joint centre for endoprosthesis of the jaw joint. Diagnostics and treatment of congenital and acquired defects of splanchno-neurocranium, development of microscopic craniomaxillofacial surgery in cooperation with other departments and institutes (such as neurosurgery, ENT, ophthalmology, oncology, plastic surgery, biology and genetics).

**In 2019, 21,752 outpatient treatments and 620 one-day treatments were performed - 287 tooth rehabilitation under total anesthesia and 333 surgical procedures. 756 patients were hospitalized at the inpatient department and 774 surgeries were performed, of which 251 were tooth rehabilitation for handicapped patients under total anesthesia.**

### 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

### New methods and procedures:

- Care for patients with a cleft - comprehensive stomatological care;
- Orthognathic surgical procedures including specialized advisory centre and 3D modelling, planning and reconstruction;

- Dental implantology and controlled bone regeneration focusing on young handicapped patients;
- Care for teeth of handicapped children under total anesthesia 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
- In 2019, in the field of expertise and research, a new database of patients in preparation for therapy with the support of 3D reconstruction was supplemented. For planning or checking therapy, comparison of the 2D and 3D Dolphin, Anatomage and Fidentis SW output was prepared with the aim to assess remodeling of the facial skeleton in traumatology, oncology, orthognathic surgery, etc.
- Creation of a database for diagnostics and therapy of 100 patients with rare diseases in the orofacial area interconnected to EU ERN CRANIO with the approval of the Ethics Committee and under informed consents of patients and their legal representatives.
- Therapy of young oncology patients, where we distracted the bone, applied bone grafts and bioceramic materials prior to the actual application of implants and reconstruction using CAD CAM techniques. We received an award for our work in this area at the congress: Dentsply Sirona Implants 2018.
- We are preparing special obturation plates in cooperation with the ENT department and monitor their effect on functional reconstruction in patients with defects in orofacial area.
- 3D printing for stomatology used for reconstruction of implants, crowns or orthodontic apparatuses and various types of splinters based on collected data, STL files replacing traditional imprints using intraoral scanner.

#### Unique equipment:

- DIAGNOCAM 2170 /digital camera system for diagnosis of dental lesions/
- CATCAM /technology for producing stomatologic replacements/
- SurgicPro – stress and analytical implantation system
- CATCAM /technology for producing stomatologic replacements/
- PC tooth arch
- 3-D imaging system CBCT I-CAT
- intraoral scanner 3SHAPE Trios
- stereolithographic 3D printer

#### Major event in 2019:

- Participation in grant studies:
  - “Use of dental imaging technologies in forensic anthropology”
  - “Reconstruction of hard and soft tissues in the orofacial area” (Institutional support of the MUH)
  - “Plastic and maxillofacial surgery in the context of forensic portrait identification of persons VIIVS/281”
- Within European cooperation, participation in the following studies:
  - “Rare congenital and developmental diseases of the orofacial system (Norwegian Funds)”
  - “Congenital and developmental defects of the orofacial system (Centre for the CR within the EU)”

- Multiple active participation in international and national congresses, incl. professional publications
- Award IACI (The International Association of Craniofacial Identification) for best scientific work 2019.
- Scientific-research cooperation with:
  - with the Institute of Criminalistics on the theoretical basis of 3D reconstruction of the facial skeleton and 3D printing;;
  - with the Department of Mathematics of the Faculty of Applied Sciences for the use of CBCT and facial scan of patients before and after surgery to make mathematical models in the reconstruction of the facial skeleton;
  - with the Department of Computer and Control Engineering, Faculty of Chemical Engineering, on the analysis of the composition of 2D and 3D images, X-rays and working models in the creation of virtual treatment planning, including the printing of individual components;
  - with the Faculty of Nuclear Sciences and Physics of the Czech Technical University for the evaluation of micropreparation technology based on laser and ultrasound.

## Adult Inpatient Part

### Department of Obstetrics and Gynaecology, 2nd Faculty of Medicine, Charles University and MUH

Head - MUDr. Roman Chmel, Ph.D., MHA

Senior Doctor - MUDr. Marek Pluta, Ph.D.

Ward 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 gynecological oncology and gynecological 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 extremely premature newborns.

**In 2019, 7,268 patients were hospitalized at the department and a total of 4,099 surgeries and 80,981 outpatients treatments were carried out. A total of 3,217 births took place at the department, of which 100 were twins.**

#### Specialized outpatient units:

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

#### New methods and procedures:

- Since 2015, the department has participated in a study to verify an as yet untreated method of infertility treatment in women with absolute uterine infertility factor,

ie a missing uterus in women with Mayer-Rokitansky-Küster-Hauser syndrome, using experimental uterine transplantation. In 2019, the first two recipients of a transplanted uterus gave birth to a healthy newborn by caesarean section, in one case it was a pregnancy in the uterus from a deceased and in one case from a living uterine donor.

- The first 20 robotic operations of gynaecological malignancies were performed.

#### Unique equipment:

- participation of clinic staff in the use of a surgical micromanipulator - a robot

#### Major event in 2019:

- Two physicians of the clinic successfully completed the habilitation procedure and were subsequently appointed docents, in the first case for the field of medical sexology and in the second case for the field of gynaecology and obstetrics.
- Physicians were invited to give lectures at national and international professional congresses.
- Doc. Fait – President of the 14th Conference on Menopause with international participation, October 2019, Prague;
- Doc. Pastor – President of the 7th National Conference of Gynaecological Sexology CGPS, October 2019, Průhonice u Prahy;
- The department's doctors were the authors and co-authors of a total of 11 publications in journals with IF.
- The most important published professional works with the first authorship:
  - Chmel R, Novackova M, Janousek L, et al. Reevaluation and lessons learned from a first 9 cases of a Czech uterus transplantation trial: four deceased donor and 5 living donor uterus transplantations. *Am J Transplant* 2019;19(3):855-864. IF 7,163
  - Chmel R, Novackova M, Fait T, et al. Clitoral phimosis: effects on female sexual function and surgical treatment outcomes. *J Sex Med* 2019;16(2):257-266. IF 3.339
  - Chmel R, Pastor Z, Novackova M, et al. Clinical pregnancy after deceased donor uterus transplantation: Lessons learned and future perspectives. *J Obstet Gynaecol Res* 2019;45(8):1458-1465. IF 1,122
  - Fait T, Sailer M, Regidor PA. Prospective observational study to evaluate the efficacy and safety of the pollen extract Séréllys® in the management of women with menopausal symptoms. *Gynecol Endocrinol* 2019;35(4):360-363. IF 1,5

### The Department of Gynaecology and Obstetrics, 2nd Faculty of Medicine of Charles University and MUH

*includes the Department of Neonatology with Intensive and Resuscitation Care Unit*

*Senior Doctor - MUDr. Miloš Černý*

*Ward Nurse - Lenka Vaníčková Kubů*

#### Basic description:

The neonatal unit with JIRP is an integral part of the Perinatology Center III. type with supra-regional scope. The department provides standard, intermediate and intensive resuscitation care in full, incl. controlled whole body hypothermia, or application of NO. In cooperation with other pediatric disciplines, it provides comprehensive care for newborns with congenital malformations and metabolic disorders. The department also provides specialized intensive and resus-

citation care for premature babies, in particular to extremely immature babies and all critically ill newborns regardless of their gestational age. Care for physiological newborns mainly in the rooming-in mode is a matter of course.

In 2019, a total of 3,237 newborns were born and treated at the department, of which 59 with a birth weight of less than 1500 g. Intensive, resuscitation or intermediate care was provided to a total of 428 newborns, of which 84 (20%) were born outside Motol University Hospital.

Institutional neonatal mortality without congenital malformations was 0.92 o/oo in 2019.

#### Specialized outpatient units:

The workplace includes a specialized unit for perinatally endangered children. In 2019, almost 400 examinations were performed here in cooperation with a child neurologist, physiotherapist, audiologist, ophthalmologist and clinical psychologist.

#### New methods and procedures:

- Introduction of an automated oxygen therapy control system with continuous monitoring of FiO<sub>2</sub> on the principle of closed loop (PRICO), used in very immature newborns with invasive and non-invasive ventilation support. Allows you to better maintain a defined FiO<sub>2</sub> range.
- Introduction of a continuous blood glucose measurement regime as a screening for hypoglycemia in predisposed newborns.
- In cooperation with the Ear, Nose and Throat Department of 2nd Faculty of Medicine, Charles University and MUH, the program for early correction of a cleft lip in newborns is ongoing.

#### Unique equipment:

- NIRS: monitoring tissue oxygenation using the spectrometry method
- breathing apparatuses with automatic regulation of FiO<sub>2</sub> depending on Hbsat (PRICO)

#### Major event in 2019:

- MUDr. J. Melichar: ultrasonography courses in neonatology (course management). Organized by the Slovak Neonatological Society - KUS (Kosice Ultrasound School), the last course in Košice 26 - 27 April 2019.
- Interdisciplinary issues of neonatology of the 21st Century: „Surrogate motherhood“, FN Motol, 25 April 2019 (organizer: Neonatal Department with JIRP (Intensive and resuscitation care unit) UH Motol).
- Lectures, publications with IF:
  - Zaban P. Optimal oxygen saturation in extremely premature infants. *Physiol Res.* 2019; 68(2): 171-178. Epub 2019 Jan 10. Review.
  - Tabery K. Can we use continuous glucose monitoring of hypoglycemia? 18th Annual World Congress on Neonatology. Montreal, June 2019.



## Department of Internal Medicine, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Milan Kvapil, CSc., MBA

Senior Doctor - MUDr. Vladimír Srnský

Ward Nurse - Mgr. Kateřina Lisová

### Basic description:

The Department of Internal Medicine provides comprehensive diagnostics 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 CR. The department provides pre-graduate tuition for Czech and foreign students in grades 3 - 6 at the 2nd Faculty of Medicine, Charles University, and postgraduate tuition in its 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 training site for courses in abdominal sonography organized by IPVZ, including granting licenses, guaranteed by the Czech Medical Chamber. **In 2019, 56,501 patients were treated in the outpatient section and 4,698 patients were hospitalized.**

### Specialized outpatient units:

- general internal medicine (including medical consultation)
- gastroenterology (including endoscopy and sonography)
- diabetology
- nephrology (including peritoneal dialysis)
- cardiology (including ECHO)
- angiology (including DUS examination of arteries and veins)
- podology
- nutritional (including obesitology)
- lipidology
- endocrinology
- outpatient unit for vascular access

### New methods and procedures:

- In cooperation with the Czech Technical University, as part of a joint grant project, the measurement of body composition in patients with diabetes (especially with type 1 diabetes) using the bioimpedance method continues.
- In cooperation with the Institute of Microbiology, the department participates in the study of AUS and T2 systems, designed for rapid detection of pathogens in the blood.
- The already established unique specialized treatment of complex (and hemodialysed) and from the point of view of vascular diseases also high-risk patients with severe congenital dyslipidemias - a combination of LDL/Lp(a) apheresis and treatment with PCSK9 inhibitors continues.
- A treatment method of fecal bacteriotherapy (FBT) in the indication of recurrent Clostridial colitis has been introduced into routine use, with an effectiveness of about 80-90%.
- The introduction of elective central venous access in hospitalized patients in the adult part of Motol University Hospital according to internationally recommended

standards (PICC, CKD from axillary vein, Tunneled CKD introduced supraclavicularly with tunneling under the key, Tunneled CKD into the femoral vein with tunneling to the middle part of the thigh). This is the largest number of these inputs introduced for hospitalized patients in the Czech Republic.

- Certified PICC insertion course (the only one in the Czech Republic), after which the nurse is authorized to introduce this type of central catheter. The course lasts a total of 6 months and enables the creation of functional PICC teams in other hospitals.
- Bed side ECHO examination in intensive care patients is newly provided at the JIMP.
- Sonographic examination of A-V shunts began.

### Unique equipment:

- AIRVO 2 nasal High flow (Fischer-Paykel) – version of a non-invasive ventilation support for extubation of patients with respiratory insufficiency. It improves the quality of care for them, shows a significantly lower risk of reintubation and shortening of the unstable state.
- Ultrasonographic device Sono Side Monom, used for ultrasound navigation when introducing vascular access at the patient's bedside.
- The equipment of the Intensive Metabolic Care Unit is gradually being changed - 2x Hamilton C2 lung ventilator, 1x GE Healthcare B 450 bedside monitor, 1x GE Healthcare B 850 bedside monitor, PR30-300N blood gas heater, 1x Fresenius 5008 intermittent hemodialysis.
- A new echocardiographic/sonographic device from Vivid was purchased at IK, focused on a better examination of the heart and peripheral vascular system.

### Major event in 2019:

- Prof. Kvapil was the chairman of the organizing committee of the three-day congress for outpatient diabetologists News in Diabetology – Poděbrady 2019.
- Prof. Kvapil took over the professional auspices of the symposium Myths, Mistakes and Truths in Diabetology - Staré Splavy 2019.
- Prof. Kvapil was an invited speaker in the Interna informans seminar series.
- Prof. Kvapil was a professional guarantor of the cycle of symposia From Kidney to Heart.
- Prof. Kvapil is a professional guarantor and chief editor of the pages [www.dm2t.cz](http://www.dm2t.cz), [www.cukrovka.cz](http://www.cukrovka.cz), head of the editorial board of the EUNI Dia Special website and chief editor of the journal Challenges and Perspectives in Diabetology.
- Doc. Piřha was appointed professor as of 23 May 2019.
- Prof. Piřha Piřha was co-opted to the Committee of the Czech Angiological Society.
- Prof. Piřha is the author of invited lectures at international courses and congresses: the 5th Annual Congress of the European Society for Vascular Medicine, Ljubljana, Slovenia, and the 2nd Endovascular Course for Young Vascular Specialists, Beijing, China.
- Prof. Matoušovic is a co-author of a work created by joint research of the Department of Internal Medicine and Pediatrics, University Hospital Motol, Institute of Immunology UP Olomouc and Institute of Microbiology CAS, accepted for publication in Frontiers in Immunology, signifying a major contribution to elucidating the etiopathogenesis of IgA nephropathy: The role of Epstein-Barr virus in the pathogenesis and racial distribution of IgA nephropathy.

- According to the plan, the project AZV MZ ČR was completed, registration number: NV15-25710A, entitled: Identification of individual dynamics of glycemic excursions in patients with diabetes to improve decision-making procedures influencing insulin dosing, the main researcher is prof. Štechová.
- The gastroenterological group IK successfully organized a two-day congress of the Prague Autumn Gastroenterological Days with international participation in the premises of the 2nd Medical Faculty of Charles University. More than 50 lectures were attended by 250 participants.
- The result of a joint project with a Norwegian partner (Norwegian Center for Telemedicine) was an article analyzing the use of the Internet by patients with type 1 diabetes, published in the Journal of Medical Internet research, where in 2019 it ranked 1st in the Medical Informatics category in the Web of Science. Hansen AH, Bradway M, Broz J, Claudi T, Henriksen Ø, Wangberg SC, Årsand E. Inequalities in the Use of Electronic Health Between Socio-Economic Groups Among Patients with Type 1 and Type 2 Diabetes: Cross-Sectional Study. J Med Internet Res 2019;21(5):e13615 DOI: 10.2196/13615 , IF 4,945
- Grant project GAUK 362217 was successfully completed with a publication dealing with a detailed evaluation of the suitability of various technical means (insulin pumps, measuring systems, etc.) for different situations and different types of patients with type 1 diabetes mellitus. The article was published in the journal JMIR mHealth and uHealth, which in 2019 ranked 2nd in the Medical Informatics category in the Web of Science. Holubová, A, Vlasáková, M, Mužík, J, Brož, J. Customizing the Types of Technologies Used by Patients With Type 1 Diabetes Mellitus for Diabetes Treatment: Case Series on Patient Experience. JMIR Mhealth Uhealth 2019;7(7):e11527, IF 4,301
- MUDr. Jan Brož, as a lecturer, participated in an international course organized by the International Diabetes Federation IDF School of Diabetes Postgraduate Course in Opatija, Croatia. The topic of the lecture was hypoglycemia.
- MUDr. Ondřej Hloch won 2nd place in the Czech Internal Medicine Society literary competition for 2019 for the book Useful tables for practice not only in internal medicine. The award and diploma were presented to him at the opening ceremony of 26th Czech Internal Medicine Society Congress on 17 November 2019 in Prague.
- MUDr. Martin Souček participates in the study of the T2 system in cooperation with the Institute of Microbiology, Emergency department and a workplace in Vienna, concerning the device for rapid detection of pathogens in the blood.
- MUDr. Jan Masopust lectured on the Neurointensive Medicine course at Motol University Hospital.
- MUDr. Dana Mokrá as part of her internship abroad, she established cooperation with the Center for Vascular Entry at the G. Roussy Institute in Paris, France.
- Publications:
  - Stechova K, Hlubik J, Pithova P, Cíkl P, Lhotska L.: Comprehensive Analysis of the Real Lifestyles of T1D Patients for the Purpose of Designing a Personalized Counselor for Prandial Insulin Dosing. Nutrients. 2019 May 23;11(5). pii: E1148. doi: 10.3390/nu11051148. IF 4,171
  - Prof. Piřha is a co-author of articles published in a prestigious magazine within the Genius consortium:
  - Prof. Piřha is a co-author of the book Diseases of the Limb Vascular, awarded by the Council of Charles University

- Patel RS, Schmidt AF, Tragante V, Pitha J.: Association of Chromosome 9p21 With Subsequent Coronary Heart Disease Events. Circ Genom Precis Med. 2019 Apr;12(4):e002471. doi: 10.1161/CIRCGEN.119.002471.
- Patel RS, Tragante V, Schmidt AF, Pitha J.: Subsequent Event Risk in Individuals With Established Coronary Heart Disease. Circ Genom Precis Med. 2019 Apr;12(4):e002470. doi: 10.1161/CIRCGEN.119.002470.
- KEIL, R., DRÁBEK, J., LOCHMANNOVA, J., STOVICEK, J., KOPTOVA, P., WASSERBAUER M., FRYBOVA, B., SNAJDAUF, J., MATOUS, J., KOTALOVA, R., RYGL, M., HLAVA S. ERCP in infants, children, and adolescents – different roles of the methods in different age groups. PLOS ONE 2019; [online] 14(1):e0210805, doi: 10.1371/journal.pone.0210805. IF 3,54
- MUDr. Jan Brož is a co-author of a medical textbook devoted to the correct diagnosis of adult patients with a specific type of MODY diabetes, of which up to 90% are mistaken for a diagnosis of type 1 or type 2 diabetes. Determining the correct diagnosis is of great importance for these patients with regard to the possibilities of therapy and genetic counseling. Urbanová J, Brunerová L, Brož J. MODY type diabetes - diagnosis and treatment in adult patients, 2019, Prague, MAXDORF, ISBN 978-80-7345-627-6
- Colleagues Beránek, Hoskovcová and Malá are the authors of the chapter Anorectal Manometry in the publication entitled Children's Proctology for Practice, published by Mladá Fronta in 2019.





## The department includes the 6th Unit - Infection

Chief Physician - MUDr. Martin Tulach

### Basic description:

The Infection Department provides outpatient and inpatient care to patients suffering from infectious diseases or patients with suspicion of these diseases. The department diagnoses and treats febrile conditions, infections of the respiratory tract, bloodstream, soft tissues, infections of the nerves, acute infections of the gastrointestinal tract, including acute and chronic infectious inflammations of the liver, imported infections, etc. The department provides care for adults and children from three years of age. The department has 23 beds, including one isolation box, and 3 beds for intermediary care.

**In 2019, 2,377 patients were treated in the outpatient section and 509 patients were hospitalized. Procedures - lumbar punctures: 26.**

### Specialized outpatient units:

- general outpatient unit for infectious diseases
- centre for treatment of viral hepatitis
- centre for travel medicine (including the inoculation outpatient unit)
- infection centre for drug addicts

### New methods and procedures:

- A non-interferon treatment of chronic viral hepatitis C continues at the workplace. The original 2 preparations indicated only for HCV 1 genotype (sofosbuvir + ledipasvir, ombitasvir + ritonavir + paritaprevir + dasabuvir + daclatasvir) were displaced from therapy by 3 new pangenotype combined preparations (elbasvir + grazoprevir, sofosbuvir + velpatasvir, glecaprevir + pibrentasvir). In 2019, 37 patients were treated and cured, the success rate so far appears to be 100%.

### Unique equipment:

- a new generation ultrasound device Toshiba with a probe for examining veins and abdominal organs.

### Major event in 2019:

- The former senior doctor MUDr. Jiřina Hobstová, CSc., deceased in June 2019. Her departure means a significant weakening of the infectious disease team.

## Department of Surgery, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Jiří Hoch, CSc.

Senior Doctor - MUDr. Zbyněk Jech

Ward Nurse - Bc. Jitka Kabrnová

### Basic description:

Department of Surgery, 2nd Faculty of Medicine, Charles University and MUH provides comprehensive surgical outpatient, advisory and inpatient care in the entire spectrum of the specialization, i.e. general and abdominal surgery and traumatology of the abdomen and chest. Plastic surgery treated a range of patients in outpatient and inpatient care and provided plastic surgery procedures under interdisciplinary care also within facilities of other surgical fields. The interdis-

ciplinary care concerned solution of serious conditions in cooperation with a number of workplaces: the Departments of Internal Medicine and the Endoscopic Centre, Urology and Gynaecology, the 1st Department of Orthopaedics, the Spinal Unit of the Department of Rehabilitation and the Department of Paediatric Surgery, the Department of Dermatology and the Clinic of Imaging Methods. The number of reconstructive and preventative breast surgeries increased. The share of laparoscopic surgeries, procedures performed using the TEO method (transrectal endoscopic surgery) and the ICG method during anastomosis check increased. Since the beginning in 2018, robotic surgery for rectal tumors has been growing successfully, and in 2019 we expanded robotic surgery with tumors in the right half of the colon. The Sentimag device was used to detect sentinel node with ferromagnetic marking. The department was involved in pregraduate and postgraduate tuition and was actively involved in the implementation of research tasks.

**In 2019, 21,563 patients were treated within the outpatient section and 4,184 patients were treated in OUPD, 3,151 patients were hospitalized and surgeries were performed on 3,128 patients.**

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

### New methods and procedures:

- Robotic resection of the rectum for tumor;
- Robotic right hemicolectomy for tumor;
- Certified EAES course: basic and advanced techniques of laparoscopic suture for physicians;
- Introduction of the technique of microscopically sutured lymphovenous anastomosis;
- ERAS and monitoring of temperature control in patients during surgery.

### Unique equipment:

- participation in the use of the surgical robot surgery of the rectum and right colon
- LigaSure - use in conventional and laparoscopic surgery
- scintillation probe for identification of the sentinel node during surgeries of the breasts and malignant melanomas
- ultrasonic dissector
- surgical rectoscope with microsurgical instruments
- DG HAL set
- system for functional examination of the anorectum
- Sentimag system - ferromagnetic detection of the sentinel node

### Major event in 2019:

- The department organized the Working Day of the Coloproctology Section of the



- Czech Surgical Society of the Czech Medical Association of J. E. Purkyně with foreign participation; organization of certified courses and specialized internships.
- Project of the MUH “Modern Technologies” - nanofibre technology continued
  - Three physicians of the Department of Surgery are chairs of specialized sections and additional two physicians are members of committees of international companies, one of the physicians is a member of the Czech Medical Academy.
  - Monograph: Hoch. J., Antoř F.: Coloproctology - Selected Chapters III,
  - Mladá fronta a. s., 2019, ISBN 978-80-204-4625-1
  - Monograph: Lukáš. K., Hoch. J.: Diseases of the Intestine, Grada Publishing a.s, 2018, ISBN 978-80-204-5276-4 was already awarded the Maydl Prize of the Czech Surgical Society ŠLS JEP in the year of its publication and in 2019 it was awarded the prize of the Czech Internal Medicine Society of the Czech Medical Association of J. E. Purkyně for 1st place
  - Publications in Czech and foreign peer-reviewed and impact journals with IF

### 3rd Department of Surgery, 1st Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Robert Lischke, Ph.D.

Senior Doctor - MUDr. Jiří Tvrdoň

Ward Nurse - Mgr. Ida Šmolíková

#### Basic description:

The department is the largest facility focusing on chest surgery in the CR - a high excellence centre provides comprehensive care in chest surgery (surgery of the lungs, trachea and airways, chest wall and deformities of the chest, esophagus (the largest centre in the CR), mediastinum, myasthenia gravis, diaphragm). **The department is the only centre in the CR performing lung transplantations. Since 2018, it has been providing lung transplantations for the Slovak Republic. It is the only centre with accreditation for grade II chest surgery.** The centre provides care in abdominal surgery in the entire spectrum of activities (surgery of gastroesophageal reflux, diaphragmatic hernia, esophageal 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 techniques, traumatology of the chest and abdomen and endocrine surgery). **The clinic centralizes patients with soft tissue sarcomas.**

**In 2019, 3,151 surgeries were carried out, 3,468 patients were hospitalized and 23,925 patients were treated in the outpatient section. 42 lung transplantations were carried out. (large-volume centre, one of the 8 facilities of this kind in Europe)**

#### Specialized centres:

- Centre for lung transplantation - national centre for the CR
- Centre for the treatment of sarcomas of soft tissues

#### Specialized outpatient units:

- outpatient unit for lung transplantation
- outpatient unit for one-day surgeries
- outpatient unit for diseases of the bowel and rectum
- outpatient unit for endocrine surgery
- outpatient unit for diseases of lower limb veins
- outpatient unit for diseases of liver, bile duct and pancreas

- outpatient unit for surgery of soft tissue sarcomas
- outpatient unit for diseases of esophagus and stomach
- outpatient unit for diseases of lungs, mediastinum and chest wall
- outpatient unit for diseases of breast
- internal medicine outpatient unit

#### New methods and procedures:

- Preparation and introduction of the Ex vivo pulmonary perfusion and reconditioning program in the clinical practice, method leading to increased number of suitable grafts for lung transplantation;
- Preparation of the program for lung transplantation from DCD donors (donors with circulation failure);
- Preparation and introduction of the Transplantation of the Lung and Heart Block program in the clinical practice in cooperation with IKEM;
- Introduction of endoscopic application of absorbable stents for diseases of esophagus, stomach and airways.

#### Unique equipment:

- ECMO and ex vivo lung perfusion
- participation in a robotic device - robotic surgery of the rectum, preparation of robotic lung surgery
- dissection and electrocoagulation techniques including harmonic scalpel and LigaSure in conventional and laparoscopic surgery
- 3D instruments – for laparoscopic and video-assisted thoracoscopic surgery

#### Major event in 2019:

- In 2019, we participated in an international study led by the Canadian Research Center (University of Alberta), which developed a new diagnostic system, the Molecular Microscope, which can be used to interpret transbronchial biopsies for pulmonary Tx based on a molecular phenotype. Preliminary results will be presented next year at the congress of the International Society for Heart and Lung Transplantation.
- In cooperation with the Institute of Pathology and Molecular Medicine of Motol University Hospital, the presence of the C4d component of complement, the detection of which is associated with humoral rejection, was immunohistochemically examined in 117 cryobiopsies.
- In cooperation with the Blood Bank Department of Motol University Hospital, extracorporeal photochemotherapy - a therapeutic modality of chronic rejection - was introduced into clinical practice.
- In cooperation with the Institute of Immunology, Olomouc University Hospital and the Institute of Pathology and Molecular Medicine, Motol University Hospital, an analysis of total cellularity and CD68 + macrophages was performed on 143 biopsy specimens. Initial data suggest that high lung cellularity predisposes patients to acute rejections.
- In collaboration with the Institute of Medical Microbiology UH Motol we launched a pilot study monitoring the DNA of Torque Teno virus in the peripheral blood of patients after pulmonary Tx, the level of which varies depending on the intensity

- of IS therapy and is considered a promising biomarker to individualize IS treatment.
- Jedlička Award of the Czech Surgical Society ČLS JEP - Harustiak T(1), Zemanova M(2), Fencí P(3), Hornofova L(4), Pazdro A(1), Snajdauf M(1), Salkova E(4), Lischke R(1), Stolz A(1) [18 F] Fluorodeoxyglucose PET/CT and prediction of histopathological response to neoadjuvant chemotherapy for adenocarcinoma of the oesophagus and oesophagogastric junction. Br J Surg. 2018 Mar;105(4):419-428. doi: 10.1002/bjs.10712. Epub 2018 Feb 8.
  - Publications:
    - WERNER, Y.B. - HAKANSON, B. - MARTÍNEK, Josef - REPICI, A. - VON RAHDEN RAHDEN, B.H.A. - BREDENOORD, A.J. - BISSCHOPS, R. - MESSMANN, H. - VOLLBERG, M.C. - NODER, T. - KERSTEN, J.F. - MANN, O. - IZBICKI, J. - PAZDRO, Alexandr - FUMAGALLI, U. - ROSATI, R. - GERMER, C.-T. - SCHIJVEN, M.P. - EMMERMANN, A. - VON RENTELN, D. - FOCKENS, P. - BOECKSTAENS, G. - RÖSCH, T. Endoscopic or surgical myotomy in patients with idiopathic Achalasia. The New England Journal of Medicine. 2019, 381(23), 2219-2229. ISSN 0028-4793. DOI: 10.1056/NEJMoa1905380 v New England Journal of Medicine, IF = 70.670

## Department of Cardiology, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Josef Veselka, CSc., FESC, FSCAI, FICA

Senior Doctor - MUDr. Jiří Vejvoda

Ward Nurse - Mgr. Jana Kovalčíková

### Basic description:

The facility provides comprehensive cardiologic care to hospitalized patients and outpatients. It is linked directly to the unit of heart surgery and angiosurgery.

**In 2019, more than 20,000 patients were treated in the outpatient section and almost 5,000 patients were hospitalized. 2,666 selective coronarographies, 954 percutaneous coronary interventions, 453 catheterization examinations of peripheral arteries, 90 catheterization implantations of aortic valves, nearly 8,000 echocardiographic examinations, 260 radiofrequency ablations of arrhythmia, 135 catheterization isolation of pulmonary veins, 240 implantations of permanent cardiac stimulators, 117 implantations of ICD and 2,649 duplex ultrasound examinations of peripheral veins were performed.**

### Specialized outpatient units:

- outpatient unit for acquired and congenital heart defects
- outpatient unit for heart failure
- outpatient unit for hypertrophic cardiomyopathy
- outpatient unit for electrophysiology and cardiac stimulation
- angiology outpatient unit
- lipidology outpatient unit

### New methods and procedures:

- Catheter implantation of a biological valve into the aortic position without implantation of a temporary pacemaker;
- Continuation of the mechanical circulatory support program (ECMO - extracorporeal membrane oxygenation);
- Optic coherent tomography;

- Intravascular spectroscopy;
- Alcohol septal ablation - the largest set in the CR;
- Carotid stenting - the largest set in the CR;
- Use of the proximal protection system in stent implantation into the carotid system;
- Catheter occlusion of atrial septal and foramen ovale patens defects;
- Catheterization closure of the left ventricle;
- Catheterization occlusion of paravalvular leaks;
- Comprehensive solution of rhythm dysfunctions using 3D electroanatomic mapping;
- His bundle pacing during implantation of a permanent cardiac stimulator;
- Radiofrequency ablation using catheters with pressure measurement;
- Expanding the atrial fibrillation catheterization treatment program;
- Development of telemedicine, remote monitoring of patients with pacemakers and defibrillators;
- Extension of the use of the method for assessing fraction flow reserve in patients with stable AP and borderline angiographic findings;
- Unique method for genetic examination of patients with cardiomyopathy using new generation sequencing allowing simultaneous examination of a large number of genes.

### Unique equipment:

- optic coherent tomography
- CARTO – 3D electroanatomic mapping
- echocardiographic device with the option of 3D esophageal echocardiography
- echocardiographic device with the option of intracranial echocardiography
- intravascular ultrasound with infrared spectroscopy
- device for measuring peripheral blood pressure Huntleigh Dopplex ABILITY
- AIRVO 2 Nasal High flow – non-invasive ventilation support
- multiFiltratePRO Fresenius system - continuous replacement of kidney function
- Olympus bronchoscopic device for intensive care

### Major events in 2019:

- We published 21 articles, of which 12 articles in journals with IF (12 times 1st author from our department).
- Prof. Veselka published important works in the magazines Eur heart J (IF 23) and Heart (IF 5).
- Prof. Veselka became president of the International College of Angiology at the Ohio State House in Columbus, USA.
- At 61st Annual World Congress of International College of Angiology in Columbus prof. Veselka, Doc. Hájek and MUDr. Horváth presented their lectures.
- At the prestigious TCTAP Cardiology Congress in Seoul prof. Veselka gave lecture „Short - and long - term Outcome of Alcohol Septal Ablation for Hypertrophic Obstructive Cardiomyopathy in Patients with Mild Left Ventricular Hypertrophy: A Propensity Score Matching Analysis“.
- At the annual congress of the European Society of Cardiology in Paris prof. Veselka, Doc. Riedlbauchová, MUDr. Štěchovský, MUDr. Roland and MUDr. Kala successfully presented their messages.

- At the 27th Annual Congress of the Czech Society of Cardiology in Brno, prof. Veselka, Doc. Riedlbauchová, MUDr. Honěk, MUDr. Štěchovský, MUDr. Bonaventura, MUDr. Hnátošová, MUDr. Horváth and MUDr. Kala gave their lectures..
- Prof. Veselka won 3rd place in the competition The Best of Czech Cardiology, MUDr. Štěchovský and MUDr. Bonaventura then 4th, resp. 6th place.
- MUDr. Honěk, MUDr. Štěchovský and MUDr. Bonaventura took 1st, 2nd and 4th place in the Competition of Young Cardiologists.
- On 14 June 2018 we organized XIII year of the interdisciplinary conference Prague Intervention with the motto: „Myths in cardiology“.
- MUDr. Jindrová, MUDr. Horváth and MUDr. Tomis successfully passed the cardiac attestation.
- The clinic organized courses for family physicians on the topic „Unusual procedures in interventional cardiology“.
- The clinic hosted an Open Day for students interested in cardiology.
- Active participation of nurses Kuchtová and Bastiani at the congress of the Czech Society of Cardiology in Brno and the Congress of Cardiac Nurses in Ostrava.
- Under the guidance of the ward nurse Mgr. Kovalčíková took place nationwide XIII educational professional conference of the ČKS, PS Cardiology nurses and related professions focused on current cardiological issues (“Listopadka”) with an active participation of the department nurses.

## Department of Cardiovascular Surgery, 2nd Faculty of Medicine, Charles University and MUH

Head - doc. MUDr. Vilém Rohn, CSc.

Senior Doctor - MUDr. Milan Horn

Ward Nurse - Mgr. Barbora Kolářová, MSc.

### Basic description:

The department provides comprehensive care in cardiac surgery and vascular surgery. It provides non-stop surgical emergency service for all urgent diseases of the cardiovascular system, including traumas.

**In 2019, 6,621 patients were treated in the outpatient section and a total of 947 large surgeries was carried out, of which 431 were heart surgeries and 516 were vascular surgeries.** The department's team carried out **63 extra-corporal membrane oxygenation procedures (ECMO)** on its own patients and patients of the 3rd Department of Surgery and KARIM. The department provides comprehensive care for patients with congenital heart defects in adult age in cooperation with the Children's Heart Centre. **42 patients with congenital heart defect were operated on in 2019. 34 lung transplantations were secured with extra-corporal circulation as part of the transplantation programs.**

### Specialized outpatient units:

- cardiology
- cardiac surgery
- vascular
- for congenital heart defects in adulthood
- for patients after surgical treatment of infectious endocarditis

### New methods and procedures:

- Video-assisted surgeries in all patients with diseases of the mitral valve, tricuspid valve and ventricular septum;
- Minimally invasive surgeries of the aortal valve, use of suture free valve replacements;
- Video-assisted minimally invasive surgery of some congenital heart defects (such as the defect of the ventricular septum, resynchronization therapy);
- Comprehensive care for adult patients with congenital heart defect;
- Surgical treatment of infectious endocarditis, including treatment of drug addicts in cooperation with the Infection Department of MUH;
- Hybrid minimally invasive solution for poly-morbid patients with IHD (PCI – stent + MIDCAB – bypass from mini-thoracotomy without extra-corporal circulation);
- Mechanical cardiac and pulmonary support – ECMO;
- Aortic valve reconstruction (conservation) surgery, including reconstruction according to Ozaki;
- Use of an extraaortic stent in patients with Marfan syndrome;
- Thoraco-abdominal aortic aneurysm surgery.

### Unique equipment:

- devices for ECMO – PLS and HLS devices allowing non-stop mechanical cardiac or pulmonary support

### Major event in 2019:

- In October 2019, the Department of Cardiovascular Surgery organized an attestation in vascular surgery.
- Unique surgery - the first use of an extraaortic stent together with mitral valve replacement in a patient with Marfan syndrome in the Czech Republic.
- Active participation of clinic staff in a number of professional events at home and abroad, e.g. Annual Congress of the Czech Society of Cardiology, EuroGuch 2019.
- Jan Burkert - 1st prize for the best poster at the 26th EATB Congress - European Association of Tissue Banks, held 18-20 October in Treviso, Italy. Rohn, Antonová- Congenital heart defects in adults in clinical practice - Supplement to the Journal of Intervention and Acute Cardiology, Volume 19, 2019
- We published 6 papers in foreign journals with an impact factor.



## Department of Nuclear Medicine and Endocrinology, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Petr Vlček, CSc., MHA

Senior Doctor - MUDr. Kateřina Táborská

Ward Nurse - Jana Richterová

### 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 on therapy of <sup>131</sup>I-MIBG from the entire CR. The department is also an educational facility - it is accredited for endocrinology and diabetology and nuclear medicine. The department is a centre for the treatment of thyroidal autoimmune orbitopathy with growth hormone inhibitors, diagnostics and therapy of advanced forms of differentiated carcinoma of the thyroid using human recombinant TSH (Thyrogen) and for the treatment of neuroendocrine tumors using radiopharmaceutical <sup>131</sup>I-MIBG (as the only centre in the Czech Republic).

**In 2019, the facility provided outpatient care to 20,300 patients, 1,039 of whom were hospitalized. Almost 7,000 procedures or outpatient or therapeutic applications of radiopharmaceuticals were performed at the outpatient unit for nuclear medicine.**

### Specialized outpatient units:

- endocrinology specializing in differentiated carcinoma of the thyroid, the unit is following up on more than 17,300 patients (one of the largest sets worldwide)
- advisory centre for micro-carcinomas of the thyroid (MDTC)
- advisory centre for medullar thyroidal 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;
- The department ensures in cooperation with the Department of Oncology, 2nd Faculty of Medicine, Charles University and MUH targeted biological treatment of radio-iodine refractory thyroidal carcinomas;
- Arranging genetic examination for patients with the familial form of the medullary carcinoma of the thyroid and patients with papillary carcinoma of the thyroid;
- In cooperation with the Department of Paediatric Haematology and Oncology, treatment of patients with high-risk neuroblastomas with the combination <sup>131</sup>I-MIBG according to the MATIN protocol with full-body dosimetry is performed.
- Introduction of the application of alpha emitters in the treatment of patients with castration resistant prostate cancer.

### Major event in 2019

- Organization of the 12th meeting of Czech and Slovak physicians from inpatient departments of nuclear medicine under expert guarantee of the Head of the Department of Nuclear Medicine and Endocrinology and professional associations Czech Endocrinological Society and the Czech Nuclear Medicine Society of the Czech Medical Association of J. E. Purkyně (Jihlava 03/2019);

## Department of Otorhinolaryngology and Head and Neck Surgery, 1st Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Jan Plzák, Ph.D.

Senior Doctor - MUDr. Jan Kluh

Ward 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 super-specialized procedures, which are performed in many cases for the entire Czech Republic.

**In 2019, 2,758 surgical procedures were performed at the department and 231 of these surgeries were carried out on patients outside the department's operating theatres. 3,000 patients were hospitalized. Conventional subjective tonal audiometry was carried out in 3,524 patients. Objective audiometry was carried out on 212 patients. The examination of the balance system was carried out in 732 cases, the ENG examination and examination of vestibular myogenic potentials in 560 patients. 251 patients underwent examinations to indicate consideration of hearing rehabilitation with hearing aids, or reconfiguration of existing rehabilitation, 51 hearing aids were distributed. The speech processor mode of the cochlear implant (CI) was set or modified in 82 patients.**

### 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

### 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

### New methods and procedures:

- Use of the Montgomery salivary bypass tube after resection and reconstruction procedures following oncological procedures due to tumors in the head and neck;
- Augmentation of the vocal cords with Radiesse;

- Treatment of patients with sleep apnea using the DISE method (Drug Induced Sleep Endoscopy);
- Treatment of the Frey syndrome with botulinum toxin;
- CODACS - the first surgery with this type of cochlear implant in the Czech Republic;
- Endoscopic approaches to removal of tumors in the inner ear canal;
- Perioperative neuromonitoring;
- Fiberoptic endoscopic evaluation of swallowing with functional assessment (FEES);
- Extended microsurgery of tumors in secondary nasal cavities and cranial basis using guidance;
- Examination of myogenous vestibular potentials /VEMP/ in patients with balance disorders;
- Endoscopic surgery of esophageal diverticulum;
- Endoscopic diagnostics of tumors in airways and swallowing system using NBI;
- Endoscopic examination of the salivary glands and endoscopic treatment of the sialolithiasis;
- Rehabilitation of patients after total laryngectomy with synthetic voice recording in cooperation with the West Bohemian University in Plzeň – department of cybernetics.

#### Unique equipment:

- CO2 Laser, Dioxi Laser, Thulium laser, argon plasma coagulation
- harmonic scalpel, radiofrequency 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 tumors
- 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).

#### Major event in 2019:

- 1st place Prize of the journal Otorhinolaryngology and Phoniatics for the year 2018 in the category of case studies, Lazák J., Lisý J., Kalfeřt D., Plzák J., „Silent Sinus Syndrome“ (always announced in the following year, ie in 2019)
- Laureate of the Kutvirt Prize of the Czech Society of Otorhinolaryngology and Head and Neck Surgery of the Czech Medical Association JEP for publication in 2018 in the category up to 35 years, Lazák J., Lisý J., Kalfeřt D., Plzák J., „Silent Sinus Syndrome“ (always announced in the following year, ie in 2019)
- Honorary membership in the Society of Otorhinolaryngology and Head and Neck Surgery ČLS JEP - prof. MUDr. E. Game.
- 21 – 24 January 2019, Temporal bone course - Prague 2019 - the department provided a professional program and most of the lecturers.
- 5 – 8 November 2019, Prague - 32nd International course of endoscopic endonasal surgery - the clinic provided a professional program and most lecturers.
- 7 November 2019, Prague ENT Vincentka forum 2019 - the department provided a professional program and most lecturers.

- The department co-organized or organized a number of IPVZ and other courses.
- Active participation of pre- and postgraduate students in scientific conferences:
  - Seminar of the Czech Cooperative Group for Head and Neck Tumors, Plzeň, Koucký V., Hladíková K., Bouček J., Fialová A.: „Plasmacytoid dendritic cells in head and neck carcinomas“ (lecture by Koucký)
  - Conference of the Czech Cooperative Group for Head and Neck Tumors, Tábor, Koucký V., Hladíková K., Bouček J., Laco J, Chrobok V., Špišek R., Fialová A.: „Prognostic significance of B lymphocytes infiltrating oropharyngeal carcinomas“ (lecture Koucký)
  - 6th Czech ENT Academy, Hradec Králové, Koucký V., Kalfeřt D., Bouček J., Plzák J.: „Primary manifestations of vasculitis in the ENT: A set of cases and an overview of the issue“ (poster Koucký)
  - ENT Academy 2019, Hradec Králové, Novák Š., Kalfeřt D., Zábrodský M., Schwannom of the root of the tongue. (e-poster Novak)
  - Conference of the Czech Cooperative Group for Head and Neck Tumors 2019, Tábor, Novák Š., Bandúrová V., Dvořánková B., Smetana K., Detection of changes in gene expression profiles in tenascin positive/negative samples of squamous cell carcinoma of the head and neck from the tumor itself and transition zones. (lecture Novák)
  - 8th Czech-Slovak Congress of ENT and Head and Neck Surgery, 66th Congress of the Slovak Society for ENT and Head and Neck Surgery, 81st Congress of the Czech Society of ENT and Head and Neck Surgery ČLS JEP, Šamorín, Fík Z., Lazák J., „Vestibular schwannoma - diagnosis and treatment“ (instruction course Lazák)
  - 18th Czech-German Days, Pardubice, Lazák J., Lisý J., Krsková L., Mrhalová M, Prouzová Z., Plzák J., „Nodular fasciitis of the face“ (lecture Lazák)
  - ENT seminar Sedmihorky 2019, Lázně Sedmihorky, Lazák J., Fík Z., Betka J., Bouček J., Čada Z., Zvěřina Z., Plzák J., „Reconstruction of the cranial base after vestibular schwannoma operations“ (lecture Lazák)
  - ENT Academy 2019, Hradec Králové, Lazák J., Lisý J., Krsková L., Mrhalová M, Prouzová Z., Plzák J., „Nodular facial fasciitis“ (poster Lazák)
  - ENT Academy, Hradec Králové, 4 - 5 October 2019, Maléřová S., Kalfeřt D., Grega M., Tachezy R., Klozar J., „Significance of p16 Expression in Squamous Cell Carcinomas of the Oral Cavity“ (lecture Maléřová)
  - Ph.D. Meeting 2019, Loučeň, Svobodová V., Profant, O., Bureš Z., Jilek M., Vencovský V., Kuchárová D., Plzák, J., Syka J., „Specialized Audiometry Tests for Improved Evaluation of Hearing Impairment“ (lecture Svobodová)
  - 5th Congress of European ORL-HNS 2019, Brussels, Svobodová V., Profant O., Tintěra J., Jírů F., Fík Z., Kuchárová D., Betka J., Plzák J., Syka J., „Plastic Changes in the Auditory Pathway, Accompanying Single-Sided Deafness“ (poster Svobodová)
  - 6th Czech ENT Academy, Hradec Králové, Svobodová V., Bureš Z., Profant O., Jilek M., Vencovský V., Tóthová D., Syka J., „Changes in the auditory system in unilateral hearing loss - first results“ (poster Svobodová)
  - 83rd Meeting on Macromolecules Prague - Polymers in Medicine, Praha, Kaňa M, Braunová A, Etrych T, Bouček J, Šírová M, „Effect of physico-chemical characteristics of polymer micellar nanotherapeutics on their biological activity in treatment of chemoresistant tumors“ (poster Kaňa). Czech ENT Academy 2019, Hradec Králové, Kaňa M, Braunová A, Etrych T, Bouček J, Šírová M, „Experimental chemotherapy of solid chemoresistant tumors“ (lecture Kaňa)
  - 24th World Congress on Advances in Oncology, Kaňa M, Braunová A, Etrych T, Bouček J, Šírová M, „Micellar polymer drug delivery systems in treatment of chemoresistant tumors“ (lecture Kaňa)



## Department of Spinal Surgery, 1st Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Jan Štulík, CSc.

Senior Doctor - MUDr. Jan Kryl

Ward Nurse - Mgr. Dagmar Šeborová

### Basic description:

Specialized department with national operation for the treatment of injuries and diseases of spine, including consequences in children and adults, in particular acute spinal fractures and addressing their consequences, primary and secondary tumors, degenerative defects, inflammatory diseases, congenital and acquired deformities. **In 2019, 1,437 patients underwent surgery, 1,581 patients were hospitalized, 13,407 patients were treated in the outpatient unit of spine surgery and the Centre for Conservative Therapy treated 2,807 patients.**

### Specialized outpatient units:

- outpatient unit for treatment of spinal injuries and diseases
- scoliotic advisory centre for children
- centre for conservative therapy

### New methods and procedures:

- new technique for en bloc resection of the subaxial vertebra
- en bloc resection of the sacrum
- en bloc resection of the thoracolumbar vertebrae
- correction of scoliosis deformities
- correction of kyphosis deformities
- osteotomy of the spine PSO
- axial transsacral fixation
- cultivation of osteoblasts from stem cells
- use of unique carbon screws for the treatment of spinal tumors.

### Unique equipment:

- Carl Zeiss surgical microscope
- light source + mobile stand
- EyeMag magnifying glass set
- EyeMag Smart loupes
- LED lighting EyeMag Light II.
- Endeavor CR for IOM

### Major event in 2019:

- Organization of the 2nd May Spine Surgery Symposium Prague;
- Organization of the annual congress of the Czech Spine Surgery Society
- Štulík, J., Nesnídal, P.: Manubriotomy/sternotomy access to the cervicothoracic junction. In: Kohler, H., Robinson, J.: Cervical spine surgery, standard and advanced techniques. Chum, Springer Nature Switzerland AG, 2019.
- Štulík, J., Klézl Z.: Subaxial cervical spondylectomy. In: Kohler, H., Robinson, J.: Cervical spine surgery, standard and advanced techniques. Chum, Springer Nature Switzerland AG 2019.

- Štulík, J., Kříž J.: Traumatic spinal cord lesions. In: Kříž, J. et al. : Spinal cord injury, Prague, Galén, 2019.
- Kříž J., Štulík, J.: Non-traumatic spinal cord lesions. In: Kříž, J. et al. : Spinal cord injury. Prague, Galén, 2019.
- Štulík, J., Barna, M., Pešl, T., Havránek, P., Nesnídal, P.: Spine injuries in children and adolescents: a retrospective study of 776 patients. In: Lébl J. et al. : Skeletal diseases in children, Prague, Galén, 2019.
- Zahradníček Award ČSOT for the year 2018: Štulík, J., Nesnídal, P., Kozelnická, K., Barna, M. : Surgical treatment of high-grade highly dysplastic spondylolisthesis in young individuals - a prospective monocentric study of 29 patients. Acta Chir. orthop. Traum. čech., 85: 305-318, 2018. IF 0,645
- prof. MUDr. O. Vlach, DrSc. Award ČSCHS for 2018: Štulík, J., Nesnídal, P., Kozelnická, K., Barna, M.: Surgical treatment of high-grade highly dysplastic spondylolisthesis in young individuals - a prospective monocentric study of 29 patients. Acta Chir. orthop. Traum. čech., 85: 305-318, 2018. IF 0,645
- Award for the development of a modular thracolumbal implant Diplomat, Signus 2019 prof. MUDr. Jan Štulík, CSc.;
- ward for contribution to the Ennovate project, Aesculap AG 2019 prof. MUDr. Jan Štulík, CSc.





## Department of Long-term Treatment - Aftercare Centre

Senior Doctor - MUDr. Martina Nováková  
Ward Nurse - Mgr. Lucie Kubová

### Basic description:

The Department of Long-term Treatment - Aftercare Centre has 381 beds at 13 inpatient stations. The centre specialized in geriatric issues (wound healing, nutrition, physiotherapy and occupational therapy), and on patients after traumas, surgeries, long-term internal diseases or strokes. The 14th inpatient station with 29 beds focuses on aftercare for patients in the chronic hemodialysis program. In 2019, the total number of patients was 1,219. (30 beds were closed due to painting for 6 months; 21 beds were closed temporarily due to human resource issues).

**The number of procedures in the geriatric outpatient unit was 255.**

### Specifics of the facility:

The Department of Long-term Treatment - Aftercare Centre specializes in wound healing, nutrition, physiotherapy and occupational therapy. A clinical psychologist, 2 speech therapists, 13 physiotherapists, 2 occupational therapists, and 4 social workers help the patients.

There is an ongoing cooperation with the Volunteer Centre, which organizes entertaining and educational programs, memory training or dog-assisted therapy. A library for patients is available in the Aftercare Centre.

The department has the 1st degree accreditation for tuition in geriatrics and contributes to the postgraduate education for physicians in geriatrics, tuition in internal medicine and bachelor's studies for nurses. Educational courses are organized here. Since 2017, the department has been actively involved in the creation and activities of the Palliative Team for the adult part of the MUH and functions as a coordinating site. In 2019, the workplace received a subsidy from the Ministry of Health for the development of counseling palliative care; on 1 June 2019, a palliative counseling team for the adult part of the Motol University Hospital started working, led by MUDr. Gricajev.

### Unique equipment:

- Extremiter 2010-better future - + CO2 therapy – device for vacuum and compression therapy (for wound healing)
- 2 x exercise machine for strengthening lower limb muscles, combined electrotherapy and magnetic therapy
- ultrasonography device Siemens with color Doppler and probes for USG of the abdomen and DUS of the veins

### Major event in 2019:

- Participation of the workplace in the organization of the Certified Wound Healing Course (in cooperation with the Spinal Unit of the Dpt of RHB)
- MUDr. Šubladze successfully passed the approbation exam and was included in the field of geriatrics. MUDr. Ocelková met the requirements for the internal basis and continues to prepare for attestation in geriatrics in May 2020.
- MUDr. Nováková, Vlachová a Krupková gave a number of lectures on internal and geriatric issues at conferences in the Czech Republic and several articles in professional journals.

## Department of Neurology, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Petr Marusič, Ph.D.  
Senior Doctor - MUDr. Aleš Tomek, Ph.D., FESO  
Deputy for science and research prof. MUDr. Jakub Hort, Ph.D.  
Ward Nurse - Hana Chvátalová

### Basic description:

The Department of Neurology provides comprehensive diagnostics and treatment for patients with nervous system diseases. The main programs developed at the highest achievable level in the CR include the cognitive, epileptological, neurootological, neuromuscular, neuroimmunological and neurovascular programs. Besides caring for patients from the region, medication consultation is also provided selectively to patients from the entire CR. **In 2019, the department's outpatient section examined more than 40,000 patients. 2,153 patients were hospitalized.**

### Centres providing highly specialized care accredited by the Ministry of Health of the CR:

- Highly specialized centre for cerebrovascular care
- Highly specialized centre for pharmacoresistant epilepsies
- Highly specialized care center for multiple sclerosis and neuromyelitis optica

### European Reference Network for Rare Diseases (ERN) Centers:

- 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 and the MUH:

- Cognitive centre
- Neuromuscular centre
- Centre for Parkinson's disease and other extrapyramidal defects
- Centre for hereditary ataxias
- Neuro-otological centre
- Headache centre

### Specialized outpatient clinics:

- advisory centre for neurocutaneous diseases
- vertebrogenic and myoskeletal clinic

### New 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 is carried out in cooperation with Czech Academy of Sciences and the Czech Technical University.
- The department cooperates on the international project E-PILEPSY, which has allowed for the introduction of a methodology for assessing sources of EEG signals (Electrical Source Imaging) and postprocessing in neuro-imaging (advanced processing of PET image and its coregistration, 3D Slicer).

- Under the longitudinal study 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 liquor are analyzed. Genetic examination was expanded by determination of polymorphism for TOMM 40 in homozygotes for apolipoprotein ApoE3/E3. Examination of polymorphism for BDNF-met. and TDP-43 was newly introduced.
- The set of samples from patients with limbic encephalitis was further expanded and examination of neutralizing antibodies in patients with MS was carried out. The set of patients treated with donepezil, from whom liquor was collected, was expanded by the set of patients with rivastigmin and memantin.
- Significant increase in the number of patients treated with 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 of spacial cognition with testing in virtual reality.
- Liquor laboratory (in cooperation with the Department of Immunology, 2nd Faculty of Medicine and MUH) – introduction of the immunoanalytical methodology for determining intrathecal synthesis of anti-GAD antibodies. The existing diagnostic panel of 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 by Zic4, Tr (DNER), SOX1, Ma1.
- A unique electrochemical method of body fluid fingerprinting was introduced in laboratory differential diagnostics of neurodegenerative diseases.
- Routine monitoring of videoEEG and brain perfusion using TCD at the Intensive Care Unit;
- Expansion of the personalized medicine program with antithrombotic drugs in secondary prevention of cerebrovascular diseases in cooperation with the Laboratory of Molecular Diagnostics of Na Homolce Hospital and the Pharmakl laboratory by measurement of the effectiveness of new oral anticoagulants;
- Endovascular treatment of acute ischemic strokes as a routine therapeutic procedure (cooperation with the Department of Radiology, 2nd Faculty of Medicine, Charles University and MUH)
- Method for rehabilitation of patients with chronic vertigo conditions and balance defects during hospitalization unique in the CR continues to be used. The method uses a visual biological feedback with a power platform and a tablet. Our department contributed to the development of this system.
- Creation of programs for rehabilitation of strabism, amblyopia and functional program version of the Hess canvas in cooperation with the Department of Cybernetics of the Czech Technical University and the Department of Ophthalmology for Children and Adults, 2nd Faculty of Medicine, Charles University and MUH
- 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). Introducti-

on of a new methodology for examination of the function of the vestibulo-ocular reflex using the ICS Impulse device by Otometrics. The unique character of this device is in its ability to examine the function of individual semi-circular canals and detect incomplete vestibular lesions.

- Testing thin fibers of the peripheral nerves with thermic threshold determination using the Peltier cell.
- Introduction of unique neurophysiological diagnostics of thin nerve fiber defects (A delta, C fibers) in patients with peripheral and autonomous neuropathy. Introduction of neurophysiological tests (spectral analysis - frequency and time) for cardiac 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:

- Laboratory for augmented virtual reality
- 256-channel high-density EEG for the epileptological and cognitive program
- ICS Impulse device by Otometrics for examining the function of individual semi-circular canals
- telemetry with central monitor Philips IntelliVue M3150 for 9 patients
- ultrasonography device RIMED Intraview with a helmet for long-term monitoring
- ultrasonography device Toshiba Aplio 500 for examining transcranial and extracranial arteries and peripheral nerves with 3D imaging along with the MR/CT data
- 128-channel EEG system NicoletOne for videoEEG monitoring
- NYDIAC 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 thin fibers Adelta + C fibers.
- digital algometer Somedic, Sweden - electrodiagnostic device for research of deep neuropathic pain
- experimental laboratory for examination of spacial memory and spacial orientation (Blue Arena) – in cooperation with the Physiological Institute of the Academy of Sciences CR

#### Major event in 2019:

- Launch of the EPIREC research center: A unique platform connecting epilepsy research with clinical practice was created in cooperation with Motol University Hospital, the 2nd Medical Faculty of Charles University, the Institute of Physiology of the ASCR and the Faculty of Electrical Engineering of the Czech Technical University;
- Co-organizer of the 33th Slovak and Czech Neurological Gathering in Martin and many other local neurological congresses (Cerebrovascular, Epileptological, etc.);
- Organizing International Training Days in v neuro-otology and regular annual neuro-otology courses;
- A total of 37 professional publications in foreign impacted magazines, 10 articles in local impacted magazines, 6 articles in peer-reviewed local magazines and 7 chapters in local monographs.

## 1st Department of Orthopaedics, 1st Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Ivan Landor, CSc.

Senior Doctor - prof. MUDr. Stanislav Popelka, CSc.

Ward Nurse - Mgr. Jana Sládková

### Basic description:

The department provides conservative and surgical treatment for adult patients throughout the entire spectrum of orthopaedic procedures. It provides services under traumatology of the locomotor system with the exception of spine and paediatric orthopaedics. The department has 129 beds in total, of which 14 beds for intensive care for aseptic patients and 2 beds for intensive care for septic orthopaedics, 30 traumatology and 20 septic beds.

**In 2019, a total of 4,268 patients were hospitalized and 50 975 patients were treated in the outpatient section. 4,200 surgeries were performed.**

### Specialized outpatient units:

- joint replacements
- surgery of large joints
- surgery of the hand and foot
- arthroscopy of the shoulder, wrist, knee and ankle
- sports traumatology
- septic orthopaedics
- rheumasurgery
- 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;
- Introduction of minimally invasive surgical techniques for addressing hallux valgus;
- Arthroscopic stabilization of ac luxation - dogbone button arthrex;
- Reconstruction of intervened luxation with a tendon graft;
- Introduction of laboratory determination of alpha defensin in the diagnostics of joint replacement infection;
- Introduction of fast determination of alpha defensin synovasure (lateral flow test) in the perioperative diagnostics of joint replacement infection;
- Introduction of leukocyte esterase test in the diagnostics of joint replacement infection;
- Introduction of an endoscopic method of medulloscopy in the treatment of chronic osteomyelitis;
- Introduction of the masquetelette technique in therapy of infected pseudoarthrosis;
- Introduction of vacuum therapy in the treatment of infected defective wounds;
- Introduction of the department's own method for coating pins with bone cement in the treatment of infected pseudoarthrosis.

### Major event in 2019:

- The department was the co-organizer of the orthopaedic congress in Harrachov and organized quarterly surgical courses in implantation of total shoulder joint replacement at MUH.
- Monograph: P.Vavřík, I.Landor et al.: Revision surgery of total knee replacement
- International cooperation:
  - Heraeus Medical GmbH -Dr. Hans Bösebeck Philipp – Reis - Strasse 8/13, D - 61273 Wehrheim, Germany Cooperation in the study: Evaluation of the local and systemic bioavailability of gentamicin released from a new gentamycin containing bone void filling material and a collagen fleece in patients after aseptic revision of a hip-socket arthroplasty A comparative, randomized, monocentric study.
  - Heraeus Medical GmbH - Anna-Maria Holl Cooperation in the study: Evaluation of the local and systemic bioavailability of gentamicin released from a new gentamycin containing bone void filling material and a collagen fleece in patients after aseptic revision of a hip-socket arthroplasty A comparative, randomized, monocentric study.
  - ENDO-Clinic Hamburg- Prof. Dr. Thorsten Gehrke Cooperation in the project Second International Consensus on Periprosthetic Joint Infection.
  - Sidney Kimmel Medical College, Javad Parvizi MD, FRCS Rothman Institute at Thomas Jefferson University Hospital Sheridan Building, Suite 1000, 125 South 9th Street, Philadelphia, PA 19107, USA. Cooperation in the project Second International Consensus on Periprosthetic Joint Infection.
  - Kantonsspital Winterthur - Peter P. Koch. M.D Klinik für Orthopädie und Traumatologie, Brauerstrasse 15, 8400 Winterthur, Switzerland. Cooperation on publication "GMK Sphere Implant exhibits Medial Stability during Gait Activities in vivo: A Dynamic Videofluoroscopy Study" (Journal of Orthopaedic Research under review).
  - University Hospital Balgrist - Sandro Fucentese, M.D.Forchstrasse 340, 8008 Zürich, Switzerland. Cooperation on publication "GMK Sphere Implant exhibits Medial Stability during Gait Activities in vivo: A Dynamic Videofluoroscopy Study"
  - Zimmer Biomet – Cooperation on development of a new ankle joint replacement, preparation of the international publication – ankle replacement Rebalance Ankle.





## Department of Oncology, 2nd Faculty of Medicine, Charles University and MUH

Head - doc. MUDr. Jana Prausová, Ph.D., MBA

Senior Doctor - MUDr. Zdeněk Linke

Ward Nurse - Mgr. Klára Frydrychová

Senior Radiology Assistant - Alena Čuprová

### Basic description:

The facility provides comprehensive care for oncological patients in antitumor pharmacotherapy and radiation treatment. It is one of the **Comprehensive Oncology Centres** in the Czech Republic, where highly specialized care is provided. At the end of the year, the department was established as one of the two **National Oncology Centers (NOC)** in the Czech Republic. The facility is accredited for specialized education in clinical oncology and radiation oncology.

**In 2019, a total of 115,176 outpatient check-ups, treatments and examinations were performed within the Department of Oncology Clinic of MUH; in 2019, the number of new patients reached a total of 2,995. A total of 2,378 patients were hospitalized in 2019, which is 200 more than in 2018, and this outcome was achieved despite the 1st bed station becoming an additional daycare centre for outpatient application of therapy due to the situation in human resources.**

**In 2019, parenteral chemotherapy/biologic therapy reached 8,557 cycles of anticancer treatment. In 2019, the total number of patients on external radiotherapy reached 901 - of which 811 were newly irradiated, the number of performed series reached 923. The number of irradiated fields was 76,635, the number of irradiation fractions reached 21,606.**

**In 2019, 678 applications were performed at the brachytherapy department in a total of 128 patients, 211 irradiation plans were created - of which 318 intracavitary and endoluminal applications in 83 patients, 43 interstitial applications in 21 patients and 317 surface mulches in 24 patients.**

### Specialized outpatient units:

- outpatient unit for follow-up care for patients after completion of antitumor treatment
- outpatient unit for checking patients during chemotherapy
- outpatient unit for checking patients during teletherapy
- outpatient unit for chemotherapy application
- outpatient unit for checking patients during brachytherapy

### New methods and procedures:

- Periodic adjustment of standard protocols for the treatment of malignant tumors with the introduction of new biological treatment molecules, new cytostatic drugs, and new combinations of cytostatic drugs and biological treatment. Major share in the creation of therapeutic outcomes including drug registries in the CR.
- Introduction of central vascular accesses (ports) and peripheral PICCs or midline in all patients with application of parenteral chemotherapy and a part of the patients with biological treatment.
- Cooperation with genetic facilities in searching for families with a genetic high risk with regard to the occurrence of malignant tumors, recommended prophylactic 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 of MUH in the application of the SNP01 preparation - Centre for Treatment of Prostate Cancer.
- Improvement and full use of the IMRT (intensity modulated radiotherapy) technique allowing for a higher dose of radiation in the target volume while avoiding irradiating healthy tissue. 40% of patients are irradiated with this technique.;
- Implementation of the IGRT (image guided radiotherapy) technique based on checking the current settings of the patient's position during radiotherapy and option of correcting this position according to the reference position. Use of localization grains (fiducial markers) for more precise targeting of the target volume in patients undergoing radiotherapy of prostate cancer;
- Option of merging images from MRI and CT diagnostic measurement with planning CT images for more accurate determination of the target volume for radiotherapy.

### Unique equipment:

- Upgrade of the Aria verification and planning system performed in July 2018 meant transition from version 8.6 to the newer version 15.6. and preceded the replacement of the equipment.
- Three Truebeam linear accelerators, Varian Medical Systems, were installed at the end of 2018 and during 2019. Truebeam accelerators provide higher geometric accuracy (up to 0.5 mm) compared to the original Clinac accelerators, are equipped with a radiation table with a low-density carbon fiber plate and modern megavoltage and kilovoltage imaging system for checking the patient's position during irradiation. The kilovoltage system enables 3D imaging of the patient using Cone-beam CT - CBCT. All three accelerators are equipped with a system for controlling the patient's respiratory movements during irradiation - Respiratory Management System.
- Radiotherapy controlled by the respiratory cycle ensures a significant refinement of treatment in the chest area and saving of the heart and lung tissue during breast irradiation.
- All three accelerators are equipped with a multi-lamellar collimator (MLC), enabling intensity-modulated techniques, in addition to IMRT (Intensity Modulated Radiotherapy) technology and VMAT (Volumetric Modulated Arc Therapy) technology. Two of the Truebeam accelerators are equipped with a Millenium120 multi-blade collimator with a 5mm lamella width in the central part of the irradiation field, the third Truebeam has a finer resolution HD MLC - High Definition MLC multi-lamellar collimator - with a 2.5mm lamella width in the central part of the irradiation field, which is suitable for stereotactic radiotherapy and for irradiation in the head and neck or prostate.
- In addition to standard photon beams, two Truebeam accelerators also produce beams without a homogenization filter, so-called FFF beams (Flattening-Filter Free), in which irradiation is significantly accelerated by IMRT and VMAT technology due to very high dose rate, which reduces irradiation time and thus inaccuracy caused by movements of the patient and organs during irradiation.
- Acuity EX radiotherapy simulator, Varian Medical Systems for radiation treatment preparation
- Brilliance Big Bore CT device, Philips for treatment planning

### Major event in 2019:

- In November 2019, the Department of Oncology of Motol University Hospital became a full member of the OECI (Organization of European Cancer Institute), which brings together only a small number of the best oncology centers in Europe. This membership will enable preferential participation in research into new innovative medicines, access to such medicines in academic clinical trials, preferential and paid educational programs for our physicians.
- In April 2019, respiratory-controlled radiotherapy was introduced into clinical operation, and Deep Inspiration Breath Hold (DIBH) was introduced in female patients undergoing breast radiotherapy.
- The head of the department doc. MUDr. Prausová defended the position of chairperson of the Czech Oncological Society of the Czech Medical Association JEP in 2019.
- The department, together with the Department of Oncology of the General Teaching Hospital in Prague 2, organized a unique educational event for oncologists, namely the 3rd year of Best of ASCO in September 2019 in Prague.
- The department participated in the organization and lectures at the 10th Prague Onco Colloquium, Urooncology Symposium, South Bohemian Oncology Days, Brno Oncology Days, Radiology Days and other important Czech symposia.
- The physicians also actively participated in the international events of ASCO, ESMO and ESTRO in 2019 with professional communications, abstracts and posters.
- The department is an active member of the Sarcoma Group EORTC and is involved in academic clinical trials (eg Survival Outcomes in Adolescent and Young Adults with Colorectal and Pancreatic Cancer).
- The department participates in the grant of the GACR: Nanofiber systems for local drug release in the treatment of cancer together with the Institute of Macromolecular Chemistry of the Czech Academy of Science.
- The workplace is involved in 6th EU Health Programme: Joint Action on Rare Cancers.
- Continuation of a pilot study of the influence of genetic factors on the effect of therapy and survival of patients with pancreatic cancer (together with SZÚ = National Institute of Public Health, Department of Surgery of the 1st and 2nd Medical Faculty of Charles University and Motol University Hospital).

### Department of Pneumology, 2nd Faculty of Medicine, Charles University and MUH

Head - MUDr. Libor Fila, Ph.D.

Senior Doctor MUDr. Dmitry Rakita, CSc.

Ward Nurse Mgr. Jana Zelenková

### Basic description:

The Department of Pneumology focuses on diagnostics, treatment and research of diseases of the lower respiratory tract and the lungs. The facility has 56 standard beds (including 2 superior rooms) and 10 intensive care beds. The main programs focus on pneumology, lung transplantation, cystic fibrosis, interventional bronchology and intensive care in pneumology.

**In 2019, 1,709 patients were hospitalized, 13,181 patients were treated in the outpatient section, 1,543 bronchoscopies were carried out and 927 chemotherapies were administered. In 2019, 237 patients were hospitalized at the intensive respiratory care unit; 86 patients (36.3 %) were treated with non-invasive ventilation support and 26 patients (11%) of them received invasive mechanical ventilation.**

### Specialized outpatient units:

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

### New methods and procedures:

- Biological treatment of bronchogenic carcinoma (alectinib, osimertinib, ceritinib and pembrolizumab), cystic fibrosis (lumacaftor/ivacaftor) and bronchial asthma (mepolizumab, reslizumab and benralizumab);
- Examination using radial EBUS and an ultrathin bronchoscope with the possibility of biopsy of peripheral lung lesions, which is a method that will allow many patients to avoid lung biopsy by surgery;
- Optimization of examination of patients before lung transplantation and systematic involvement of four female physicians of the department in post-transplant care;
- Cooperation with the Neuromuscular Center of Motol University Hospital in the field of ventilation support for patients with neuromuscular disorders;
- Cooperation with the company ResMed in the field of telemedicine - home monitoring of patients with sleep-disordered breathing;
- Use of analgesic sedation for complicated diagnostic bronchoscopic procedures.

### Unique equipment:

- bronchoscope with EBUS Olympus MAJ-1720 with radial probe
- Olympus BF-MP190F ultrathin bronchoscope
- Airvo 2 device for high-flow nasal oxygen therapy with ventilation support
- Simeox device for clearing the airways on the principle of decompression shocks

### Major event in 2019:

- Our workplace participates in the nationwide project of the registry of patients with lung cancer LUCAS, dedicated to the biological treatment of this disease.
- The department participates in the project of early detection of chronic obstructive pulmonary disease in at-risk populations led by the National Screening Center of the IHIS.
- Dr. Václava Bártů and dr. Libor Fila successfully defended their habilitation thesis at the 2nd Faculty of Medicine, Charles University.



## Department of Urology, 2nd Faculty of Medicine, Charles University and MUH

Head - Prof. MUDr. Marek Babjuk, CSc.  
Senior Doctor - MUDr. Marek Schmidt, FEBU  
Ward Nurse Mgr. Sandra Dvořáková

### Basic description:

The Department of Urology provides therapeutic and preventive care in the entire spectrum of adult urology nationwide and internationally. The site specializes in surgical treatment of cancers of the urogenital tract including the subsequent oncological treatment. It is one of the top facilities for the treatment of lithiasis and laparoscopy. The facility is the only site for surgical gender conversion in the CR. **In 2019, 26,496 outpatient examinations, 2,046 hospitalizations, and 1,909 operations were performed. Since 2018, it has had a daVinci robotic operating system. In 2019, 307 robotic operations 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 MUH

### New methods and procedures:

- Advanced laparoscopic procedures - cystectomy, radical prostatectomy, reconstructive surgeries, retroperitoneal lymphadenectomy, kidney resection, solution of vesicovaginal fistulas, Boari's plastic surgery;
- Improvement of endoscopic treatment of lithiasis – percutaneous mininephrolithotomy technique, percutaneous nephrolithotomy in supine position, flexible ureteroscopy, etc.;
- Improvement of derivative surgeries after cystectomy;
- Use of new imaging methods for diagnostics of tumors 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 enucleation of the prostate using a morcellator;
- MRI/USG fusion prostate biopsies;
- Implantation of artificial urethral constrictor in severe incontinence.
- Robotic surgeries – radical prostatectomy, kidney resection, meloplasty, radical cystectomy

### Unique equipment:

- Ho:YAG laser
- instruments for NBI (“narrow band paging”), fluorescence cystoscopy
- instruments for miniPNL
- 3D laparoscopic system Einstein Vision
- endoscopic morcellator Piranha
- Toshiba Aplio 500 sonographic device for MRI/USG fusion biopsies of the prostate
- daVinci Xi robotic system

### Major event in 2019:

- Organization of 2nd ESU - ESOU Masterclass EAU 21 - 22 February 2019, Prague
- Organization of the conference Complex news in oncurology 24 – 25 May 2019
- Organization of the annual conference of the Czech Urological Society, Czech Medical Association of J. E. Purkyně. 16 -18 October 2019, Prague





## Common Examination and Therapeutic Units

### Department of Radiology, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Miloslav Roček, Csc., MBA, FCIRSE, EBIR

Senior Doctor - MUDr. Radek Pádr

Senior Radiological Assistant - Mgr. Tomáš Schilla

#### Basic description:

In 2019, a total of 336,007 examinations were carried out at the Department of Radiology, of which 252,596 were in the adult section and 83,411 in the children's section. This means that the number of examinations increased in both parts of the Department of Radiology (KZM), by about 9% in the adult part, by about 4% in the children's part. In the adult part of KZM, the number of examinations for CT and MR increased, in the children's part the number of examinations for CT and MR was comparable to 2018. The number of sonographic examinations also increased, especially in the children's part of KZM. The number of dental X-rays in the children's section increased significantly.

In 2019, a total of 232,037 patients were examined at the Department of Radiology, of which 12,135 were hospitalized patients and 219,902 were outpatients. Here, too, an increase of about 4% was recorded. The total number of exposures also increased slightly.

#### Specifics of the facility:

At KZM, the reconstruction of the examination room for simple interventions and a new examination room for densitometry were completed, the operation of which was started on a trial basis. Regular operation began at the new MR workplace with a 3T magnet from Siemens MAGNETOM Vida. IKA was performed on the entire KZM.

KZM has occupied 3 residencies for RA, as well as 3 residents with doctors.

The Department of Radiology continued in monitoring its quality indicators, always with a positive outcome.

The situation in human resources from middle medical staff remains unsatisfactory, there is especially critical shortage of radiology assistants.

#### Unique equipment:

- the latest CT device Somatom Force allowing examination with a low dose of radiation was put into operation, used also for children
- additional CT – 2 devices with 64 rows of detectors, CT Toshiba Aquilion One with 320 rows
- magnetic resonance – 4 devices: examination in the full range of spectroscopy, new 3T MR MAGNETOM Vida
- angiography Toshiba Infinix, Ultimax-i (DREX-UI80/E2)
- mammography, mammary sonography, stereotaxis, vacuum bioptome
- sonography for children and adults, doppler sonography
- 6x fully digitalized sciagraphy, latest sciagraph for Adora traumatology by Canon
- densitometer Hologic, Horizon QDR

#### New methods and procedures:

- CT angiography, 3D VR visualization, CT cardio, CT coronarography;
- CT generation of Vol data for neuronavigation, ENT navigation and stomatology;

- MR – new options for examination of the veins, functional examination of the heart, tractography, T2 relaxometry, examination of non-cooperating patients, spectroscopy;
- Thanks to the new 3T magnetic resonance imaging Siemens VIDA, the capacity of MR examinations at KZM expanded by approximately 220 adult and pediatric patients per month. The waiting time for some examinations was therefore reduced. The main benefit of the new device is, in addition to better images, the introduction of advanced techniques (MRS, fMRI, whole body MRI), which can be used both in everyday practice and for research purposes. A major step forward also occurred in the accuracy of the diagnosis of pelvic tumors and the pathology of the musculoskeletal system. With the delivery of a mobile MR compatible ventilator, patients requiring general Prenatal US and MR diagnostics;
- MAMO SONO site – ductography, puncture of cysts and core cut biopsy under US control, puncture with the Vacora device;
- Radiofrequency ablation and chemoembolization of metastasis in the liver, lungs;
- Implantation of aortal stent grafts (also fenestrated), brain thrombectomy, subintimal recanalization of the peripheral arteries, treatment of acute and chronic deep vein thrombosis, treatment of vascular accesses for hemodialysis;
- Treatment of brain malformations in children and adults;
- Intervention in the bile duct, spondyloplasty and vertebroplasty;
- Intervention under CT sciascopy;
- US devices Toshiba Aplio with SW allowing diagnostics with the use of contrast medium, in particular for dynamic diagnostics of focal lesions especially in the liver, we also examine the liver with elastography;
- Expanded use of dictation systems;
- Conferences and consultations take place outside the Czech Republic;
- Conference system allowing for monitoring surgical procedures was involved;
- Arterial spin labeling as a recent method for imaging brain perfusion;
- Software for Toshiba Aplio 500. SMI (Super Microvascular Imaging) allowing precise detection of the microvascular architecture of the tissue.
- Catheter treatment of retinoblastoma introduced for the first time in the CR.
- With the Horizon QDR densitometer, the Department of Radiology expanded the range of services offered. We are currently investigating here 3 days a week, further expansion also depends on a sufficient number of radiological assistants. Close cooperation was established with the Institute of Medical Chemistry and Clinical Biochemistry and the Department of Rheumatology of Children and Adults. The device can also be used by other clinics of Motol University Hospital.

#### Major event in 2019:

- The department organized international school of radiology 8th Prague European Tutorial of Radiology for two weeks.
- 7th Motol Day of Paediatric Radiology with extensive multidisciplinary participation.
- The Department of Radiology as the main organizer of MOST 2019 - interdisciplinary symposium on MRI and heart CT.
- The Department of Radiology organized the Autumn Symposium for RA with a large active participation of RA and Department of Radiology nurses.

## Department of Biology and Medical Genetics, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Milan Macek, DrSc., MHA

Senior Doctor - MUDr. Markéta Havlovicová

Ward Nurse - Mgr. Hana Strouhalová

### Basic description:

The department (further the DBMG) provides a wide spectrum of preventive and diagnostic medical care in medical and molecular genetics also through medical consultations throughout the CR. The DBMG diagnoses selected congenital defects, hereditary tumors, neurodegenerative diseases in children and adults, rare diseases including mental development disorders in prenatal and postnatal period. **In 2019, 11,819 consultations to patients /5,812 families/ were provided in the outpatient units of our department under postnatal and prenatal care. Laboratories of the DBMG performed 5,500 examinations, of which more than 400 examinations were prenatal, of which approximately 15% were positive.**

The National Coordination Centre for Rare Diseases, Centre for Diagnostics and Treatment of Paediatric and Adult Patients with Cystic Fibrosis was established under the DBMG and the site is also part of the national research infrastructure - "National Centre for Medical Genomics".

- Specialized outpatient units:
  - 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 for CF/CF screening in newborns in cooperation with the Centre for Cystic Fibrosis of MUH

### New methods and procedures:

- The diagnosis of new microdeletion syndromes using the FISH and acgh methods continues to be expanded. Diagnosis is also extended 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 severe combined complex congenital heart defects.
- The SNP array CGH method is newly introduced for hereditary tumor syndromes and for ruling out uniparental disomy.
- Classification of variants is improved by the use of new database instruments and updating evaluation algorithms of the software for data analysis.
- Accreditation of ČIA 15189 is granted for all cytogenetic and molecular cytogenetic methods and international EQA is carried out regularly.
- DNA diagnostics using the DNA sequencing method according to Sanger or using

the fragmentation analysis method on more than 120 genes responsible for genetically conditioned syndromes with mental retardation / 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 are being expanded.

- Examination of the defect of imprinting in PWS/AS and BWS/RSS syndromes is also carried out.
- Gene deletions/duplications or microdeletion syndromes are examined using the MLPA.
- In diagnostic practice, we use diagnostics with the NGS methods. We used these methods for routine examination of patients with suspected hereditary breast and ovary carcinoma, neurofibromatosis and/or rasopathy, and patients with suspected HNPCC in 2019.
- We newly designed, verified and put into diagnostic practice our own diagnostic panel of 100 genes responsible for all types of cardiomyopathies, arrhythmogenic syndromes and aortopathies, which enables more accurate and faster diagnosis of genetically determined heart diseases.
- We introduced into dg. practice of examination of germline mutations of 286 genes associated with mental retardation and autism by massively parallel sequencing by the NGS-CID panel.
- We are introducing new procedures for filtering and prioritizing data obtained by NGS and a more accurate interpretation of variants a priori of unclear significance, using the programs VarAFT, VarSome Clinical and Genoos.
- Once again, we successfully met the requirements of an external interlaboratory quality control for molecular genetic laboratories for 14 different diagnoses, Sanger's DNA sequencing and NGS.
- We screen newborns for cystic fibrosis throughout the Czech Republic in cooperation with the University Hospital in Vinohrady and the General Teaching Hospital in Prague (approx. 50,000 newborns).
- In 2019, the LAISS (Laser Assisted Immotile Sperm Selection) method was introduced to select the most suitable sperm for fertilization in patients with severe sperm motility disorders.

### Unique equipment:

- DNA microarray scanner, agilent g4900Da SureScan
- special platform Agilent Technologies for evaluation of array CGH profiles
- Thermocycler Peltier PTC 100
- Hanabi - device for preparation of evenly spread metaphases for cytogenetics
- MagCore Nucleic Acid Extractor pro DNA/RNA isolation
- HiSeq 2500 by Illumina
- MiSeq by Illumina and MiniSeq /Illumina/ for NGS
- cBot, Covaris S200, pipetting robot Agilent Bravo for NGS
- Cryptor Compact Plus by Thermo Scientific for biochemical screening in pregnant women
- 4200 Tape Station by Agilent Technologies

### Major event in 2019:

- The head of DBMG from the position of NKCVO coordinator and Professor Macek ensured and continues to guarantee the integration of a large part of departments of Motol University Hospital into the European Reference Networks (ERN) for rare diseases.
- Ongoing cooperation with the Czech Association for Rare Diseases (ČAVO) to raise awareness of rare diseases - related articles in the regular ČAVO newsletter, press releases on the website <http://www.vzacna-onemocneni.cz/>, which is common for these activities with NKCVO.

### Department of Medical Chemistry and Clinical Biochemistry, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Richard Průša, CSc., EuSpLM

Senior Doctor - MUDr. Jana Čepová, Ph.D., MBA

Senior Laboratory Technician - Mgr. Martina Bunešová, MBA

#### Basic description:

The laboratory of the DMCCB provides more than **220 different laboratory examinations. The laboratory processes biological material from 99,153 unique personal ID numbers every year. The laboratory examines 2,108 biological samples on average per day (including Saturdays, Sundays, public holidays), i.e. 630,464 examinations** each month, in non-stop three-shift operation. Many examinations (MTX, cyclosporine A, tacrolimus, sirolimus, lead, platinum, antimycotics, busulfan, IGF-1, etc.) are also carried out for other external medical facilities. In 2019, more than 7,565,579 procedures were carried out. The DMCCB has specialized outpatient units focusing on the issues related to hyperlipoproteinemia, bone metabolism defects, nutritional defects in the sense of obesity and malnutrition. **In 2019, 4,000 patients were treated in the outpatient section.**

#### Specialized outpatient units:

- 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:

- 2017 - new immunoturbidimetric method for determining myoglobin
- 2017 - new immunoradiometric method for determining IGFBP-3
- 2017 - Siemens reagents are newly used for measuring myoglobin in the serum (formerly Roche)
- 2018 - development of the method and demonstration of determination of the levels of Busulfan from HPLC on LC/MS
- 2018 - expansion of the ELFO methodology by special quantification of BJB in the urine
- 2018 - new determination of CDT
- 2018 - new determination of the prostate health index (PHI)
- 2019 - conversion of STFR analyzes to Advia and Mg to Vitros
- 2019 - MTX converted from integra to Architect (automatic dilution)
- 2019 - busulfan routinely converted to LC/MS

- 2019 - Lp(a) routinely to Advia
- 2019 - AMH – change of reference limits
- 2019 - OH progesterone - change of method due to restandardization

#### Unique equipment:

- 2017 - introduction of electronic applications into operation
- 2018 - new urine analyzer - Atellica, chemical + microscopic module
- 2018 - new Optilite analyzer, replacement for Immage 800
- 2018 - new gamma counter Berthold LB 2111, replacement for the old one
- 2019 - installation (renewal) of two Atellica 1500 urinary lines (chemical determination + sediment)
- 2019 - installation of a new Stat Strip network meter from Nova Biomedical for the 2nd bed station/ ICU of the 1st Department of Orthopaedics Clinic of the 1st Medical Faculty of Charles University
- 2019 - 2x new OsmoPRO osmometer
- 2019 - absorption spectrometer with electrothermal atomization and absorption spectrometer with flame atomization Agilent 200 Series AA spectrometer 240FS AA
- 2019 - new Cobas Integra 400plus analyzer

#### Major event in 2019:

- Menhir of Professor Masopust 24 January 2019, specialized conference
- On 14 May 2019, the laboratory successfully passed a major audit by NASKL
- National Congress of ČSKB 22 -24 September 2019, where UH Motol was represented from DMCCB by two lectures and three posters.
- DMCCB employees represented 7 times in congresses abroad and 10 times in the Czech Republic by actively participating (lecture, poster).
- Total number of publications: 14  
of which with IF: 7  
peer-reviewed articles: 5  
educational articles for the general public: 2

### Department of Immunology, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Jiřina Bartůňková, DrSc., MBA

Senior Doctor - prof. MUDr. Anna Šedivá, DSc.

Senior Laboratory Technician - Bc. Anna Skalická

#### 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 provides regular therapy and infusion application of indicated drugs for serious immune disorders at the daycare centre for children and adults. Clinical trials in the field of immunotherapy are also underway at the outpatient clinics and laboratories of the Department of Immunology. The department is the base for pre-graduate 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, and also deals with immunology of tumorous diseases. The



department operates nationally in these areas of highly specialized care and in some cases even internationally.

**In 2019, 15,290 patients were examined in the outpatient section and laboratories performed 287,493 examinations in 47,902 patients, the Cerebrospinal fluid laboratory carried out additional 21,817 examinations.**

#### 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
- specialized outpatient unit for application of antitumor vaccines under clinical studies
- Vaccination Centre outpatient unit

#### Centres:

- Centre for the treatment of poorly treatable asthma (Omalizumab, Xolair, anti-IgE monoclonal antibody, and Mepolizumab, Nucala, anti-IL-5/R monoclonal antibody)
- Centre for the treatment of hereditary angioedema (C1inhibitor substitution, bradykinin inhibition, since 2019 biological therapy Lanadelumab, Takhzyro, monoclonal antibody against kallikrein)
- Center for Diagnosis and Treatment of Immunopathological Conditions of the Department of Immunology, 2nd Faculty of Medicine, Charles University and University Hospital in Motol within the Center Excellence of the Federation of Immunological Societies

#### Specialized laboratory:

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

#### 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;
- Intracellular examination of anti-inflammatory cytokines;
- Extension of the cell immunity panel (proliferation test ki-67, examination of Th17 and T regulating lymphocytes);
- Extended daycare units in supervision of home application of subcutaneous immunoglobulins;
- Clinical studies of immunoglobulin preparations;
- Clinical studies of modern targeted treatment of immunopathological conditions;
- Clinical studies of immunopathology of tumors.

#### Unique equipment:

- comprehensively equipped laboratory for flow cytometry including a sorter
- microscopic facility including a confocal microscope and scanning cytometer
- automated equipment for ELISA methods

#### Major events in 2019:

- Continued individual administration of unregistered preparation DCVAC under the hospital exception for modern therapy pharmaceuticals Sections 49b) and 49c) of the Act on Pharmaceuticals;
- Operation of an immunodeficiency centre as part of the global network of centres of Jeffrey Modell Foundation, USA, extension of the contract until 2020
- Organization of the ESID Eastern Spring School in Primary Immunodeficiencies in April 2019;
- Continuation of the Centre of Excellence FOCIS (Federation of Clinical Immunology Societies, USA, EU);
- Solution of Institutional Support projects of University Hospital in Motol and solution of AZV grants
- Work on the project “T cell therapy of prostate cancer” and “Longitudinal monitoring of immune parameters in patients with type one diabetes” under the Modern Therapies scheme;
- Clinical trial of a rare disease Activated PI3 Kinase Syndrome with Specific CCD-Z173X2201 Inhibitor; inclusion of a patient from Germany in this trial
- Grant AZV „Dysregulation of the immune system: properties of lymphocytes in patients with immunodeficiency and autoimmune manifestations“, principal researcher doc. Kalina and 2nd Medical Faculty of Charles University, co-researcher prof. Šedivá, Department of Immunology, received in 2019 the Minister of Health Award for medical research.
- 25 foreign impact publications with a total impact of 140, 18 publications in the Czech language, 5 chapters in books.



## Department of Medical Microbiology, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Pavel Dřevínek, Ph.D.

Senior Doctor - MUDr. Otakar Nyč, Ph.D.

Senior Laboratory Technician - Bc. Vilma Klemensová

### Basic description:

The department provides laboratory diagnostics of bacterial, viral, mycotic and parasitic infections. Collaborates on monitoring the incidence of nosocomial infections and monitors the occurrence of extraordinary profiles of ATB resistance. The department cooperates on monitoring the occurrence of nosocomial infections and monitors the occurrence of extraordinary profiles of ATB resistance. The site contributes to the activities of the Independent Quality Control Department by preparing, presenting, implementing and assessing audits focused on rational use of ATB and other medication in the hospital. 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 Program, Subcommittee for Antibiotic Policy of the Czech Medical Association JEP and the committee of the Society for Medical Microbiology the Czech Medical Association JEP, the department participates actively in the implementation of the antibiotic policy in the CR. Special emphasis is placed on evaluation of the latest diagnostic procedures and their implementation in the clinical practice with the aim to further improve microbiological diagnostics.

**In 2019, the department reported a total of 144,597,571 points.**

### New methods and procedures:

- Diagnostics (i) based on PCR: panel of 16 respiratory viruses, panel of the originators of atypical pneumonias, panel of 7 originators of STD, panfungal PCR, detection of mycomycetes, candidas, aspergillus, panbacterial PCR, proof of pertussis, originators of gastroenteritis including enterohemorrhagic *E. coli*, panel of originators of community festering meningitis, proof of *Mycobacterium tuberculosis*, statim examination of the presence of HSV, VZV and enteroviruses in liquor, (ii) using immunochromatography: astroviruses; (iii) development of MALDI-TOF identification of fibrous fungi using the international MSI database;
- Detection of virulence factors and resistance genes: (i) using the PCR method: MRSA and PVL in *S. aureus*, detection of *mcr* genes (1-8) in clinical isolates (*Enterobacteriaceae*) with confirmed resistance to colistin (ii) using MALDI-TOF: carbapenemase;
- Molecular standardization: *C. difficile* (for the purposes of the CR including national surveillance), *P. aeruginosa* and complex *B. cepacia* (chronic infections in patients with cystic fibrosis);
- Proof of neutralizing antibodies against beta-interferon type of medication for MS centres in the CR;
- Cooperation with the Department of Internal Medicine of MUH in preparation of fecal transplantation in patients with recurrent colitis caused by *C. difficile*;
- Diagnosis of gastrointestinal viruses by PCR - Allows simultaneous detection of Rotavirus group A, Norovirus group GI and GII, Enterovirus, Adenovirus groups F and G, Sapovirus and Astrovirus;
- routine screening for significant resistance phenotypes (detection of carbapenemases, MRSA, VRE and resistance to polymyxins...);

- measles diagnosis - direct detection by PCR from nasopharyngeal swab and acute diagnosis of IgM and IgG antibodies from sera.

### Unique equipment:

- high-capacity nucleic acid isolator for PCR diagnostics Qia Symphony, anaerobic boxes JOUAN and BENTLEY;
- a new, more powerful version of MALDI-TOF, a mass spectrometry device for fast and highly reliable identification of bacteria and fungi;
- PCR cyclers with high resolution melting analysis;
- GeneXpert and Easy-Plex 384, automated systems for fast and highly reliably PCR detection of a range of viral and bacterial pathogens including *Mycobacterium tuberculosis*;
- bacterial and fungal DNA extraction system (NA Select);
- BD MAX, a fully automated system designed for molecular diagnosis of a wide range of infectious agents;
- Biofire FilmArray for rapid detection of DCD infections based on the POCT principle.

### Major event in 2019 :

- Active participation in foreign conferences and congresses: 29th European Congress of Clinical Microbiology & Infectious Diseases, ECCMID 2019, Amsterdam; International Conference on One Health Antimicrobial Resistance (ICOHAR) in Utrecht, 12th International Meeting on Microbial Epidemiological Markers (IMMEM XII) in Dubrovnik; 45th Annual Meeting of the European Society for Blood and Marrow Transplantation. 2019 Frankfurt, Germany, 7th International Congenital CMV Conference and the 17th International CMV Workshop, 2019, Birmingham, Alabama;
- In the fourth quarter of 2019, we organized another round of national collection of *C. difficile* isolates and epidemiological data. Over 600 isolates were submitted for further analysis.
- International projects in the field of *C. difficile* are currently being implemented with Slovakia, Algeria and Iran;
- Participation in the preparation of professional seminars organized by the Society for Medical Microbiology;
- Participation in the preparation and organization of professional events: 5th annual interdisciplinary conference „Clostridial Day“ in Pardubice, interdisciplinary seminar Třeboň 2019, Antibiotic Policy Soláň 2019;
- Prof. MUDr. Pavel Dřevínek, Ph.D: member of the Committee of the European Cystic Fibrosis Society (ECFS), then chairman of the Society for Medical Microbiology of the Czech Medical Association JEP;
- Mgr. Marcela Krůtová, Ph.D: member of the European ESCMID Study Group for *Clostridium difficile* – ESGCD ;
- Publication:
  - 33 foreign impacted publications,
  - 4 domestic impact publications,
  - 2 articles in Czech peer-reviewed journals.

## Department of Pathology and Molecular Medicine, 2nd Faculty of Medicine, Charles University and MUH

Head - prof. MUDr. Roman Kodet, CSc.

Senior Doctor - MUDr. Daniela Nováková Kodetová

Senior Laboratory Technician - Vladimíra Kratinová

### Basic description:

The department focuses on diagnostics of various types of diseases. It uses conventional histology and cytology methods with additional subsequent special laboratory examination methods. **In 2019, 22,986 patients were examined, which is 421,095 histological and cytological preparations. The laboratory of molecular pathology carried out 28,590 examinations for 2,393 patients using the flow cytometry, PCR, FISH, and predictive IHC methods.** The department also operates as a pregraduate and postgraduate educational institution. Its autopsy operation fulfills the educational and inspection function within the hospital.

### Specialized laboratories:

- biopsy laboratory
- laboratory for electron microscopy
- laboratory for immunohistochemistry (ihc)
- laboratory for diagnostics of neuromuscular diseases
- laboratory for flow cytometry
- laboratory for in situ hybridization
- laboratory for DNA and RNA analysis
- cytological laboratory
- necroptic laboratory
- laboratory for pulmonal cytology
- nephrological laboratory

### New methods and procedures:

- New immunohistochemical methods for the diagnosis of tumors are continuously being introduced, eg CD14 for more detailed examination in hematopathology, SATB2 for the diagnosis of colorectal cancers and osteoplastic tumors, IgG / IgG4 for the diagnosis of IgG4-related sclerosing disease.
- Introduction of new staining methods in the biopsy laboratory for the detection of reticular fibers with argentafine for the examination of trepanobiopsies;
- Introduction of the use of a vibrating saw for bone tissue processing;
- In the area of FISH examination, introduction of CIC fracture in EWSR1 negative small blue cell tumor, IRF4 / DUSP22 skin fracture in ALCL, TFE3 fracture in renal cell carcinoma;
- New paraffin embedding line that will facilitate and improve the embedding of tissues into paraffin and its further processing;
- Continuation of the methodology of next generation sequencing (NGS) on paraffin tissues in cancer and introduction of new targeted panels at the level of DNA and RNA;
- Introduction of „liquid biopsy“ methodology and detection of circulating tumor DNA (c + DNA);
- The institute significantly participates in the transplant program of the Motol

Hospital. Tissues in kidney, heart, lung and uterine transplant patients are examined regularly. New immunohistochemical antibodies and procedures have been introduced that improve the diagnosis of rejection and tissue condition after transplantation.

- Development of molecular neurooncology to refine the diagnosis of CNS tumors, especially in children.

### Unique equipment:

- cyclers for PCR in real time.
- device MiSeq for the “Next Generation Sequencing” methodology
- genetic eight-capillary analyzer.
- new coloring and fitting automated machine for processing histological preparations.
- new deep freezing automated machine for slicing perioperative biopsies.
- device Idylla Biocartis allowing detection of specific gene changes. It is used in predictive diagnostics of patients with colorectal cancer, melanoma, histiocytosis from Langerhans cells and in brain tumors.

### Major event in 2019:

- The staff of the department played a significant role in the publication of the new national textbook Pathology (editor-in-chief Prof. Josef Zámečník, MD, Ph.D, published by LD Prager Publishing, 2019).
- The project of institutional support of science from the Ministry of Health of the Czech Republic continued at a good level in 2019, the total IF of the workplace in 2019 was 112,897.
- The department’s physicians actively participated in numerous congresses in the Czech Republic and abroad.
- Publikace:
  - Alterations in ALK/ROS1/NTRK/MET drive a group of infantile hemispheric gliomas.
  - Guerreiro Stucklin AS, Ryall S, Fukuoka K, Zapotocky M, Lassaletta A, Li C, Bridge T, Kim B, Arnoldo A, Kowalski PE, Zhong Y, Johnson M, Li C, Ramani AK, Siddaway R, Nobre LF, de Antonellis P, Dunham C, Cheng S, Boué DR, Finlay JL, Coven SL, de Prada I, Perez-Somarriba M, Faria CC, Grotzer MA, Rushing E, Sumerauer D, **Zamecnik J, Krskova L**, Garcia Ariza M, Cruz O, Morales La Madrid A, Solano P, Terashima K, Nakano Y, Ichimura K, Nagane M, Sakamoto H, Gil-da-Costa MJ, Silva R, Johnston DL, Michaud J, Wilson B, van Landeghem FKH, Oviedo A, McNeely PD, Crooks B, Fried I, Zhukova N, Hansford JR, Nageswararao A, Garzia L, Shago M, Brudno M, Irwin MS, Bartels U, Ramaswamy V, Bouffet E, Taylor MD, Tabori U, Hawkins C. **Nat Commun. 2019 Sep 25;10(1):4343.** IF 11,878
  - TIM-3 Dictates Functional Orientation of the Immune Infiltrate in Ovarian Cancer.
  - Fucikova J, Rakova J, Hensler M, Kasikova L, Belicova L, Hladikova K, Truxova I, Skapa P, Laco J, Pecen L, Praznovec I, Halaska MJ, Brtnicky T, **Kodet R**, Fialova A, Pineau J, Gey A, Tartour E, Ryska A, Galluzzi L, Spisek R. **Clin Cancer Res. 2019 Aug 1;25(15):4820-4831.** IF 8,911
  - Cotargeting of BCL2 with Venetoclax and MCL1 with S63845 Is Synthetically Lethal In Vivo in Relapsed Mantle Cell Lymphoma. Prukova D, Andera L, Nahacka Z, Karolova J, Svaton M, Klanova M, Havranek O, Soukup J, Svobodova K, Zemanova Z, Tuskova D,



- Pokorna E, Helman K, Forsterova K, Pacheco-Blanco M, Vockova P, Berkova A, Fronkova E, Trneny M, Klener P. *Clin Cancer Res.* 2019 Jul 15;25(14):4455-4465. IF8,911
- Tumor-infiltrating B cells affect the progression of oropharyngeal squamous cell carcinoma via cell-to-cell interactions with CD8+ T cells. Hladíková K, Koucký V, Bouček J, Laco J, Grega M, Hodek M, Zábrodský M, Vošmik M, Rozkošová K, Vošmiková H, Čelakovský P, Chrobok V, Ryška A, Špíšek R, Fialová A. *J Immunother Cancer.* 2019 Oct 17;7(1):261. IF 8,728
  - Limited clinical significance of tissue calprotectin levels in bowel mucosa for the prediction of complicated course of the disease in children with ulcerative colitis. Fabian O, Hradsky O, Lerchova T, Mikus F, Zamecnik J, Bronsky J. *Pathol Res Pract.* 2019 Dec;215(12):152689. IF 1,794
  - Histopathological evidence of aortopathy in newborns and infants with Tetralogy of Fallot at the time of the surgical repair. Fabian O, Gebauer R, Koblizek M, Hornofova L, Janousek J. *Cardiovasc Pathol.* 2019 May - Jun; 40:59-64. IF 1,765
  - Primary angiosarcoma of the femoral artery in patient with kidney and liver polycystosis and multiple arterial aneurysms: report of the case and review of the literature. Fabian O, Mokra D, Masopust J, Skorepa J, Kodetova DN, Zamecnik J. *Cardiovasc Pathol.* 2019 Mar - Apr;39:8-11. IF 1,765
  - Gastrointestinal stromal tumors - Summary of mutational status of the primary/secondary KIT/PDGFR mutations, BRAF mutations and SDH defects. Kalfusova A, Linke Z, Kalinova M, Krskova L, Hilska I, Szabova J, Vicha A, Kodet R. *Pathol Res Pract.* 2019 Dec;215(12):152708. IF 1,794



## Department of Clinical Hematology

Senior Doctor - MUDr. Jitka Segethová

Senior Laboratory Technician - Blanka Hájková

### Basic description:

The department provides extended hematological care according to the criteria of the Czech Society of Hematology of the Czech Medical Association JEP. It is divided into two sections - the laboratory and the clinical section. The laboratory performs routine and special hematological examinations for MUH and for requests from outside the region. **In 2019, the laboratory performed almost 900,000 procedures.** The laboratory is a reference laboratory for diagnostics of acute leukemias and myeloproliferative conditions in children. The attention in adults' hematology 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. 39,700 procedures were carried out in the outpatient section in 2019. In the adult outpatient unit, the treatment within the centre with extended hematological care also focuses on the treatment of multiple myeloma and low-grade lymphoproliferative diseases. The adults' outpatient section includes application rooms used for the application of transfusion preparations and chemotherapy. At the Department of Clinical Hematology, practical training of medical laboratory technicians and other medical staff continues.

### New methods and procedures:

- Examination of the function of thrombocytes.
- Introduction of the methodology for examination of levels of new antithrombic medicines.
- Introduction of the methodology for the examination of fibrine monomers.
- 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 department is carrying out a clinical study for Boehringer Ingelheim – no. 2013-002114-12, no. 2014-000583-18 with dabigatran.

### Unique equipment:

- SYSMEX XN 3000 - automated line for examination of blood count including digital morphology
- coagulometers (ACL) for the examination of routine and special coagulation tests.
- STA-R Evolution – analyzer for examining fibrine monomers.
- device for functional analysis of thrombocytes (Innovance PFA 200)
- satellite incubator for receiving blood cultures

### Major event in 2019:

- Cooperation with the Department of Medical Microbiology on early commencement of hemoculture cultivation continues.
- Granting of a certificate of compliance with the conditions of Audit II NASKL - register of clinical laboratories - 10/2019.
- The Day of Blood was held in the hematological laboratory in September 2019 with many attendees from the general public.





## Department of Clinical Psychology of MUH

Head - Mgr. Zuzana Kocábová

### Basic description:

The department has 35 clinical psychologists in part-time and full-time jobs, who work in the adult and paediatric section of University Hospital Motol. **In 2019, the department treated 3,550 patients and performed 6,333 examinations.** Specifically, the department provides care to pediatric and adult patients before and after organ transplantation, pediatric hematocology patients, and patients with chronic pain. Furthermore, psychologists are involved in comprehensive diagnostic and therapeutic care for children with autism spectrum disorders, eating disorders and other psychiatric diagnoses. The department is also a centre for family therapy.

Psychologists of the Department of Clinical Psychology are also part of multidisciplinary teams caring for pediatric patients with chronic renal failure, cystic fibrosis and diabetes. They are involved in the care of pediatric and adult patients in the epileptosurgery program, patients of the Aftercare Centre and are also part of teams focused on research and treatment of neurodegenerative diseases. Currently, the Department of Clinical Psychology also works closely with the newly formed supportive and palliative care teams for children and adults. The Department of Clinical Psychology also provides psychological services to employees of Motol University Hospital, including regular interventions. The department is an accredited workplace of the Ministry of Health of the Czech Republic for the theoretical-practical and practical part of specialization education in the field of Clinical Psychology and Child Clinical Psychology.

### New methods and procedures:

- A certified course in Paediatric Clinical Neuropsychology was held for clinical psychologists and psychologists in health care.
- Together with Zdravotní klaun o.p.s, individual care for long-term chronic sick children and cooperation with the Supportive and Palliative Care team for children were developed.
- We completed data collection as part of a research project to verify the effectiveness of the NOS program.
- Psychologists, cooperating with the Pain Management Centre, newly created Educational and training groups for hospitalized patients with chronic pain.
- Psychologists participated in the publication of the popular science publication In the Maze called Alzheimer's.

### Major event in 2019:

- The staff of the Department of Clinical Psychology were involved in international research projects and actively participated in lecture activities for the professional and lay public. They published in major scientific journals (Epilepsia, Neuropsychiatric Disease and Treatment, European Journal of Paediatric Neurology, Journal of Sleep Research, Journal of Alzheimers Disease, Current Alzheimer Research) and actively participated in international and Czech professional conferences (European Cystic Fibrosis Conference, Alzheimer's Association International Conference).

## Blood Bank Department

Senior Doctor - MUDr. Eva Linhartová

Senior Laboratory Technician - Mgr. Martin Matějček

### Basic description:

The Blood Bank Department is one of the common examination and therapeutic units of MUH. It ensured purchasing, storage and issue of all types of transfusion preparations for patients in MUH. **In 2019, the department issued a total of 29,364 T.U. of all types of transfusion preparations**, 19,175 T.U. of erythrocytic preparations, 6,427 T.U. of plasma, 3,722 T.U. of thrombocytic preparations and 40 T.U. of granulocytic TP. Consumption of transfusion products against dispensing in 2018 was reduced in plasma and erythrocytes, higher in thrombocytic preparations, and remained the same in granulocytic preparations. 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 preparations for intrauterine and exchange transfusion as needed. In 2019, 9,143 blood group examinations, 20,848 antibody screening tests, and 40,307 compatibility tests were carried out as part of the basic pre-transfusion examinations. The number of specialized immunohaematological examinations remains similar in 2019 in total 1,482. Prenatal examinations are without any major changes. The number of irradiations of transfusion preparations was higher than in 2018 - a total of 9,091 irradiations. At the autotransfusion section, autologous full blood is collected mainly for patients from the Departments of Orthopaedics of MUH, Department of Urology of the 2nd Faculty of Medicine and MUH, and for patients of Na Homolce Hospital, in addition, leukapheresis samples are performed. **In 2019, a total of 107 autologous collections of whole blood, 28 leukapheretic samples (13 PBPCs, 15 MNCs as a material for the production of anticancer vaccines for SOTIO a.s.) and 16 extracorporeal photochemotherapy procedures were performed.**

The department provides tuition under the 2nd Faculty of Medicine, Charles University and for pregraduate and postgraduate students in transfusion medicine for physicians and NGO.

### 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 stem cells (PBPC) performed for pediatric patients of the Department of Paediatric Hematology and Oncology of the 2nd Medical Faculty of Charles University and Motol University Hospital.
- The method of extracorporeal photochemotherapy for patients of 3rd Department of Surgery of the 1st Medical Faculty and Motol University Hospital after lung transplantation started.

### Unique equipment:

- automated immunohematological analyzer Erytra + Eflexis
- MacoGenic G2 irradiation device used for UVA irradiation of blood cells according to the THERAFLEX ECP protocol using the „off line“ technique.

### Major event in 2019:

- In cooperation with the Department of Paediatric Hematology and Oncology, the International Accreditation Committee ISCT-EBMT (JACIE) was obtained for sampling on a peripheral stem cell separator.

## Department of Rheumatology for Children and Adults

Senior Doctor - MUDr. Rudolf Horváth, Ph.D.

Ward 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 collaborating fields and laboratory complement are also necessarily involved in patient care. The department actively participates in the medical advice activities of MUH and provides medical consultancy also to other facilities nationwide.

**In 2019, 5,696 collections, 5,568 inpatient examinations, 3,201 minimum contacts, 322 consultations by phone and 262 specialized ultrasound examinations were carried out at the department and 246 medical consultations were provided for inpatients at various departments of University Hospital Motol.**

### Specialized outpatient units:

- outpatient unit of rheumatology for adults
- outpatient unit of rheumatology for children
- outpatient unit for primary vasculitis
- outpatient unit for diagnose and treatment of autoinflammatory syndromes
- outpatient unit of musculoskeletal ultrasonography
- centre for biological treatment of children and adults in rheumatological indications

### New methods and procedures:

- The portfolio of used biological drugs was expanded by IL-17 blockers in the indications of ankylosing spondylitis, non-radiographic spondyloarthritis and psoriatic arthritis.
- The portfolio of used biological drugs was expanded with new IL-6 inhibitors in RA indications.
- The portfolio of drug use was expanded to include small targeted synthetic molecules (JAK inhibitors) in the treatment of RA and in pediatric patients with JIA in clinical trials.
- The portfolio of used biological drugs was expanded with new IL-1 inhibitors in indications of rare autoinflammatory syndromes.
- Bedside diagnostics and dynamic monitoring of the activity of inflammatory rheumatic diseases using musculoskeletal ultrasonography was established.
- In cooperation with the Department of Imaging Methods of the 2nd Medical Faculty of Charles University and Motol University Hospital, a whole-body examination using MRI in specific indications (eg CRMO) was introduced.
- As part of institutional support projects at Motol UH an ultrasound examination of cartilage damage in inflammatory and non-inflammatory rheumatic diseases was established.

### Unique equipment:

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



### Major event in 2019:

- The department's employees regularly contribute to local specialized congresses organized by the Czech Rheumatological Society of the Czech Medical Association of JEP and foreign congresses EULAR and ACR with their lectures.
- The centre actively presents the outcomes of the ATTRA registry in the Czech Republic and at the international congresses EULAR and ACR.
- Employees of the department regularly publish in domestic and foreign periodicals.
- Work on the internal grant with institutional support of UHM entitled "Use of musculoskeletal ultrasonography in detection of cartilage damage in patients with rheumatoid arthritis and osteoarthritis" continued successfully in 2019.
- The senior doctor of the department, MUDr. Rudolf Horváth, Ph.D. after the successful completion of the habilitation procedure, was appointed docent for the field of medical immunology.



### Department of Central Operating Theatres for Children

Ward Nurse - Bc. Alice Podařilová

Supervising Physician - doc. MUDr. Vladimír Mixa, Ph.D., KARIM

#### Basic description:

The Department of Central Operating Theatres for Children concentrates all surgical procedures for all surgery and other fields from the paediatric part of the hospital, except for cardiac surgeries. These are the fields of pediatric surgery, ENT, orthopedics (also adult surgeries), dental surgery, neurosurgery and ophthalmology. Bone marrow, trepanobiopsy, PICC and Midline are also performed here. Pregraduate and postgraduate tuition for physicians and other medical staff is carried out in the premises of the central operating theatres for children. **7,012 surgical procedures were carried out in 2019.**

#### New methods and procedures:

- The first surgery of tracheofageal H fistula in a newborn using a silicone silo in the Czech Republic was carried out (2018);
- The first thoracoscopic surgery of long gap atresia in a child's esophagus in the CR (2018);
- Establishment of a multidisciplinary group for comprehensive surgical and conservative treatment of lymphangiomas and hemangiomas of the head and neck;
- Robotic surgery introduced in paediatric urology;
- Extension of surgery in orthopaedics by including individual tumorous endoprosthesis;
- New methods for endoscopic surgeries in proctology;
- Continued extension of endoscopic, laser and plasma techniques;
- Wider use of navigation in neurosurgery;
- Pilot operation of transfer from a surgical microscope to the office of the Head of the department and to neurosurgery training room (image);
- Pilot operation of transfer from laparoscopic surgeries to the training room of paediatric surgery (image and sound) used for paediatric surgery and international conferences;
- Introduction of central vascular catheters led from the peripheries PICC and Midline

#### Unique equipment:

- equipment for minimally invasive surgery with 3D image B Braun
- LS instruments for the youngest children 3.5 mm and 5 mm
- new jet ventilation for ENT
- Aeris balloon catheter – used for gentler dilation of stenosis of the respiratory tract in children
- EndoCameleon – optics with variable angle
- Neo Laser with microfiber
- three-channel perioperative monitor of peripheral nerves NeuroStim 3
- Bienaire, Colibra, Aesculap bone cutters
- modernization of accessories for operating tables - mechanism for head support for NCH surgeries and suspension mechanism for fixation of arm at ASC of the shoulder
- equipment for minimally invasive surgery for the smallest children (by Aesculap, Olympus)
- advanced electrocoagulation systems (by Covidien/Metronic, Ligasure, Voyant)



- Duet Encompass device – modern video equipment for urology and EMG of the pelvic floor with simultaneous interconnection to X-ray devices
- cystoscope with endoresector for the smallest children allowing minimally invasive surgery in small children (by Olympus/ Wolf)
- new operating table modified for procedures at the eye surgery theatre
- Stelaris optic system for cataracts and front and rear segment
- Biom optic system, addition to the microscope for rear segment surgeries
- complete equipment of the central operating theatres for children with premium anaesthesiology devices by GE, series Aisys, Avance and Carestation

#### Major event in 2019:

- International workshop Surgical Management of Incontinence at the Department of Paediatric Surgery led by the tutor Professor Henri Lottmann. The course focused on operations on children with bladder disorders and urinary incontinence (March 2019).

### Department of Central Operating Theatres for Adults

Ward Nurse - Mgr. Vladana Roušalová

Supervising Physician - MUDr. Radka Klozová, KARIM

#### Basic description:

The department provides facilities for 9 out of 11 surgical departments of the adult section of MUH. It has 24 operating theatres and participates in surgical procedures in an additional 1 theatre. **Therefore, the department covers approximately 2/3 of surgeries in the adult section, which meant 17,772 surgeries in 2019.**

#### New methods and procedures:

- Physicians from surgical departments fully use the da Vinci Xi system in indicated procedures. This is the first device for robotic and minimally invasive surgeries.

#### Unique equipment:

- There is a new laparoscopic tower High-End – by Olympus, which displays the image in 4K resolution, at operating theatre A3 of the Central Operating Theatres and a bronchoscopies tower Olympus was placed in A4.
- Central Operating Theatres are equipped with nine new Cheirón Victoria Versa II extractors.
- Older models of coagulation devices were discarded and replaced by three new generators.
- 2x Medtronic FORCE FX-8 and 1x Hospimed – ERBE Vio300S.
- Four new drills were purchased for orthopedics for the smooth operation of operating theatres
- Synthes – Colibri II.
- Plastic surgery has two new B. Braun dermatomes.
- 1st surgery owns a new oscillating saw B. Braun.
- In the operating theatres of the Department of Pediatric and Adult Orthopedics and Traumatology, the discarded turnstile was replaced by a new type ATS 4000 TS - Zimmer for operations in bloodless, which is located in theatre C3.

#### Major event in 2019:

- One perioperative care nurse completed post-secondary specialization studies.

### Department of Transplantations and Tissue Bank

Chief Physician - MUDr. Jan Burkert, Ph.D.

Ward Nurse Anna Habrmanová, CETC, CTBS

#### Basic description:

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

#### Specifics of the facility:

The DTTB - TC ensures organizational conditions allowing collection of organs and tissues, transplantation of kidneys in children, transplantation of heart in children, and transplantation of lungs in children and adults at individual departments of Motol UH.

The DTTB – TF ensures operation of the Specialized Tissue Bank (STB 85) operating nationwide.

**In 2019, 15 multi-organ collections (MOC) from cadaverous donors were carried out. 7 kidney transplantation in children (3 from cadaverous + 4 from a living donor) were carried out.**

**42 lung transplantations were carried out (93% of which were bilateral and 85% on ECMO!) and 5 heart transplantation in a child was performed. 96 hearts were received in the cardiovascular tissue bank and 111 grafts for transplantation of heart valves and conduits were issued, 105 of which were transplanted. 122 bone grafts were carried out and 34 grafts were issued. 35 collections of the calva from living donors for autologous use were carried out and 11 cranioplasty procedures were carried out. Amniotic membrane grafts from the placenta were collected from 35 living donors and 356 grafts were issued for transplantation.**

#### Major event in 2019:

- The annual number of performed lung transplants was maintained above 40 (42), ie 4 pmp for the fourth year in a row.
- The human amniotic membrane processing program was put into routine operation. Thanks to the grant support, the program is further developed (AZVČR, internal number 5368, ministry number NV18-04-00106).



## Outpatient sector

### Emergency Department and Medical First Aid Service for Children

Senior Doctor - MUDr. Jitka Dissou

Ward Nurse - Ing. Mgr. Monika Vilímová, Dis.

#### Basic description:

The Emergency Department and Medical First Aid Service for Children takes care of acute pediatric patients aged 0-17 years + 365 days. The department has the following 3 parts: Emergency Admission - acute boxes, Emergency Admission – outpatient unit and Emergency Admission - expectations. From 5 pm to 7 am at weekdays and at weekends, emergency departments operate continuously as a children's emergency room. Patients with priority 1 and 2 and patients taken from the ambulance service are treated in acute emergency boxes. In September 2019, a new part of the emergency admission was opened, the so-called expectation, where it is possible to provide acute infusion therapy, analgesic treatment to indicated patients or observe them for up to 8 hours.

The examination methods available directly at our department are POCT ABR, ECG. CT, US, X-ray and MR are located near the emergency admissions.

**In 2019, a total of 29,214 pediatric patients were treated at the Emergency Department and Medical First Aid Service for Children, of which 5,271 were at the Emergency Admission Department.**

#### New methods and procedures:

- Introduction of a new patient classification system to determine the priority of treatment (so-called triage)
- in September 2019 the opening of a new part of the department with 15 beds - expectation.

#### Major event in 2019:

- In April 2019, the acute outpatient units were moved to the new premises of the polyclinic.
- 14th Czech-Slovak Congress of Paediatric Anesthesia, Intensive Care and Emergency Medicine - co-organization of the Emergency Medicine section, where doctors from Emergency of Motol University Hospital had several lectures.

### Department of Dermatovenerology for Adults

Senior Doctor - MUDr. Alena Machovcová, Ph.D., MBA

Ward Nurse - Mgr. Helena Janoušková

#### Basic description:

This is an outpatient unit without a link to an inpatient unit within MUH. The department provides basic and specialized care in dermatology and venerology focusing on dermatology and occupational skin defects, prevention and treatment of skin tumors and treatment of psoriasis. **In 2019, more than 8,357 patients were treated in the outpatient care and almost 23,962 treatments were carried out.**

#### Specialized outpatient units:

- outpatient unit of venerology
- outpatient unit for pigment nevi and skin tumors
- outpatient unit of dermatology and outpatient unit for occupational skin defects
- corrective dermatological outpatient unit
- lymphological outpatient unit
- acne advisory centre
- outpatient unit for patients after organ transplantation
- nail advisory centre
- outpatient unit for diagnostics and treatment of nail diseases
- centre for biological treatment of psoriasis, chronic hives and hidradenitis suppurativa
- lymphological daycare centre
- daycare centre for phototherapy

#### New methods and procedures:

- laser interventions in dermatology and aesthetic medicine
- surgical procedures on nails (such as ingrown nails, nail plate deformation)

#### Unique equipment:

- digital dermatoscope MoleMax I plus
- high-performance laser Fotona XS Erb: YAG and Nd: YAG
- device for photodynamic treatment of skin tumors

### Department of Dermatology for Children

Senior Doctor: MUDr. Jana Čadová

Department Nurse: Alena Kurešová

#### Basic description:

The department is an outpatient workplace, which has expanded to 3 outpatient units after moving to the renovated polyclinic premises. There are 5 specialized part-time doctors and 3 full-time nurses. The department provides diagnosis, treatment and dispensarization of pediatric patients with all skin diseases. It also provides counseling services to patients in the inpatient wards of the children's section of the hospital. For serious or rare diseases, it acts as a superconcordant workplace throughout the Czech Republic. It participates in the training of doctors in the field of dermatovenerology, allergology or pediatrics in postgraduate education.

**In 2019, 9,130 outpatient procedures were performed and 409 conciliar examinations were provided on the beds of the children's section of the hospital.**

#### Specifics of the facility:

Physicians provide specialized consultancy for especially severe cases of atopic eczema, nevus diseases, genodermatosis and hemangiomas. In close cooperation with the departments of the Children's Hospital (Department of Paediatrics, Department of Paediatric Hematology and Oncology, Department of Paediatric Surgery, Department of Paediatric Neurology, Department of Rheumatology, Department of Biology and Genetics, Department of Immunology) participate in diagnosing rare diseases and setting adequate treatment.



### Unique equipment:

- biostimulation laser BTL-4110 Premium - especially for the treatment of scars and acne
- Illuco IDS-3100 (Magnum +) dermatoscopic magnifying glass with polarization integrated with Wood's lamp to improve the diagnosis of vitiligo and superficial mycoses.
- DermoGenius ultra (Dermoscan) - examination of high-risk pigmented lesions with a digital dermatoscope continues to be improved

### Major event in 2019:

- The department participated in the organization of the Conference of Paediatric Dermatology in Brno with the active participation of 2 doctors. Lectures in Czech Medical Chamber courses for paediatricians, in IPVZ for dermatologists in pre-certification courses for paediatricians and allergists.
- MUDr. Čapková wrote the chapter Perianal Skin Affection in the monograph Paediatric Proctology and 3 publications in professional journals.

## Primary Care Department

Senior Doctor - MUDr. Jaroslava Kulhánková  
Ward Nurse - Mgr. Alena Kašajová

### Basic description:

The department provides acute and long-term preventive care for the staff, patients from outside the Motol hospital registered under individual payments, foreigners with or without insurance from the local health insurance companies, and non-standard care for persons with Czech health insurance. The department is a pregraduate and postgraduate tuition site accredited in general practice.

**27,467 patients were treated at the Primary Care Department in 2019.**

## Department of Emergency Admission and Medical First Aid Service for Adults

Senior Doctor MUDr. Lenka Kozlíková, MBA  
Ward Nurse Bc. Lucie Vacková  
Chief Physician MUDr. Aleš Ducháček

### Basic description:

The Department of Emergency Admission for Adults (DEAA) specializes in basic examination, stabilization of vital functions, treatment of acute problems and decision on admission or release for all patients seeking the services of this department.

The department includes an inpatient unit equipped with 17 monitored beds (60% of patients in this part are brought by emergency services, 25% come without a recommendation and 15% on the recommendation of an outpatient specialist, most often a general practitioner), as well as acute outpatient surgery, traumatology, neurology, urology and outpatient clinic DEAA, which together have another 12 examination beds.

The DEAA also has a triage room with one bed and an anesthesiological and resuscitation box, where patients in a critical condition with various etiologies are admitted in cooperation with KARIM. A total of 31 beds is available.

**The total number of patients treated at the Department of Emergency Admission and Medical**

**First Aid Service for Adults is 76,050 patients, of which 21,861 patients are in admission outpatient units, 9,076 patients in acute outpatient department of surgery, 6,058 patients in the outpatient unit of neurology, 21,212 in traumatology and 15,700 in Medical First Aid Service for Adults. The average time spent in the inpatient section is 160 minutes.**

## Department of Hospital Hygiene and Epidemiology

Chief Physician - epidemiologist MUDr. Vilma Benešová  
Senior Hygiene Assistant - Mgr. Jana Hrončková

### Basic description:

Through its activities, the department meets the requirements of the laws on health services and public health, namely the obligation of the health service operator to create a program for the prevention and control of infections associated with health care and to implement this program; and take measures to reduce the incidence or spread of all infections in medical and non-medical operations of the hospital according to the specific conditions of individual workplaces.

### Specifics of the facility:

Data from reports of healthcare associated infections (HAI), the so-called incidence, are monitored and analyzed. The attending physicians of all medical workplaces at Motol University Hospital are obliged to report the occurrence of an infection; in 2019, 1,708 infections associated with health care were reported, so the **incidence of HAI in 2019 is 1.99**. Clostridial difficile infection was detected in 184 patients, MRSA infection was newly detected in 163 patients, infection or colonization caused by other severe multidrug-resistant microorganisms in 96 patients. In all these patients, barrier measures were ordered and monitored, most often isolation.

The department also monitors infections with which patients are already coming to hospital, the so-called community, which are, according to legislation, reported to the public health protection authority.

**A total of 1,031 epidemiological investigations** were carried out, 244 extracts from medical records were sent to the public health authority via the data box and 244 telephone and 549 administrative reports (forms) of community-acquired infections were transmitted (including 18 pneumococcal disease, 10 cases of pertussis, 16 diseases caused by epidemiologically serious E. coli serotypes and 31 legionellosis). In 2019, 198 patients with influenza were registered, of whom 74% were hospitalized, and 31 patients (16%) had severe acute respiratory diseases requiring hospitalization in intensive care beds.

The Department of Hospital Hygiene and Epidemiology of UH Motol, together with the Department of Primary Care, also in 2019 organized the examination of antibodies against measles in all employees of UHM, at the end of the year, a total of 4,934 were examined, 1,049 had seronegativity and 648 of them were revaccinated. For the year 2019, a vaccine for vaccination against seasonal influenza was provided for UHM employees, free of charge from the cultural and social needs fund.

Measures to reduce the occurrence or spread of infections include **inspections of sterilization techniques, 206** of them were performed in 2019, **inspections of bacterial cleanliness of the environment - a total of 3,430** cultures of swabs from all health care facilities and **128 aeroscopic inspections** in areas where a certain class of environmental cleanliness is required.

As part of the inspection of compliance with anti-epidemic and hygienic requirements at medical workplaces, **363 audits of the hygienic-epidemiological regime** were performed, and we also participated in inspections carried out by public health authorities at selected workplaces. **The compliance of medical staff to hand hygiene** is monitored on an ongoing basis (73%).

In cooperation with the Independent Quality Management Department, an audit of the Transport Department was carried out, as well as an audit of the activities of employees of external

companies operating tea kitchens for patients in medical workplaces. As part of occupational hygiene, detection of cytostatic residues was performed by the swab method (4 samples) in the workplace of the Oncology Clinic.

**372 samples of hot non-potable and drinking water** were taken and sent for cultivation to detect the presence of legionella. The hospital disinfectant performed 390 room disinfections.

## Hospital Pharmacy of the MUH

Senior Pharmacist - PharmDr. Petr Horák

Deputy Senior Pharmacists - Mgr. Milan Vegerbauer and PharmDr. Markéta Petrželová

Senior Pharmaceutical Assistant - Helena Bohabojová

### Basic description:

The main task of the Hospital Pharmacy of MUH is to provide effective and safe drugs for hospitalized patients and outpatients and generally to set up and inspect all steps required in handling of drugs with an impact of 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 preparations without antimicrobial additives and other drugs) and non-sterile drugs (individual preparations, especially for paediatric patients), acquisition of unregistered drugs and obtaining drugs for clinical studies and clinically pharmaceutical care. The pharmacy provides consultation service to patients and medical professionals and theoretical and practical tuition including internships for pregraduate and postgraduate students. The hospital pharmacy contributes to the drafting of the drug policy of MUH by participating in the Committee for Effective Pharmacotherapy. It also drafts internal regulations of Motol University Hospital in the area of drug handling and participates in audit activities within the quality management system in the area of medicines.

**In 2019, an average of 2,920 ready-to-use doses of cytotoxic drugs were prepared per month at the Hospital Pharmacy - Department for Preparation of Cytostatic Drugs. The department for individual preparation of therapeutic preparations prepared about 250 thousand capsules or 25 thousand suppositories. The individual preparation of medicinal products containing medical cannabis was expanded.**

In 2019, the Hospital Pharmacy prepared and issued parenteral nutrition and relating drugs for 36 patients, 18 paediatric patients had sacks individually prepared in the Department for Preparation of Sterile Drugs (DPSD). In addition, numerous preparations that are not available in the form of mass produced medicines HVLP, drugs in stock (antidotes, etc.), cardioplegic solutions, etc. are prepared here. The hospital pharmacy also prepared more than 1,500 products for in vitro diagnostics.

**927,119 packs of medicines were issued to the hospital. 1,116,291 items of drugs, medical devices and supplementary goods and additional products were issued to the public, of which 600,713 medicine packs were prescribed by physicians.** In accordance with the principles of good clinical practice and good pharmacy practice, the pharmacy participates in all clinical trials of drugs that take place at Motol University Hospital. **6,806 items of drugs were issued under the clinical assessment regime. Our clinical pharmacists carried out 4,130 assessments of pharmacotherapy of hospitalized patients and provided 314 medical consultations upon request.**

In the 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, as well as research of the standard of practice of hospital pharmacies in Europe and their comparison. The outputs from these activities are regularly published and presented at specialized fora in Europe and in peer-reviewed and impact magazines.

### New methods and equipment:

- Pilot study for needleless training within the OCPC; OCPC;
- Full electronic prescribing, preparation, transport of cytostatics;
- Introduction of a new technological process and testing of lidocaine
- New possibilities for determining the melting point of drugs;
- Introduction of the preparation of cardioplegic solution Del Nido.

### Major event in 2019:

- Publication of results of European research of the level of implementation of the European “statements” in hospital pharmacy;
- Participation in the survey of the issue of drug unavailability;
- Collaboration with the Faculty of Science, Charles University, on the study of the stability of Del Nido cardioplegic solution, culminating in the publication of results;
- Active participation in national and international events such as the EAHP Academy Seminar, the Congress of Hospital Pharmacists, etc. and membership in the management of European and ational professional societies and participation in the management of major European projects such as the Common Training Framework in Hospital Pharmacy.





## NURSING CARE

Nursing plays an essential role in healthcare. In 2019, we continued to improve the quality of the care provided and ensuring patients' safety. We focused especially on providing individual comprehensive care.

### Quality indicators

Monitoring nursing care indicators /pressure ulcers and falls/ is natural part of our work now. We pay attention especially to preventive measures. Motol UH has participated for the fifth time in the international "Stop Pressure Ulcers" day on 21/11/2019. This event is organized to inform the general and professional public about issues relating to prevention and treatment of pressure ulcers. This time by handing out leaflets and educational posters and presenting products for preventing and healing wounds within the hospital premises. Another of the key topics in 2019 was the pilot launch of a new electronic processing of risk reports and the occurrence of non-healing wounds and falls in the documentation of hospitalized patients. Thanks to sophisticated prevention and improved diagnostics, this year we managed to improve the incidence of pressure ulcers caused at Motol University Hospital compared to 2018. The number of falls of hospitalized patients was also comparable. There is a significant reduction in falls resulting in severe injuries.

We paid significant attention to treating vascular access in hospitalized patients and patients treated under outpatient care. The PICC team of nurses at the Department of Internal Medicine as the guarantor of the quality of nursing care successfully expanded its activities to the introduction of PICC and Midline catheters for hospitalized patients and patients under outpatient care. In 2019, a total of 802 PICC catheters and 402 Midline catheters were inserted. 2,162 venous accesses were treated.

### Social care

The social department provided social care to 5,170 adult patients, which is an increase by 212 patients compared to 2018. Social care was provided to 3,806 patients in acute beds and to 1,364 patients at the Aftercare Centre. 892 patients from all inpatient departments were released with home healthcare provided and 60 patients were released to home hospice care. 391 patients were released into inpatient rehabilitation aftercare and inpatient hospice care was arranged for 23 patients. 1,062 patients requested long-term inpatient treatment and 886 of these were transferred to the Aftercare Centre. 356 patients were released to their homes and 134 patients were transferred to residential facilities - seniors' homes and homes with special regime.

The total number of paediatric patients and their families under social care (including newborns and children at the Department of Paediatric Psychiatry) is 1,093. This is an increase of 218 children compared to 2018.

Two medical and social workers were involved in the palliative team for the adult part. One worker is a consultant in the children's palliative team of Motol University Hospital.

### Milk Kitchen Department

The department prepares all food for newborns and children up to 2 years of age. Milk, teas and food intended for young patients are prepared here. In 2018, the department prepared 150 litres of infant food on average. We proceed in accordance with the HACCP system. Determining critical and control points in the entire production process is the

most important criterion. These points monitor the process of cooling milk and infant food and storage of prepared food in cooling equipment. We have used a new technology to increase the safety of preparation of infant food at Motol UH.

### Department of Central Sterilization

The department ensures the entire process from pre-sterilization preparation of medical devices, washing, surgical net setting, packing, preparation, implementation of sterilization and subsequent distribution to the original workplaces to further use. In 2019, we carried out 8,867 cycles in steam sterilizers, 2,420 in plasma sterilizers and 2,462 in chemical sterilizers. Automated washing machines carried out 28,606 cycles.

### Department of Therapeutic Nutrition

The department ensures nutritional care in inpatient departments and in nutritional advisory centre. Nutritional therapists focus on assessing the nutrition status of patients, introduce nutritional plans and provide individual care for high-risk patients. Nutritional therapists carried out medical consultation for 1,153 hospitalized patients and provided care to 1,300 children and adult patients in the outpatient part. At the end of the year, a nutritional outpatient unit for oncology patients was established. Significant attention was paid to the education of patients and their carers.

### Spiritual care

Providing spiritual care has become an integral part of supportive care for hospitalized patients. In 2019, hospital chaplains provided care for 2,484 patients. 401 employees also used the services of the hospital clerics.

### Hospital supporting health

The motto of the hospital „Healthy Stairs at Motol University Hospital“ was chosen for 2019. As part of the project, motivational slogans were placed on the sub-stairs, which stimulate people to walk up the stairs. We successfully presented the project at the international HPH conference in Warsaw.

During the year, we participated in events organized by the Ministry of Health of the Czech Republic. Specifically, Health Day in June 2019 with a smoking cessation advisory centre and an Open Day in September 2019 with an eye examination advisory centre.

It was prestigious for us to co-organize the 3rd International Conference on the Development of Activities to Support Health and Quality of Care in Medical Facilities, again with the Ministry of Health of the Czech Republic. In addition to organizing responsibilities, we had two active contributions.

We must not forget our work at ENSH since 2018, where we contracted to implement anti-smoking measures and to monitor changes through an internal, self-assessment audit. This year's audit showed an improvement in the implementation of ENSH standards in the operation of the hospital.

### Volunteer Centre

In 2019, volunteers worked 2,706 hours on 3,394 patients. Volunteers visit patients in the pediatric and adult wards of the hospital with a variety of activities.

The program of animal assisted therapy has intensified, especially canistherapy, which includes regular activities - individual visits to individual departments and group activities.



The program involved 20 canistherapy teams with 26 dogs. Volunteers worked a total of 320 hours, which is an increase of 36 hours compared to 2018. 22 canistherapy group events were organized.

In 2019, the Volunteer Centre organized a total of 24 events (theatre, musical and visual arts events), which were attended by 722 patients. In addition to registered volunteers, a total of 43 actors, singers - unregistered volunteers, performed at the events, devoting 86 hours of their time to hospitalized patients.

For those interested in the volunteer program, the center provided 7 consultations lasting 10 hours.

**In September 2019, a conference with international participation was held entitled „The Way to Modern Nursing XXI“, which enjoyed great interest of participants.**



## HOSPITAL OMBUDSMAN

The hospital ombudsman has been operating in Motol University Hospital since January 2012. The independent Department of the Hospital Ombudsman was established as at 01/10/2012 and renamed to the **Independent Department of Hospital Ombudsman and Complaints** as at 01/01/2013.

The main objectives of the Independent Department of the Hospital Ombudsman and Complaints is to protect the patients' rights, improve communication among patients, their relatives and hospital staff, and increase quality of the medical services provided and patient satisfaction. The Hospital Ombudsman addresses requests, initiatives and other submissions against the course of action of Motol University Hospital while providing medical services or carrying out activities relating to the medical services provided. The ombudsman's services are especially available when a patient or a third party believe that their rights have been violated or threatened or when a conflict has or may occur and communication between the parties involved is failing and the matter needs to be addressed objectively.

A total of **397 submissions** were addressed **during 2019**. Furthermore, **514 enquiries**, which often represented a precursor to a potential complaint, were addressed and responded to. Of the total number of **397 submissions**, **360 were complaints**. A vast majority of the complaints was assessed as **unjustified complaints**; there were **36 partially justified complaints and 42 justified complaints**. Corrective measures involving mainly education of employees were applied in the case of justified or partially justified complaints.

Patients (**178 submissions**) and legal representatives of patients who are minors (**106 submissions**) were mostly the submitting persons. As regards the subject of complaints, most of the submissions involved unsuitable communication (**reported in 174 cases**) and the medical services provided (**103 submissions**).

All submissions are always dealt with the managements of individual sites. Where suitable in view of the character of the complaint, complaints are discussed orally with participation of management of the sites involved to find a suitable resolution. In case of urgent matters, complaints are resolved with participation of the Hospital Ombudsman directly at the medical facility.

Detailed records of all processed submissions are kept in accordance with the valid legislation. Outputs of the department's activities along with proposals for adopting necessary measures are regularly presented at meetings of the hospital management and at meetings of managing staff.

The Independent Department of Hospital Ombudsman and Complaints processes requests pursuant to the act on free access to information. The Hospital Ombudsman organizes legal training in the latest issues of medical law according to requests received from individual sites. The department regularly cooperates with hospital ombudsmen from other medical facilities and participates in national sessions for exchanging experience.

## SCIENTIFIC RESEARCH ACTIVITY

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, University Hospital in Motol is also included in 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 most of the departments and institutes of the university hospital are involved. The close interconnection with the 2nd Faculty of Medicine of the Charles University, the 1st Faculty of Medicine of the Charles University and other research organizations in the Czech Republic and abroad is reflected in these activities. In accordance with new trends in the application of the results of scientific research, UN Motol supports innovations and the implementation of research results into practice.

Science, research and innovation (SRI) is supported in Motol University Hospital through combined financing using institutional and special purpose funds obtained mainly from grants. Research teams of Motol University Hospital participate in international projects, especially within the EU, where projects of the EU Program Horizon 2020 and other EU schemes and funds of the EEA and Norway are carried out. The teams of University Hospital in Motol are also significantly involved in the scheme of European reference networks for rare diseases, the so-called ERN.

### Institutional support for research and grants

- Motol UH has received institutional support administered by the Ministry of Health of the CR since 2012.
- Institutional support of the research organization is organized at Motol UH through a system of internal grants at the hospital's individual departments and institutes. Year 2019 was the eight year of application of this scheme.
- **In 2019, the hospital carried out 15 projects of the Czech Health Research Council of the Ministry of Health of the CR as the principal researcher and 44 projects as the cooperating researcher.**
- **Within the Institutional Support, 28 Internal Grant Projects were solved in 2019.** The hospital also dealt with TAČR (Technology Agency of the CR) projects, participated in the co-solving of GAČR projects and was significantly involved in the Horizon 2020 system within the EU. In 2019, the EU also started financial support for the above-mentioned European Reference Networks for Rare Diseases.
- 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 of the Council's outputs 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 2019, there was an increase in the total impact factor, which reached 2,594 points, and a further increase in the average impact factor, which reached 5.2.
- In 2019, the second national evaluation according to the "Metodika17 +" took place, where Motol University Hospital took the leading positions mainly in the evaluation of the quality of scientific results with a significant representation of its outputs in the first decile in the field of Medical Sciences.

- In 2019, Motol UH managed the following allocated and distributed funds in science and research (in CZK):

AGENCY	AMOUNT	NUMBER OF GRANTS
AZV (Czech Health Research Council) as the principal researcher	41 190 000	15
AZV (Czech Health Research Council) as the cooperating researcher	26 429 000	44
TAČR (Technology Agency of the CR) as the principal researcher	2 324 876	1
TAČR (Technology Agency of the CR) as the principal researcher	660 000	1
GAČR (Czech Science Foundation) as the cooperating researcher	1 820 000	2
IP	75 714 764	30
FP7	1 870 966	3
RD Action	86 842,00	1
Horizont 2020	1 868 708	2
Czecrin	360 000	1
CHILTERN	111 057	1
Grant HMPZBÚ OP PPR	410 719	1
Grant ERNCranio	87 603	1
Grant EURRECa	5 078	1
Grant FV Trio	396 800	1
Palliative care of the Ministry of Health	4 381 020	2

- Priorities of the 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 Hematology and Oncology with its laboratory and research facility at the CLIP site is the dominating actor in research. Furthermore, the fields of paediatrics and their branches, gastroenterology, endocrinology, pneumology, nephrology, paediatric neurology and others are traditionally



strongly represented. Cardiology and neurology are the most active specializations in research in adult medicine. The hospital's main research activities take place especially in the laboratory facilities of the Department of Paediatric Haematology and Oncology, Department of Biology and Medical Genetics, Department of Pathology and Molecular Medicine, Department of Microbiology and Department of Immunology.

### Modern Therapies projects

- Motol UH introduced a system of “Modern Therapies” projects in accordance with the support for innovation and integration of scientific research outcomes in practice. Within this scheme, 8 projects were solved in 2019, for which practical output in the form of new diagnostic or treatment options is expected. An application for a utility model arising from joint development of antimicrobial peptides for the treatment of osteomyelitis was submitted in 2015 in cooperation with the Institute of Organic Chemistry and Biochemistry. An application for an international patent was subsequently submitted in 2016. Utility model number 32064 was granted in 2018 under the title: Equipment for detection of joint defect and/or determination of suitable treatment of joint system and substance for determining the cause of joint defect and its monitoring. In 2019, this patent was then contractually transferred to ITA for further development and practical application as a medical diagnostic tool, which is gradually being addressed with an application to SÚKL (State Institute for Drug Control).
- In 2019, within the projects of Modern Therapies, the project „Development and clinical application of AndroidAPS hybrid artificial pancreas software“ was solved, which was successfully submitted to the TAČR applied research support agency under the same name and has been in solution since 2019.

### Combined program for educating physicians MD/Ph.D. program

The combined MD/Ph.D. program has been running at the Motol UH since 2004. **A total of 113 students have been educated through the 16 years of the program's operation and 23 students have obtained the Ph.D. title and postgraduate certification in their specializations.** 41 active students are enrolled in the program.

### International activities

In 2019, we continued to develop international activities in the field of research, mainly at the level of individual clinics and institutes. In 2019, we were completing the solution of 3 FP7 EU projects and 3 projects in the Horizon 2020 system. There was also a significant increase in publishing activities taking into account international cooperation. In 2019, a team from Motol University Hospital participated in the worldwide breakthrough success in the treatment of Cystic Fibrosis, as evidenced by the important position of the leading author of UH Motol prof. Pavel Dřevínek in publication in NEJM, with an impact factor of 70 - Middleton PG, Mall MA, Dřevínek P, Lands LC, McKone EF, Polineni D, Ramsey BW, Taylor-Cousar JL, Tullis E, Vermeulen F, Marigowda G, McKee CM, Moskowitz SM, Nair N, Savage J, Simard C, Tian S, Waltz D, Xuan F, Rowe SM, Jain R; VX17-445-102 Study Group: Elexacaftor-Tezacaftor-Ivacaftor for Cystic Fibrosis with a Single Phe508del Allele. N Engl J Med. 2019; 381(19):1809-1819. IF 70,670

In the area of international activities, Motol University Hospital was also significantly involved in the European Reference Networks for Rare Diseases, ERN, as mentioned above. **The hospital now has 11 workplaces involved in ERN networks under this pan-European scheme, which confirms Motol University Hospital as dominant in the entire field of Rare Diseases. In 2019, as part of a new call, it will apply another 5 workplaces in this scheme.**

### Creative act

Motol University Hospital monitors and appreciates quality and success in medicine and scientific research progress. In 2019, for the eleventh time, the best creative work for the previous year was awarded, this time to the team of the Department of Gynecology for the uterus transplant program. The results of the work were also published in the given year, **Chmel R, Novackova M, Janousek L, Matecha J, Pastor Z, Maluskova J, Cekal M, Kristek J, Olausson M, Froněk J. Revaluation and lessons learned from a first 9 cases of a Czech uterus transplantation trial: four deceased donor and 5 living donor uterus transplantations. Am J Transplant 2019;19(3):855-864, IF 7,163.**

### Young Science

In 2019, the Young Science project was initiated in Motol University Hospital with the aim of connecting groups of young researchers and supporting their cooperation. The project is also focused on the media coverage of scientific projects and results and is carried out in cooperation with the Communication Department of Motol University Hospital.

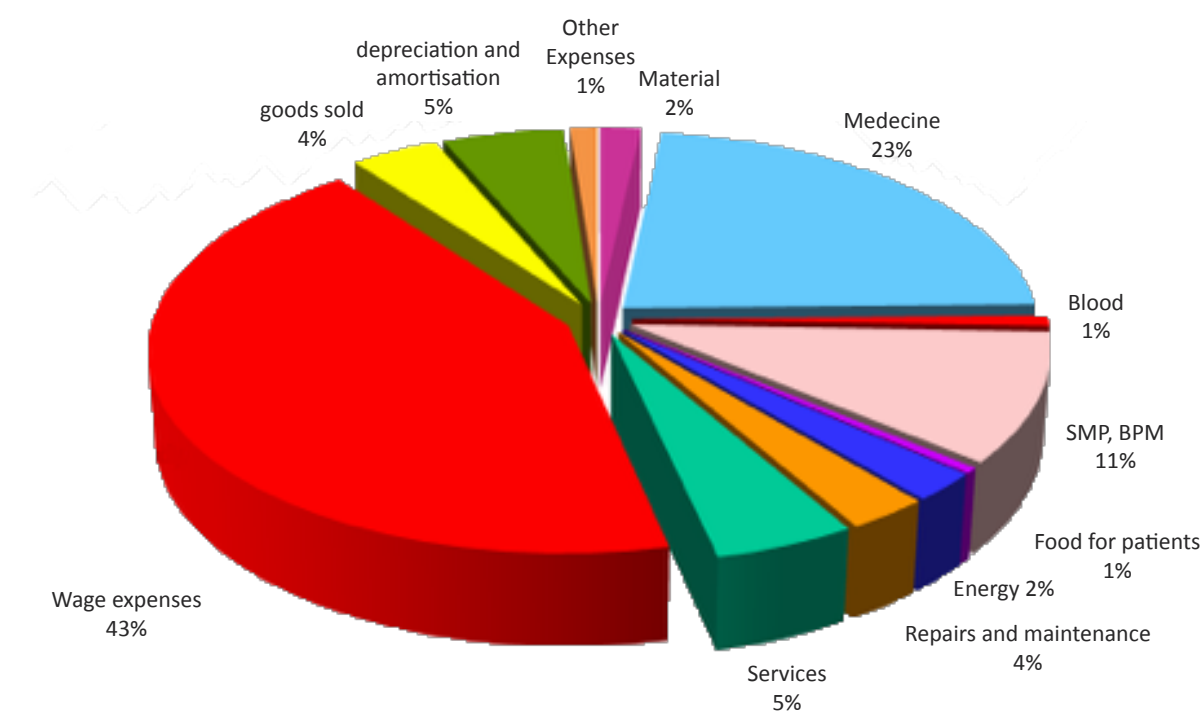




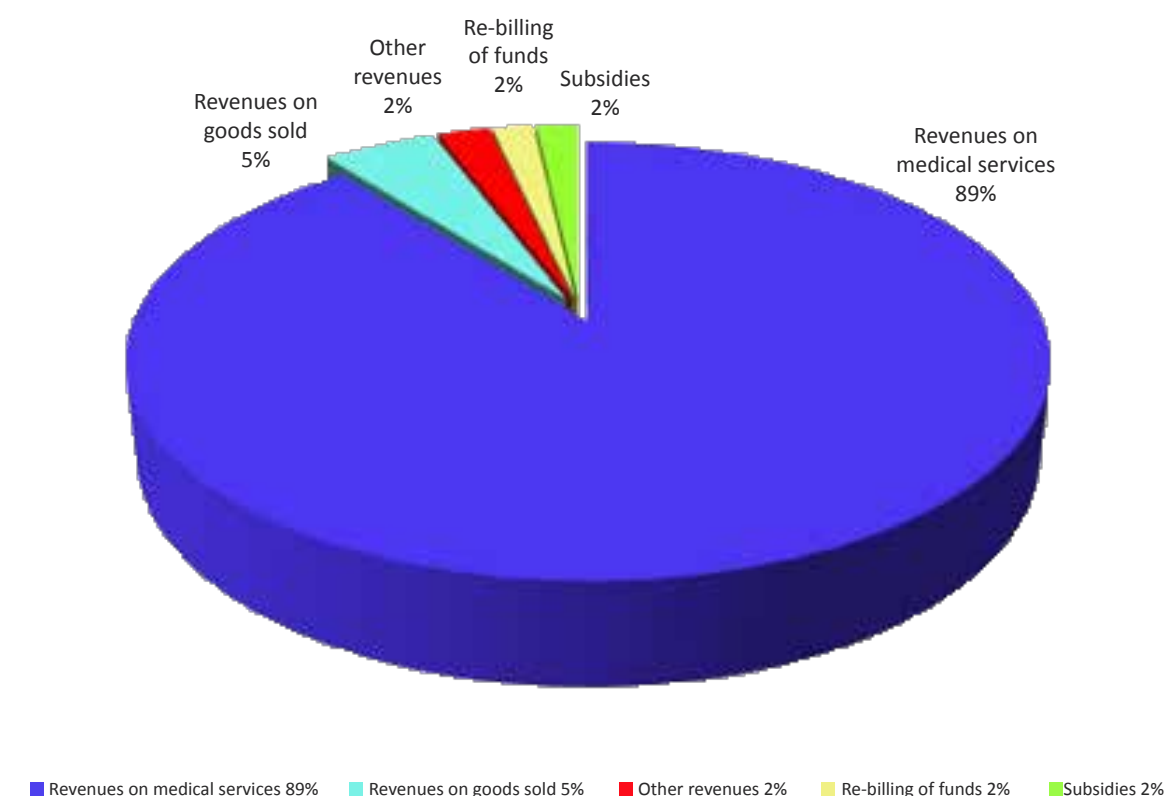
## ECONOMIC ACTIVITY

BALANCE SHEET (abbreviated balance sheet in thous. CZK)	status as at 01/01/2019	status as at 31/12/2019
<b>ASSETS</b>	<b>11 283 196,95</b>	<b>11 571 181,30</b>
Fixed assets	9 405 208,31	9 321 922,26
Fixed intangible assets	6 640,49	12 658,35
Fixed tangible assets	9 383 965,06	9 293 005,61
Long-term financial assets	0,00	0,00
Long-term receivables	14 602,76	16 258,30
Current assets	1 877 988,64	2 249 259,04
Stock	142 378,03	171 673,28
Receivables	720 766,82	1 261 306,85
Financial assets	1 014 873,79	816 278,91
<b>LIABILITIES</b>	<b>11 283 196,95</b>	<b>11 571 181,30</b>
Own resources	9 938 539,13	10 021 495,63
Assets of unit of account	9 421 310,46	9 336 847,11
Funds of unit of account	1 932 798,12	2 069 631,25
Profit/loss for current accounting period	6 799,64	30 586,71
Unpaid loss of past years	-1 422 369,09	-1 415 569,44
Profit/loss under approval proceedings	0,00	0,00
Foreign resources	1 344 657,82	1 549 685,67
Reserves	0,00	0,00
Long-term liabilities	238 635,37	309 213,05
Short-term liabilities	1 106 022,45	1 240 472,62
Bank assistance and loans	0,00	0,00

## Summary of Expenses 2019—Motol University Hospital



## Summary of Revenues 2019—Motol University Hospital



<b>PROFIT AND LOSS STATEMENT</b> (abbreviated balance sheet in thous. CZK)		stav k 31. 12. 2019
<b>Material cost</b>		<b>4 350 038,50</b>
<b>Repair and service costs</b>		<b>801 581,24</b>
<b>Staff costs</b>		<b>4 457 640,54</b>
<b>Taxes and fees</b>		<b>252,46</b>
<b>Other costs</b>		<b>77 515,29</b>
<b>Depreciation, Assets sold, Reserves, Adjustments, Low value long-term tangibles, Low value long-term intangibles</b>		<b>626 802,90</b>
<b>626 802,90</b>		<b>3 955,57</b>
<b>Costs of unquestionable claims on resources of the state budget, territorial self-governing units and state funds</b>		<b>0</b>
<b>Total costs</b>		<b>10 317 786,50</b>
<b>Revenues for own services and goods</b>		<b>9 806 641,21</b>
<b>Other revenues</b>		<b>357 801,78</b>
<b>Financial revenues</b>		<b>152,97</b>
<b>Revenues from unquestionable claims on resources of the state budget resources, territorial self-governing units and state funds</b>		<b>183 777,25</b>
<b>Total revenues</b>		<b>10 348 373,21</b>
<b>Profit before tax</b>		<b>30 586,71</b>
<b>Income tax</b>		<b>0,00</b>
<b>Unpaid loss of past years</b>		<b>0,00</b>
<b>Profit after tax</b>		<b>30 586,71</b>

The economic outcome of Motol University Hospital was balanced as at 31/12/2019 and the accounting period this year ended with a profit of CZK 30.58 mil.

Due to higher performance in previous years, the hospital received a supplementary payment for health care from health insurance companies in the amount of CZK 211.62 million in 2019, which also significantly affected the current account balance. It was thus possible to eliminate the reduction in medical services caused by the lack of nursing staff. In addition, the lack of nursing staff in the labor market necessitated an increase in overtime work for this category of employees, thus increasing human resources costs, which was further accentuated by Government Decrees 263/2018 and 332/2018, which set new allowances for nursing staff. The increase in personnel costs significantly affects the total costs of the hospital and accounts for 43%.

The Reimbursement Decree, approved for 2019, defined the reimbursement of acute inpatient care in the form of a lump sum payment of 112.4% reimbursement in the reference year 2017 with a minimum production of 95% of the reference period. The production was measured using a casemix of all cases according to the rules of DRG Restart. According to the Reimbursement Decree, the coefficients of increase were determined for each group of diseases separately for specialized centers, and part of the specialized centers was without limitation. The outpatient component of the payment was also paid in a lump sum with an increase compared to 2017 with the condition of 100% in 2017. For this reason, the hospital's priority was to maintain full operation of inpatient wards. At the same time, the management of the hospital was also affected by the increase in costs, especially in the area of centric drugs and drugs pursuant to Section 16 of Decree No. 48/1997 Coll., On Public Health Insurance. The teaching hospital has consistently more complicated patients and therefore the costs of their treatment are higher.

The cash flow of the hospital in 2019 was significantly affected by the installments for the reconstruction of the Motol Children's Ward and the polyclinic of the University Hospital.

After the inclusion of the Motol Children's Ward and the polyclinic in assets, depreciation of assets increased year-on-year. However, the hospital needs to ensure the reproduction of assets, as investing in modern technology will also reduce repair and maintenance costs

A balanced financial outcome is the most important economic objective of Motol University Hospital. The hospital has been economically stable on a long-term basis and has no tax arrears. During 2019, the hospital paid installments on its long-term liabilities regularly and these installments will continue to influence the hospital's cash flow. Changes in remuneration legislation, rising energy prices and other prices cause an increase in costs, which are not all reflected in reimbursements for health care and hospitals can affect them only by adopting austerity measures, ie effectively managing the cost ratio in ensuring its main mission, ie. primarily patient care in accordance with the national accreditation standards of SAK, a.s., which represents the organization's commitment to providing quality care and ensuring a safe environment for patients and employees.

## HUMAN RESOURCE ACTIVITY

University Hospital in Motol employed in 2019:

*in converted numbers 5,380 employees, of which 4,313 medical staff*

*in natural persons: 6,041 employees, of which 4,952 medical staff*

	2017	2018	2019	2017	2018	2019	INDEX 19/18	
	NP	NP	NP	CN	CN	CN	NP	CN
Total	5 801	5 858	6 041	5 191	5 220	5 380	1,03	1,03
PHYSICIANS	1 238	1 279	1 293	917	945	972	1,01	1,03
PHARMACISTS	33	33	36	30	30	34	1,09	1,13
NURSES	1987	1989	2033	1829	1814	1841	1,02	1,01
QUALIFIED MEDICAL STAFF	459	598	656	434	569	622	1,10	1,09
SPECIALIZED MEDICAL STAFF	241	244	261	193	193	206	1,07	1,07
SUPERVISED MEDICAL STAFF	729	590	613	709	568	590	1,04	1,04
OTHER QUALIFIED STAFF	59	59	59	51	49	47	1,00	0,96
TECHNICAL AND ECONOMIC STAFF	735	753	785	724	745	769	1,04	1,03
WORKERS	318	312	305	314	307	299	0,98	0,98

(NP) average number of natural persons (CN) average converted number

### Qualification structure - status as at 31/12/2019

Achieved education among nurses and midwives	Total	%	of which with specialization	%
Secondary medical	1287	63,49	971	75,45
Higher medical	199	9,82	75	37,69
Tertiary bachelor's	352	17,37	89	25,28
Tertiary master's	189	9,32	52	27,51
Total	2027	100	1187	58,56

### Employees according to education and gender - status as at 31/12/2019

achieved education	men	women	total	%
basic	111	129	240	3,92
vocational certificate	312	240	552	9,01
vocational secondary	47	10	57	0,93
completed general secondary	22	56	78	1,27
4,420 completed vocational secondary	304	1995	2299	37,51
higher vocational	63	258	321	5,24
tertiary	884	1698	2582	42,13
of which bachelors	83	526	609	
masters	801	1172	1973	
<b>total</b>	<b>1743</b>	<b>4386</b>	<b>6129</b>	<b>100</b>

### Employees according to age and gender - status as at 31/12/2019

age	men	women	total	%
up to 20 years	11	41	52	0,85
21 - 30 years	334	822	1156	18,86
31 - 40 years	440	854	1294	21,11
41 - 50 years	376	1267	1643	26,81
51 - 60 years	289	1017	1306	21,31
61 let a years and more	259	419	678	11,06
<b>total</b>	<b>1709</b>	<b>4420</b>	<b>6129</b>	<b>100</b>
<b>%</b>	<b>27,80</b>	<b>72,20</b>	<b>100</b>	

1) **Medical staff pursuant to Act No. 95/2004 Coll.** = physicians and pharmacists: total 1,329. Of the 1,293 physicians in total, 415 (32%) only have professional qualification and 878 (68%) physicians have specialized qualification (i.e. 2nd level of postgraduate certification, additional certification, Czech Medical Chamber licence, certification of the Ministry of Health of the CR).

2) **Medical staff pursuant to Act No. 96/2004 Coll.** = medical professions other than physicians: 3,622 in total, of which 2,033 general nurses and midwives.



## Wages

A total of **CZK 3.243.072.272** (excluding other personnel expenses - remuneration for work performed outside employment) was expended on wages in 2019. This was an increase by **CZK 320.526.229**, i.e. by 10% compared to 2018.

The increase in wage expenditures was caused by the wage regulation effective as of 01/01/2019 pursuant to Government Decree No. 341/2017 Coll. And 263/2018 Coll. Furthermore, the volume of the expended finance was also influenced significantly by the increase in the special bonus for medical staff other than physicians without expert supervision for work in three-shift or non-stop operation pursuant to Government Decree No. 168/2017 Coll., improved qualification structure and increasing age of employees. The average gross salary in the hospital as at 31/12/2019 was CZK 50,237. This is an increase by 8% compared to 2018.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>TOTAL</b>	<b>30824</b>	<b>33356</b>	<b>35016</b>	<b>34364</b>	<b>34893</b>	<b>36302</b>	<b>38529</b>	<b>42111</b>	<b>46657</b>	<b>50237</b>
<b>PHYSICIANS</b>	<b>51373</b>	<b>61510</b>	<b>67464</b>	<b>65564</b>	<b>66478</b>	<b>68962</b>	<b>71753</b>	<b>76316</b>	<b>81758</b>	<b>85284</b>
<b>NURSES</b>	<b>30206</b>	<b>31307</b>	<b>32853</b>	<b>32079</b>	<b>32035</b>	<b>33425</b>	<b>36390</b>	<b>40317</b>	<b>45637</b>	<b>50681</b>




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