



ANNUAL REPORT 2018

MOTOL UNIVERSITY HOSPITAL



FN MOTOL

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INTRODUCTION

Dear Friends,

I believe that year 2018 will go down in the history of our hospital and the history of Czech healthcare as the year when the biggest construction investment in a medical facility in the Czech Republic was completed. The reconstruction and modernization of the Pediatric section of the Motol University Hospital was undoubtedly an exceptional project. The grand opening of the Pediatric polyclinic on 6 December 2018 with the participation of the Prime Minister and the Minister of Health concluded the process of extensive renovation, which started with the zero stage - reconstruction of the energy centre in 2005. This meant 13 long years of provisional solutions and effort on the part of all hospital employees to deliver full performance under significantly deteriorated conditions. We owe praise to all people involved because this project was unique even at the European level. Reconstruction of such a large hospital without interrupting its operation has not been achieved anywhere else. We now have a beautiful Pediatric hospital but life goes on. The adult hospital, the so-called blue pavilion has celebrated the 21st anniversary of its opening and it is clear at the first sight that this pavilion also needs to be reconstructed after a quarter of a century in operation. The hospital with its nonstop operation 24 hours a day, 365 days a year and a daily traffic of approximately 20 thousand people is known to be one of the most frequented public buildings. The hospital's management therefore needs to consider slightly in advance how to deal with this situation. Thermal insulation and cooling of the blue pavilion need to be addressed. Unfortunately, the insulation of the building's external shell was not constructed appropriately during the construction in the first half of the 1990s and the building has lately been exposed to major climatic changes, especially very hot summers, similarly to the rest of the Czech Republic. We are aware that this is one of the largest buildings of its type in Europe. The technical or financial aspects of the solution therefore will not be easy and it is clear that the management will be facing more challenges. The year 2018 was also important to us owing to medical achievements. All hospital staff deserves our thanks for achieving a balanced financial outcome despite the problem that affects healthcare throughout the Czech Republic - the decreasing number of nurses. Despite the hospital management's worries over the summer holidays, the hospital successfully treated roughly the same number of patients as in the previous years and managed to meet the necessary volume of hospitalized patients, surgeries and out-patient interventions defined by the DRG payment system. The hospital has also achieved a high level of super-specialized interventions. Many of these are only performed in the Motol UH

and the hospital management strives to support these modern and innovative procedures as much as possible. You can read more about this in the chapter dedicated to preventive therapeutic care, science and research or nursing. We can mention for example the record number of lung transplants, which we now perform even for patients from the Slovak Republic. We have also successfully established the robotic surgery program, which is being expanded from Pediatric and adult urology to additional surgical specializations. To sum up, the Motol University Hospital maintains its reputation of a top-quality hospital at a European level and this is reflected in the outcomes of various surveys and continuing interest of medical facilities in Europe and worldwide in cooperating with our institution.

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. Marek Babjuk, CSc.

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

Prof. MUDr. Ondřej Cinek, Ph.D.

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

Prof. MUDr. Dagmar Dotělová, CSc.

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

Prof. MUDr. Pavel Dřevínek, Ph.D.

Head of 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

Senior Doctor at 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 Pediatric 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. Josef Koutecký, DrSc.

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

Prof. MUDr. Pavel Kršek, Ph.D.

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

Prof. MUDr. Jan Lebl, CSc.

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

Prof. MUDr. Robert Lischke, Ph.D.

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

Doc. MUDr. Štěpánka Průhová, Ph.D.

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

Doc. MUDr. Oleg Reich, Ph.D.

Children's Heart Centre of Motol University Hospital

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 31/12/2018



BASIC DETAILS AS AT 31/12/2018

Area of the premises (m ²)	348 000
Assets /in thous. (in thousand CZK)	11 283 197
Total turnover /in thous. (in thousand CZK)	9 509 016
Employees /natural persons/ (FO)	5 954
Employees /converted numbers/ (PP)	5 299
Beds	2 199

Beds

Of which:	Children	Adults	Total
acute standard	421	1017	1438
acute intensive	150	216	366
acute total	571	1233	1804
aftercare intensive	4	10	14
long-term	-	361	361
long-term intensive	-	20	20
beds total	575	1624	2199

Number of hospitalizations	77 322
Number of outpatient treatments	1 206 553
Number of treatment days /excl. Department of Long-term Treatment - Aftercare Centre/	453 077
Number of anesthesiology procedures	36 768
Number of births	3 240
Percentage of deceased	1,37

LIST OF DEPARTMENTS

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

Head - prof. MUDr. Michal Hrdlička, CSc.

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

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

Department 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 Pediatric 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 Phoniatics, Mrázovka

Head - MUDr. Petr Myška

Department of Pediatrics, 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 Pediatric 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 Pediatric 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. Štěpánka Čapková

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

Pediatric Inpatient Part

Department of Pediatrics, 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 Pediatrics provides diagnostics, treatment and follow-up care for Pediatric patients from various places in the Czech Republic in almost all internal medicine specializations. A total of 4,720 patients was hospitalized and 24,378 outpatient examinations were carried out at the department during 2018. 16 patients underwent successful kidney transplantation (in one case from a live donor - relative), successful lung transplantation was performed in 1 patient and 8 patients were prepared for liver transplantation at IKEM.

Specialized outpatient units:

17 specialized outpatient units (including outpatient units for children after kidney, liver and lung 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 - 17 patients using home peritoneal dialysis (the only facility in the Czech Republic that also treats infants), 5 children using hemodialysis, 3 patients using immunoabsorption.
- The team at the pneumonology facility successfully focused (as the only site in the CR) on diagnostics and treatment of patients with primary ciliary dyskinesia. The facility continues to care for patients suffering from cystic fibrosis, treating these patients successfully with the Kalydeco drug.
5 patients after successfully completed lung transplantation are being monitored. Furthermore, the team cares for 22 children (mostly with severe neurological issues) using home non-invasive ventilation. A total of 5,787 examinations were carried out at the laboratory for functional diagnosis of pulmonary diseases. The facility examines pulmonary functions in non-cooperative children, including infants, as the only workplace in the CR
- The gastroenterological team successfully continues in its intensive endoscopic program, including the introduction of percutaneous endoscopic gastrostomy in combination with jejunal tube (PEG-J). The team monitors and treats 7 patients using home parenteral nutrition.
- In 2018, the diabetologic and endocrinologic team successfully developed its cooperation with the Padov University on in-silico testing of software allowing interconnection of data from a continuous glycemic monitor and an insulin pump with an option of automatic insulin dosing without the patient's active involvement.

Unique equipment:

- Endoscopic equipment for examining very young children and children with very low weight.
- Simulator of endoscopic procedures for gastroenterology and pneumology to improve the manual skills of physicians joining the working team

Major event in 2018:

- The gastroenterological team participated in the international randomized controlled study REDUCE-RISK sponsored by the EU – administration of immunosuppressive and biological treatment to children with IBD.
- The medical team of the infant ward continued in the PERTINENT international study focusing on surveillance pertussis in children up to 1 year of age.
- The endocrinologic and diabetologic team continued working on the European Reference Centres project for rare diseases, operating as the only centre in the CR in endocrinology and rare bone disorders. The team members successfully defended the Centre of Reference title for therapy of diabetes in children granted by the international companies ISPAD and SWEET.
- Within the pneumological team, members of the workgroup focusing on cystic fibrosis cooperated in a research project with the Lisbon University and participated in the EU – ERN- LUNG CF project. They organized and conducted a certified course for implementation of the Macroduct sweat test.
- Members of all workgroups intensively presented the hospital at scientific conferences in the CR and abroad and published many papers 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 Kubaš, 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 the 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 2018, 509 surgeries (of which 1 heart transplantation) were performed, 25 ligation procedures for patent ductus arteriosus for newborns with low birth weight were performed at different sites, 381 catheterizations were performed (of which 288 were intervention procedures), 903 patients were hospitalized (+559 accompanying persons) and 3,855 patients were treated in the outpatient service.** These numbers confirm continued increasing trend in the number of procedures in surgeries and catheterization interventions compared to the previous years, which reflects the impact of moving the site to new premises with adequate capacity in 2011, despite

a lack of staff in particular in the category of medical staff other than physicians. The site once again provided care also to patients abroad as part of humanitarian and development programs in 2018. A total of 14 patients were operated on in Amman, Jordan under the Medevac program. 21 patients with a congenital heart defect were operated on in Vijaywada, India during two humanitarian/development missions (in cooperation with the UK organization Healing Little Hearts). Surgeries were performed in additional 9 children in Nairobi, Kenya in cooperation with the Slovak Aid organization. Therefore, a total of 44 patients with congenital heart defects were operated on during these missions.

Furthermore, the hospital performed under the agreement on cooperation in surgical and cardiological treatment of Pediatric patients suffering from heart diseases with the university hospital in Ljubljana in the form of regular trips of heart surgeons of the Children's Heart Centre to Slovenia and catheterization procedures performed at the Children's Heart Centre in more complex cases. This agreement came into force on 01/11/2017.

Byla dále naplňována dohoda o spolupráci v chirurgické a kardiologické léčbě dětských pacientů s onemocněním srdce s fakultní nemocnicí v Ljubljani formou pravidelných výjezdů kardiokirurgů DKC do Slovinska a chirurgickou i katetrizační léčbou složitějších případů v DKC. Tato dohoda vstoupila v platnost 1.11.2017.

Specialized outpatient units:

- Clinical cardiology
- Electrophysiology and cardiac stimulation
- Prenatal cardiology
- Connective tissue diseases
- Heart failures and transplantations

New methods and procedures:

- Program for long-term implantable mechanical cardiac support - 3 patients with terminal heart failure were treated successfully and subsequently transplanted since 2014.
- Program for heart transplantation in children – transplantation performed successfully in 4 patients in 2014, in 1 patient in 2015, in 3 patients in 2016, in 3 patients in 2017 and in 1 patient in 2018.
- Development of program for tracheoplasty for congenital trachea malformations in cooperation with the tracheal team of the Motol UH (since 2016 – 4 procedures).
- Further development of program for molecular and genetic examination of families with occurrence of hereditary arrhythmias and cardiomyopathies using the new generation sequencing method (NGS) in cooperation with Department of Biology and Medical Genetics, 2nd Charles University Medical Faculty and Motol University Hospital.
- Further development of the program for minimally invasive heart surgeries.

Unique equipment:

- Rotaflow centrifugal pump for ECMO and short-term mechanical cardiac support
- GE Vivid E95 ultrasound device using a unique data acquisition technology with special software cSound beamformer and the new ACI technology with improved quality of imaging.

Major events in 2018:

- Participation of the Children's Heart Centre as a member of the European Reference Network GuardHeart focusing on hereditary arrhythmias and cardiomyopathies.
- Treatment of 4 fetuses in the CR with critical aortal stenosis using fetal aortal valvuloplasty (in cooperation with the Department of Pediatric Cardiology of the Kepler University Hospital in Linz).
- Organizing the interdisciplinary symposium 31st ŠAMÁNEK'S PODĚBRADY and 41st MOTOL SEMINAR in the spa colonnade in Poděbrady, 11th -13th January 2018, 220 participants.
- 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 and 8 chapters in the following books:
 - Paul, R. Gebauer, T. Kriebel, H. Schneider, J. Janoušek, Ventrikuläre Tachykardien im Kindes- und Jugendalter Handlungsempfehlung nach der S2-Leitlinie AWMF- Register -Nr. 023/022, Monatsschr Kinderheilkd 2018;166:148–149 <https://doi.org/10.1007/s00112-017-0406-x> published on 5th December 2017© Springer Medizin Verlag GmbH 2017 IF 0,23
 - Roston TM, Yuchi Z, Kannankeril PJ, Hathaway J, Vinocur JM, Etheridge SP, Potts JE, Maginot KR, Salerno JC, Cohen MI, Hamilton RM, Pflaumer A, Mohammed S, Kimlicka L, Kanter RJ, LaPage MJ, Collins KK, Gebauer RA, Temple JD, Batra AS, Erickson C, Miszczak-Knecht M, Kubuš P, Bar-Cohen Y, Kantoch M, Thomas VC, Hessling G, Anderson C, Young ML, Choi SHJ, Cabrera Ortega M, Lau YR, Johnsrude CL, Fournier A, Van Petegem F, Sanatani S. The clinical and genetic spectrum of catecholaminergic polymorphic ventricular tachycardia: findings from an international multicentre registry. Europace. 2018 Mar 1;20(3):541-547. doi:10.1093/europace/euw389. PubMed PMID: 28158428; PubMed Central PMCID: PMC6059141. IF 4,52
 - Hernández-Madrid A, Paul T, Abrams D, Aziz PF, Blom NA, Chen J, Chessa M, Combes N, Dagres N, Diller G, Ernst S, Giamberti A, Hebe J, Janousek J, Kriebel T, Moltedo J, Moreno J, Peinado R, Pison L, Rosenthal E, Skinner JR, Zeppenfeld K; ESC Scientific Document Group. Arrhythmias in congenital heart disease: a position paper of the European Heart Rhythm Association (EHRA), Association for European Pediatric and Congenital Cardiology (AEPC), and the European Society of Cardiology (ESC) Working Group on Grown-up Congenital heart disease, endorsed by HRS, PACES, APHRS, and SOLAECE. Europace. 2018 Nov 1;20(11):1719- 1753. doi:10.1093/europace/eux380. PubMed PMID: 29579186. IF 4,52
 - Vojtovic P, Kucera F, Kubuš P, Gebauer R, Matejka T, Tláškal T, Ložek M, Kovanda J, Janoušek J. Acute right ventricular resynchronization improves hemodynamics in children after surgical repair of tetralogy of Fallot. Europace. 2018 Feb 1;20(2):323-328. doi: 10.1093/europace/euw414. PubMed PMID: 28371908. IF 5,2
 - Vida VL, Guariento A, Milanesi O, Gregori D, Stellin G; Scimitar Syndrome Study Group – Tláškal T. The natural history and surgical outcome of patients with scimitar syndrome: a multi-centre European study. Eur Heart J. 2018 Mar 21;39(12):1002-1011. doi: 10.1093/eurheartj/ehx526. PubMed PMID: 29029134. IF 23,4
 - Baggen VJM, Venema E, Živná R, van den Bosch AE, Eindhoven JA, Witsenburg M, Cuy-

pers 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. PubMed PMID: 30172474. IF 4,0

- 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.* 2018 Dec 16. doi: 10.1111/jce.13812. [Epub ahead of print] PubMed PMID: 30556201. IF 2,873
- J Janousek J Kovanda M Lozek V Tomek R Gebauer P Kubus. Cardiac resynchronization therapy for treatment of chronic pulmonary right ventricular dysfunction in congenital heart disease. *Europace* 2018;20(suppl 1):i105 (abstract) IF 5,230
- Jan Janousek, MD, PhD, Jan Kovanda, Miroslav Lozek, Viktor Tomek, PhD, Roman Gebauer and Peter Kubus, PhD. Cardiac Resynchronization Therapy For Treatment Of Chronic Pulmonary Right Ventricular Dysfunction In Congenital Heart Disease. *HeartRhythm* 2018;15(suppl):S270 (abstract) IF 4,740
- Jan Janousek, MD, PhD, Jan Kovanda, Miroslav Lozek, Viktor Tomek, PhD, Roman Gebauer and Peter Kubus, PhD. Cardiac resynchronization therapy for treatment of chronic pulmonary right ventricular dysfunction in congenital heart disease. *Cardiol Young* 2018;28(suppl 1):S1-S2 (abstract) IF 0,980
- 1 local publication in an impact magazine: Kittnar O, Riedlbauchová L, Adla T, Suchánek V, Tomis J, Ložek M, Valeriánová A, Hrachovina M, Popková M, Veselka J, Janoušek J, Lhotská L. Outcome of resynchronization therapy on superficial and endocardial electrophysiological findings. *Physiol Res.* 2018 Dec 31;67(Supplementum 4):S601-S610. PubMed PMID: 30607967. IF 1,3
- 1 article in a peer-reviewed foreign magazine, 5 articles in peer-reviewed local magazines, 1 article in a local non-impact magazine.
- Books, chapters:
 - Jan Lebl, Tereza Doušová, Lucia Karnišová, Radana Kotalová, Karel Koubský, Tomáš Seeman, Karel Vondrák, Pavel Vojtovič, *Organ transplantation in children*, Motol Pediatric Seminars 1, 155x225 mm, bound, in color. First edition, 2018, published by Galén.
 - Jana Rubáčková Popelová et al., *Congenital heart defects in adults*, 2nd revised edition, Grada, Praha 2018, 550 pages.
 - Táborský M., Kautzner J., Linhart A., P.Kubuš, et al. *Cardiology I, II*, second revised and supplemented edition Prague: Mladá Fronta 2018. Chapter 53.21, Heart rhythm defects in children, pages 1170-1175.

Department of Pediatric 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 Pediatric 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 6,800 inpatient procedures and 1,866 medical consultations were carried out and 511 patients were hospitalized at the inpatient section in 2018.**

Specialized centres:

- Family centre focusing on family therapy for Pediatric 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.
- The AZV 16-31754A grant focusing on the use of modern imaging methods in research of social and linguistic deficits in neurodevelopmental disorders has been implemented at the department since 2016.
- The department has continued working on a research of early markers of bipolar affective disorder in high-risk children, which is unique in the Czech Republic. Dr. Goetz received support for another research period from the AZV 17-32478A grant (principal researcher MUDr. Michal Goetz, Ph.D.). In this field, the department cooperates with the National Institute for Mental Health.
- Comprehensive therapy and research of food intake disorders was also carried out in 2018 with the department's activities having national significance in this field.
- The significance of diagnostics and comprehensive therapy of psychotic conditions also exceeds the regional level.

Unique equipment:

- Thymatron DG device for electroconvulsive therapy

Major event in 2018:

- In July, MUDr. Goetz successfully organized a global congress of Pediatric psychiatry (International Association for Child and Adolescent Psychiatry and Allied Professions, IACAPAP), which was attended by 1,600 experts from 85 countries. The Motol UH was a partner of courses organized within the hospital and throughout the congress. MUDr. Goetz was elected the vice-president of the International Association for Child and Adolescent Psychiatry and Allied Professions.
- MUDr. Štěpánka Kicková, Ph.D. defended her doctoral thesis and was granted the Ph.D. title.



The Department 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 Komrška, 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 anemias, bleeding disorders and congenital coagulation disorders (hemophilia). Allogeneic and autologous transplantation of hemopoietic stem cells in the treatment of high-risk leukemias, selected solid tumors, congenital immunity disorders and metabolic defects is carried out at the transplantation unit.

A total of 20,115 examinations and treatments were carried out in the outpatient section, 3,358 patients with tumorous diseases and 2,638 patients with non-tumorous diseases were treated in 2018. 169 children with malign solid tumors, 35 children with leukemia and myelodysplastic syndrome, 376 patients with benign tumors and 512 children with non-tumorous diseases were newly diagnosed. The total number of hospitalized patients was 2,470 with 1,550 accompanying persons. 37 allogeneic bone marrow transplantations were carried out, of which 29 patients received bone marrow from unrelated donors from registers, 8 from identical siblings, and 13 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
- Haematologic outpatient unit
- Haematologic 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

- In vOctober 2018, an international audit JACIE of the European society for bone marrow transplantation EBMT was carried out at the department's transplantation unit and the apheretic centre of the Motol UH Blood Bank.
- A newly established outpatient unit for palliative care for children with tumorous diseases was opened.

Major event in 2018:

- The Chief Physician of the department's laboratory centre, prof. MUDr. Jan Trka, Ph.D. received an award of the Minister of Education, Youth and Sport for exceptional outcomes of research, experimental development and innovation in 2018.
- In April 2018, the department's employees organized the 21st international conference of the European group for late consequences of tumorous disease in children

PanCare. The conference held in Prague was attended by more than 200 experts from many European countries.

- In February 2018, the department's employees in cooperation with the HAIMA parents' organization organized the fourth year of the Day of Children's Oncology aiming to spread awareness of the issues relating to Pediatric oncology and showing respect to young patients and their families.
- The department's young scientist, Mgr. L. Hovorková received the Prize of the Czech Haematologic Society for the best publication in haematology in 2018.

Department of Pediatric 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 Pediatric Surgery is a leading European site for Pediatric 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. **A total of 3,109 patients were hospitalized at the department, of which 227 children were hospitalized at the surgical intensive care unit for newborns in 2018. Surgeries were performed on 2,147 children. Specialized outpatient units treated 15,692 children and the emergency service provided care for 5,362 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
- Pediatrics
- Advisory centre for home parenteral nutrition

New methods and procedures:

- The first thoracoscopic surgery of tracheoesophageal H fistula in a newborn in the CR in 2018;
- The first thoracoscopic surgery of long gap atresia in a newborn's esophagus in the CR in 2018;
- Extended spectrum of minimally invasive surgery
 - 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
 - laparoscopic transanal resection of rectosigmoid according to Georgesson for

Hirschsprung's disease

- laparoscopic rectopexy for rectal prolapse

- Introduction of minimally invasive biopsy in the examination scheme of newborns with suspected Hirschsprung's disease;
- Introduction of the feed-and-sleep technique for examination of infants (CT, magnetic resonance) replacing the formerly performed technique under total anesthesia.

Unique equipment:

- Equipment for minimally invasive surgery for the smallest children (by Aeskulap, 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)
- Mobile pumps for children using home parenteral nutrition (by B Braun)
- Mobile pumps for home enteral nutrition (by Nutricie)

Major event in 2018:

- A workshop focused on thoracoscopic and laparoscopic surgery was conducted under the leadership of the trainer, professor Dariusz Patkowski (January 2018).
- Two workshops focusing in reconstructive surgery with international participation were conducted under the leadership of the trainer, professor Imran Mushtaq. The course was aimed at surgeries performed on children with exstrophy of the bladder and exstrophy of the cloaca. (February and November 2018)
- Cooperation with the Awassa UH in Ethiopia - A cycle of theoretical training in selected topics of Pediatric urology and practical training outpatient examination, surgery and postoperative care for Pediatric patients was conducted under the leadership of MUDr. Trachta.
- MUDr. Jan Trachta received the 1st prize in the casuistic section at the 19th European Congress of Pediatric Surgery in Paris, France for the lecture: Chronic Urinary Retention due to Fowler's Syndrome.
- MUDr. Barbora Frýbová received the 1st prize in the section of young surgeons at the 64th congress of Czech and Slovak Pediatric surgeons in Pec pod Sněžkou for the lecture: Pneumoperitoneum in patients with intestinal pneumatosis.
- MUDr. Lucie Poš successfully completed her postgraduate studies in experimental surgery and was granted the Ph.D. title.

- Additional scientific activity:

3 chapters in a book

5 publications in a foreign magazine with IF

10 publications in a local magazine

Grant GA UK 2015-2018: Regeneration of congenitally damaged bowel in newborns with gastroschisis dependent on surgical technique. In 2018, successfully completed
grant project: GA UK no. 159 115.

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

Head - prof. MUDr. Pavel Kršek, Ph.D.
Senior Doctor - MUDr. Věra Sebroňová
Ward Nurse - Gabriela Pavlová

Basic description:

The Department of Pediatric 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 2018, a total of 1,172 children were hospitalized at our department with a total number of hospitalization accounts of 1,226. A total of 17,657 outpatient examinations was performed on 7,594 patients (unique personal ID numbers). A total of 5,699 procedures were performed in the electrophysiological laboratory, of which 3,510 were EEG, 501 were EMG, 1,241 were EP and 447 were long-term video/EEG and polygraphs. 24 resection surgeries, 7 long-term intracranial video/EEG studies and 2 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:

- Centre for highly specialized care for pharmacoresistant epilepsies
- Centre for sleep disorders in children
- Neuromuscular centre for Pediatric patients

New methods and procedures:

- Introduction of a new methodology of intraoperative monitoring of motor functions in children. In 2018, the support received from the grant project AZV 15-30456A helped us to validate the new protocol for intraoperative mapping (Electrical Stimulation Mapping, ESM) of motor functions in Pediatric patients undergoing resection epilepsy surgery near the primary motor cortex and pyramidal tracts we had developed previously. High effectiveness and safety of our newly developed stimulation method was proven.
- New clinical studies of experimental treatment in patients with Duchenne type of muscular dystrophy. In 2018, we introduce two new treatment procedures for this serious neuromuscular disease under international clinical studies: (1) treatment using the antisense method with oligonucleotides - exon skipping 45 and 53; (2) new type of corticoid - MUDr. Jana Haberlová, Ph.D. is a member of the international consortium VISION DMD.

Unique equipment:

- SONO device LOGIQ F8 for the examination of muscles in non-invasive diagnostics and treatment of patients suffering from neuromuscular diseases at our site (Spinraza application under sonographic supervision).

Major event in 2018:

- Prize for a creative act of the Motol University Hospital for the team lead by MUDr. Katalin Štěrbová for the introduction of molecular and genetic diagnostics and personalized therapy in patients with unmanaged epilepsy.
- Discovery Award for MUDr. Petra Laššuthová, Ph.D. for the study "Use of genomic tools for diagnosis and explanation of new causes of hereditary neuropathies".
- Establishment of the Epilepsy Research Centre Prague (EpiReC), which associates research teams of the 2nd Faculty of Medicine of the Charles University, Motol UH, Physiological Institute of the Academy of Sciences of the CR and Electrotechnical Faculty of the Czech Technical University. The aim of the project is to create a strong interdisciplinary research group respected at an international level.
- Organization of two prestigious international congresses focusing on neuromuscular issues: (1) international workshop Biomarkers and Imaging in DMD and Neuromuscular Diseases (<https://vision-dmd.info/workshop-series-biomarkers-and-imaging/>) and (2) European conference EURO-NMD Annual Meeting (<https://ern-euro-nmd.eu/general-information-euro-nmd-annual-meeting-2018/>).
- Prof. Kršek member of the Editorial Board European Journal of Pediatric Neurology, the official periodical of the European Pediatric Neurology Society (EPNS), IF 2.362.
- 25 primary publications in magazines with IF with a summative IF 116.859, we train 15 students under the Ph.D. and MD-Ph.D. programs and participate in work on 12 grant projects, including three international projects.

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 Pediatric 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 Motol University Hospital.

In 2018, 2,189 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. 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 of the external facility. **In 2018, a total of 2,188 examinations were performed in physicians' outpatient units and clinical speech therapists conducted 3,897 examinations.**

Our department focuses mainly on nationwide care for patients with severe hearing impairment. The CCIC arranges examination of children, prosthetic care (prior to implantation) with the subsequent rehabilitation (even after implantation). Besides physicians and clinical speech therapists, also a clinical psychologist is involved in the work of the CCIC (the psychologist is organized under the Department of Clinical Psychologists of the Motol University Hospital, where he reports his activities) and clinical engineers (contracts for work).

In 2018, a total of 2,188 examinations were performed in outpatient units and 3,897 examinations were conducted by clinical speech therapists at our department.

In 2018, we put into operation a new device for examining hearing evoked potentials Interacoustics Eclipse (the device is located at the phoniatic unit of our department in the UH). The device allows us to examine hearing threshold using the SSEP/ASSR method and perform the BERA examination.

During the year, we organized the "Lecture day for parents of children who are candidates for cochlear implants" (5 lecture days were held in 2018), where we inform parents about issues associated with hearing impairment and prosthetic solution of this problem (hearing aids, cochlear implants) and the subsequent long-term rehabilitation care at our centre (CCIC)

Specialized outpatient units:

- Otolaryngological 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:

- Bilateral cochlear implants since 2014 In 2018, 50 implants performed in 29 children, of which 21 bilaterally.
- 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 by collecting secretion to hyaluronic acid. The monitored set of patients has grown to 300 patients since 2010. In 2018, 30 surgeries of a cleft lip were performed on newborns.
- Introduction of a wireless device for automatic perioperative measurement of impedance and NRT in Nucleus cochlear implants;
- Extension of the spectrum of patients in the study of intranasal application of Lactobacillus Acidophilus by including patients with a cleft;
- 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/
- Extension of molecular and genetic diagnosis of the causes of congenital hearing loss using the NGS method, which appears to be suitable for diagnosing congenital deafness including deafblindness. In 2018, 55 deafblind syndrome patients were diagnosed.

Unique equipment:

- Plasma generator – plasma coblation
- Aeris balloon catheter – used for gentler dilation of stenosis of the respiratory tract in children
- pH impedance meter
- 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:

- 80th congress of the Czech Society of ENT and Head and Neck Surgery of the Czech Medical Association of J. E. Purkyně, Kroměříž, 13th – 15th June 2018; active participation (MUDr. Skřivan, MUDr. Jurovčík, MUDr. Katra, MUDr. Dytrych, MUDr. Belko, MUDr. Vicharová-Urbanová, MUDr. Gernertová)
- Congress of European Society of Pediatric Otorhinolaryngology, 2nd – 5th June Stockholm; active participation (MUDr. Skřivan, MUDr. Jurovčík, MUDr. Katra)
- 5th Czech ENT Academy, Mikulov, 12th – 13th October 2018; active participation (MUDr. Brzybohatá)
- Lecturing in training courses in otosurgery and cochlear implants, MUDr. Skřivan (Bukurešť, Minsk, Ústí nad Labem, Bratislava, Kaunas, Priština)



Common Inpatient Sites of Pediatric 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 Křozová

Ward Nurse - Mgr. Taťána Maňasová

Basic description:

The department provides anesthesiologic and resuscitation care in the Pediatric and adult parts of the hospital in accordance with the needs and requirements of the 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 department provides tuition to students of medicine and students in bachelor's programs at the 2nd Faculty of Medicine of the Charles University and under international educational projects.

In 2018, a total of 1,374 patients were hospitalized at the department, of which 796 were adults, 578 were children and 79 patients received aftercare. While the numbers of anesthesia cases remain similar year-on-year, similarly to the number of hospitalized patients, the demands posed by these cases from the medical and financial point of view increase dramatically. **In 2018, anesthesia was administered to 36,768 patients, of which 11,350 were children.**

New methods and procedures:

- Continued ECMO program – preparation for establishing the ECMO centre at the Motol University Hospital;
- Routine technology HighFlow Oxygen Therapy in the care for patients under resuscitation care with failing respiration;
- Further development of the Simulation Medicine Centre - 2 electable subjects for medical students, tuition using KARIM medical simulators, pilot project for physicians from the Motol University Hospital;
- Standard introduction of long-term Pediatric peripheral catheters – PICC;
- In cooperation with the Department of Surgery, 2nd Faculty of Medicine, Charles University and Motol University Hospital, consistent application of ERAS procedures in large abdominal procedures with a clear impact on the quality of hospitalization;
- In 2018, collection of multiple organs was performed in 11 cases - a total of 32 organs were collected;
- In 2018, 41 patients after lung transplantation were hospitalized, one 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;
- Gradual implementation of technologies with the aim to introduce paperless documentation at the children's resuscitation department and in future also at Pediatric operating theatres;

- 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 Motol University Hospital;
- 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 Pediatric 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 2018:

- Organization of the national certification testing, including pre-certification and core course
- Participation in the regular nationwide workshops “US in anesthesia and intensive care”
- Third year of the interdisciplinary seminar with participants from abroad focusing on the topic of PICC in Pediatric intensive care
- 3 books published
- The book “Pre-hospitalization and urgent care in children” commended as the best specialized publication of 2017
- Extension of the technology for electronic documentation at Pediatric resuscitation beds and operating theatres - pilot project
- A total of 16 studies were published in peer-reviewed and impact magazines
- Completing and publishing the textbook for medical students at the 2nd Faculty of Medicine of the Charles University

Department of A ercare (KARIM – NIP-DIOP)

Chief Physician - MUDr. Kateřina Čadová

Head 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. **79 patients were hospitalized in 2018. The operation has been extended to a full number of beds – NIP 10 + DIOP 20.**

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



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 Kövári, 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 2018, a total of 629 patients was hospitalized in the inpatient section of the Department of Rehabilitation, 6,700 patients were treated in the outpatient section and rehabilitation care was provided in other hospital facilities to 14,700 patients.**

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.

New methods and procedures:

- Functional electric stimulation for patients with central paresis using neurostimulator of peroneal nerve with the so-called walkaide system;
- 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 methodical guidelines for rehabilitation treatment with systematic structure. Training for head nurses and other middle and lower medical staff is gradually conducted and audits of rehabilitation nursing are being carried out;

- Extended specialized care in the outpatient section – newly established respiratory outpatient units and outpatient units for adult patients with congenital developmental heart defects after cardiac surgeries;
- Acquisition of special progressive stretching splinters (JAS type) for hospitalized patients with spastic paresis of the upper limbs;
- Techniques of handling and moving concepts and kinesthetic mobilization were newly integrated in the education system for rehabilitation care.
- A coherent rehabilitation program for children suffering from hematological diseases and a system of care for premature babies is being developed;
- Standardized testing of children using walking tests (timed up and go test, 6-minute walking test, etc.), testing with scales for diagnosing the so-called central coordination palsy and testing fine motor skills using box and black test, 9-peg hole test, etc.);
- The ongoing program of Nora seminars (neurological, orthopedic and rehabilitation seminars) focusing especially on Pediatric patients with cerebral palsy is unique in the Czech Republic.
- Establishing close cooperation with the neurosurgical department of the University Hospital in Vinohrady in caring for patients with post-birth paresis of plexus brachialis;
- Putting the therapeutic multisensory room Snoezelen into operation;
- Establishing cooperation with the neurological department of the 2nd Faculty of Medicine of the Charles University and the Motol University Hospital in caring for patients with ALS – targeted respiratory physiotherapy;

Unique equipment:

- Walk-Aide system for functional electrical stimulation of muscles for patients with central paresis of leg dorsiflexors
- Dynamic path with integrated pressure sensors and virtual reality
- Training machine for training hand function - the so-called Pablo console
- Brain Port device for diagnosis of vertigo conditions
- 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 device for electrical stimulation of the pelvic floor muscles
- Sonographic device used for navigating botulinum toxin in the therapy of spastic patients
- Dolosys Paintracker

Major events in 2018

- Organizing the international congress Dynamic Neuromuscular Stabilization with the subtitle Medicine of the Locomotor System in Sport in the Clarion hotel (800 participants);
- Accreditation of the new doctorate study program Kineziologie and Rehabilitation with cooperation of other medical faculties (1st Faculty of Medicine, Charles University, 2nd Faculty of Medicine, Charles University, 3rd Faculty of Medicine, Charles University, and Faculty of Medicine Hradec Králové, Charles University). Doc. MUDr. Alena Kobesová, Ph.D. (Deputy Head of the Department for Education) is the chairperson of the expert board and the guarantor of the study program.

- Establishment of a new section (from December 2018) of a separate Pediatric rehabilitation due to the planned opening of acute Pediatric rehabilitation beds in 2019;
- Completed internships of physiotherapists abroad: 1/ Austria (Vienna) – program rehabilitation after lung transplantation and after cardiac surgeries, 2/ Germany (Cologne) – internship at a rehabilitation department focusing on Pediatric patients with diagnosed osteogenesis imperfecta;
- Major publications in Czech and foreign peer-reviewed and impact magazines;
- Establishing pedagogic and scientific cooperation with the Alma Mater University Maribor, Slovenia, where doc. MUDr. Alena Kobesová, Ph.D. was granted the title of the Visiting Associate Professor.

2. Spinal Unit of the Department of Rehabilitation and Sports Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head - prof. PaedDr. Pavel Kolář, Ph.D.

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 2018, 75 patients with acute spinal lesion and 30 spinal patients at the 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

Unique equipment:

- CaughAssist device for supporting cough in patients with neck spinal lesion (gift from the “Nadace Pohyb bez pomoci” foundation)
- Pony FX device for spirometry examination of lesions (gift from the “Nadace Pohyb bez pomoci” foundation)
- Misonic SonicOne device for removing necrotic material and devitalized tissue from skin defects (gift from the “Nadace Pohyb bez pomoci” foundation)
- Finapres NOVA device for assessing defects of the autonomous nervous system (subsidy from the Ministry of Health, CR)
- ABPM device – pressure Holter monitor (gift from the “Nadace Pohyb bez pomoci” foundation)

Major event in 2018:

- 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 the 5th September.
- Organization of the course in examining spinal patients, courses of physiotherapy for patients with spinal lesion, course of intermittent catheterization, wound healing course, etc.;
- Major publications in Czech and foreign peer-reviewed and impact magazines.

3. Department of Pain Research and Treatment

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

Ward Nurse - Irena Kulhánková

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 pregraduate and postgraduate teaching institution in algiology and neuromodulation techniques. 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 4,174, number of hospitalized patients with chronic painful conditions 148, number of performed neuroaxial blocks (epidural, caudal...) 382. Number of neuromodulation procedures: primary implantation 7, replacement of generators in the system 9, Electrode modifications - inspection of the neurostimulation system 4, explantation of the entire system 4. Number of consultation examinations 258.

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.

Major event in 2018:

- Active participation of doc. Kozák in CLB congresses and seminars in the CR and abroad, principal organizer of Algology conferences (Czechoslovak Dialogues on Pain - Prague, Spring Seminars on Pain (Prague, Brno, Plzeň) Active participation in the IASP conference - Boston.
- Publications in Czech and foreign peer-reviewed and impact magazines.
- Publication of the “Opioids” book, dr. Kozák and the chief editor, nomination for a medical publication of the year 2018 with the Czech Medical Association of J. E. Purkyně.
- The Senior Doctor is the guarantor of national recommended procedures (KDP) under the Czech Health Research Council

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

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.

In 2018, approximately 2,300 sportsmen were examined during preventive sports checks and 2,200 patients with stress problems were examined. 120 patients underwent controlled movement therapy and nutritional intervention was performed in 83 patients.

New methods and procedures:

- Since 2017, 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.
- Specialized physiotherapy linked to modification of the movement regime in patients with congenital heart defects after surgical correction in early childhood has been introduced in cooperation with the Children's Heart Centre and the rehabilitation outpatient unit since 2018.

Major event in 2018:

- The facility maintains its position of the largest training centre for functional diagnostics under stress for the purposes of sports medicine and Pediatric cardiac surgery in the country.

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

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 Pediatric 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 2018, 333 surgeries were performed on adult patients and 673 surgeries were performed on children (including examinations under anesthesia).

Surgery of the cataract was the most frequent procedure in adult patients (194) and surgery of strabismus and examination under total anesthesia were the most common in children.

6,774 children and 11,404 adult patients were examined in the outpatient units.

Specialized outpatient units:

- Outpatient ophthalmology unit for children
- Care centre for children with retinopathy in immature babies
- Strabology, glaucoma, cataract and oncology advisory centre
- Outpatient ophthalmology unit for adults
- Vitreo retinal and diabetology cataract and glaucoma advisory centre and advisory centre for plastic surgery
- Orthoptic outpatient unit

New methods and procedures:

- New technique for treating the retina in retinopathy of immature babies carried out under direct control of a retina camera;
- Introduction of a cosmetic and functional surgery of lower eyelids - the so-called transconjunctival blepharoplasty;
- Intraarterial and intravitreal therapy (chemotherapy) for patients suffering from retinal tumor (retinoblastoma at an advanced stage) has been commenced in cooperation with the Department of Radiology and the Department of Pediatric Haematology and Oncology.
- Routine application of the new biological preparation Lucentis (therapy of vascular growth endothelial factor) by an injection administered in the vitreous body in the following indications: diabetic macular edema, macular edema after retinal vascular occlusion.

Unique equipment:

- Iridex device allowing special examination of a defective retina in premature babies

Major event in 2018

- MUDr. Jiří Cendelín, CSc and MUDr. Nina Ondrová were granted the main prize at the video festival within the ČSRKCH (Czech Society of Refraction and Cataract Surgery) congress in Vienna. Iris reconstruction was the topic.
- At the 16th international congress of the ČSRKCH in
- Zlín, MUDr. Jiří Cendelín, CSc. took the first prize in the video competition (topic – iris reconstruction).
- Doc. MUDr. Pochop et al.: a) Therapy of capillary hemangioma with infrared radiation. b) Intraarterial chemotherapy and intravitreal chemotherapy in children with retinoblastoma
- In 2018, MUDr. Gabriela Mahelková, PhD and MUDr. Marie-Česká Burdová were the authors and co-authors of specialized papers published in magazines with a total IF exceeding 10.0. The papers focused on dystrophic changes in the cornea.
- MUDr. Milan Odehnal, MBA was the author of a requested introductory lecture (early strabismus syndrome) for the main topic of the 9th Symposium of Pediatric Ophthalmology in Litomyšli with participation from abroad.



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

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 Pediatric and adult patients not only within its region, but also throughout the CR through medical consultation.

In 2018, 1,292 children and 2,340 adult patients were hospitalized, which is 3,632 patients in total.

1,114 surgeries were performed on children and 2,331 on adult patients, which is 3,445 surgeries in total.

In the children's outpatient unit, 24,259 children were treated and 18,413 adults were treated in the outpatient unit for adults, i.e. 42,662 patients in total.

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;
- Use of an injection form of cartilage transplantation – this is the latest generation of autologous chondrocyte transplant (performed in cooperation with Tetec AG Germany);
- Treatment of cartilage defects with an artificial implant based on collagen;
- First experience with magnesium implants - biodegradable screws suitable for traumatology and orthopaedics;
- Application of V.A.C. (Vacuum assisted closure) – a system with extended active automatic wound cleaning V.A.C ULTA VERAFLU. It combines vacuum therapy with flooding defects with rinsing or therapeutic solution. This results in very significant reduction of biological stress, demarcation of necroses, and acceleration of fibrocyte proliferation;
- Use of modular external fixation PH fix in traumatology;
- Meniscus transplantation with allograft;
- Replacement surgery of the anterior cruciate ligament in children with an open growth gap using a technique without disturbing the growth plate.

Unique equipment:

- 2 ultrasonography devices Canon Xario 100 Platinum and Xario 200 Platinum. These are used 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

Major event in 2018:

- 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 "8th Spring Orthopaedic Symposium" in March 2018 in the National Technical Museum in Prague, including expert guarantee on the topic "Conservative therapy of arthrosis".
- Organization of the 21st traditional orthopaedic symposium in Teplice in December 2018, including expert guarantee on the topic: "Revision surgery of the knee joint after replacement and arthroscopy".
- The President of the CR granted the title professor to prof. MUDr. Vojtěch Havlas, Ph.D. in December 2018.

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

Head - doc. MUDr. Michal Tichý, CSc.

Senior Doctor - MUDr. Jiří Preis

Ward Nurse - Bc. Gabriela Šuláková

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

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 the Motol University Hospital. Stereotactic implantation of deep brain electrodes for subsequent long-term video and EEG monitoring for pharmacoresistant epilepsies and resection epileptic surgery procedures is carried out.

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.

Major event in 2018:

- 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 Motol University Hospital

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 2018, 33,580 outpatient treatments and 598 one-day treatments were performed - 217 tooth rehabilitation under total anesthesia and 381 surgical procedures. 758 patients were hospitalized at the inpatient department and 799 surgeries were performed, of which 274 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
- New created database of patients in preparation for therapy supported by 3D reconstruction. For planning or checking therapy, comparison of the 2D and 3D dolphin, anatomage and fidensis 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/
- PiezoSurgery of hard and soft dental tissues /gentle bone preparation/
- SurgicPro – stress and analytical implantation system
- CATCAM /technology for producing stomatologic replacements/
- PC tooth arch
- 3D imaging system CBCT I-CAT
- Intraoral scanner 3SHAPE Trios

Major event in 2018:

- 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 Motol University Hospital)
 - “Plastic and maxillofacial surgery in the context of forensic portrait identification of persons VIIVS/281”
- 2. In 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)”
- In 2018, MDDr. Simona Jelínková and MDDr. Martina Bejdová completed their specialization postgraduate studies in clinical stomatology.
- Multiple active participation in international and national congresses.
- Award received at the congress: Dentsply Sirona Implants 2018.

Adult Inpatient Part

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

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

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

Head Nurse - Mgr. Iveta Oravcová

Basic description:

The Department of Obstetrics and Gynaecology provides 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 with regional and national operation. The department defended its status of a centre of gynaecological oncology. **In 2018, 7,542 patients were hospitalized at the department and a total of 4,690 surgeries and 85,405 outpatients treatments were carried out. The department recorded 3,285 childbirths.**

Specialized outpatient units:

- Gynaecological oncology and colposcopy
- Gynaecological urology
- Outpatient gynaecology for children
- Endocrinology
- Sexology
- Endoscopy
- Centre of reproductive medicine
- Facility for ultrasound diagnostics and fetal medicine
- Outpatient unit of prenatal diabetology
- Inpatient unit for cardiopathy and hematological diseases in pregnancy

New methods and procedures:

- Since 2015, our employees have been participating in a study verifying not yet introduced treatment of infertility in women with absolute uterine infertility factor through uterus transplantation, which has not been introduced yet. The study was approved by the Ministry of Health in 2015. The department works on this project in cooperation with the Department of Transplantation Surgery of IKEM. Frozen embryo transfers under artificial fertilization of patients with transplants were carried out in 2018. The study is ongoing.

Unique equipment:

- Therapeutic CO2 laser for the treatment of premalignant changes in the vulva and vagina
- Urodynamic diagnostic device
- High-end ultrasound diagnostic device

Major event in 2018:

- The department's physicians were authors and co-authors of 6 publications in a magazine with IF and delivered requested lectures at national and international specialized congresses.

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

Department of Neonatology with Intensive and Resuscitation Care Unit

includes the Department of Neonatology with Intensive and Resuscitation Care Unit

Senior Doctor - MUDr. Miloš Černý

Ward Nurse - Lenka Vaníčková Kubů

Basic description:

The Department of Neonatology is part of the perinatology intensive care centre of the Motol University Hospital with national operation. The department cooperates with Pediatric internal medicine and surgery to ensure comprehensive care for newborns with congenital developmental defects from the entire CR. Last year, 190 of the children at the department had congenital developmental defect requiring urgent or timely treatment (87% of the patients came from other locations than Prague). The department also provides specialized intensive and resuscitation care for premature babies, in particular to extremely immature babies and all critically ill newborns regardless of their gestational age. Care for physiological newborns in particular under the rooming-in regime is standard. **In 2018, a total of 3,313 newborns were born at our department, of which 284 had low birth weight (<2500 g) and 57 of these had very low birth weight (<1500 g). 396 newborns were treated at the Intensive and Resuscitation Care Unit/Intensive Care Unit/Intermedial Care Unit last year.** Our facility has had one of the lowest mortality rates in newborns under 1000 g in the CR for several years.

Specialized outpatient units:

Outpatient unit for high-risk children and centre for comprehensive care for children with high-risk psychomotor development.

New methods and procedures:

- In cooperation with the Ear, Nose and Throat Department of the 2nd Faculty of Medicine, Charles University and Motol University Hospital, the program for early correction of a cleft lip in newborns is ongoing. Plastic correction was performed in 30 patients in 2018.

Unique equipment:

- NIRS: monitoring tissue oxygenation using the spectrometry method
- Breathing apparatuses with automatic regulation of FiO2 depending on Hbsat (PRICO)

Major event in 2018:

- Organization of the 4th year of the specialized conference from the cycle "Interdisciplinary Issues in Neonatology of the 21st Century", this time focusing on the topic "Epilepsy in Gravidity and in Newborns";

- Nationwide assessment of late morbidity of perinatally threatened children;
- Assessment of tuition and the neonatology club by the students of the 2nd Faculty of Medicine, Charles University, was very positive.
- Organization of the 11th year of gathering for former patients of the Intensive Care Unit - "Preemies Picnic".

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

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

Senior Doctor - MUDr. Vladimír Srnský

Head 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 post-graduate tuition in its specialization.

The department is a training centre for physicians prior to postgraduate certification in internal medicine, gastroenterology,

diabetology/endokrinology, 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 2018, 54,006 patients were treated in the outpatient section and 4,677 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:

- Measurement of body structure in patients with diabetes (especially in patients with type 1 diabetes) using the bio-impedance method was introduced in cooperation with the Czech Technical University under the joint grant project.

- The department participates in the study of AUS and T2 systems intended for fast detection of pathogens in blood in cooperation with the Department of Microbiology.
- Unique specialized therapy for complex (even hemodialyzed) and high-risk patients with regard to vascular diseases with severe congenital
- dyslipidemias – using a combination of LDL/Lp(a) apheresis and treatment with PCSK9 inhibitors.
- A treatment method with fecal bacteriotherapy (FBT) was introduced in the routine therapy in indications with recurring clostridium colitis with effectiveness around 80-90%.
- The dialysis department further develops therapeutic apheresis - a method used as:
- 1/ lipoprotein apheresis in patients with extreme dyslipidemia and cardiovascular risk;
- 2/ reophoresis in patients with diabetic foot syndrome of ischemic nature without the option of revascularization with the aim to influence microcirculation and healing of defects (device: Art Universal Fresenius).
- The Department of Vascular Access ensuring mid and long-term vascular access for patients from the adult part of the hospital (midline, PICC, permcath, port) introduced according to the international recommended standards fully developed its activity within the department.
- The method of checking the PICC position using ECG at the patient's bedside is used at the metabolic unit. The method of tunneling central vascular accesses and their introduction under USG monitoring was also expanded.
- The method using differential diagnostics of hyponatremia based on the values of difference and ratio of serum concentrations of sodium and chlorides was also extended in the clinical practice.

Unique equipment:

- AIRVO 2 nasal High flow – version of a non-invasive ventilation support for extubation of patients with respiratory insufficiency.
- Ultrasonography device Sono Side Monom used for ultrasound guiding during introduction of vascular accesses at the patient's bedside.
- The equipment of the Intensive Metabolic Care Unit is gradually being replaced - 2x pulmonary ventilator Hamilton C2, 1x bedside monitor GE Healthcare B 450, 1x bedside monitor GE Healthcare B 850, blood gas heater PR30-300N, 1x intermittent hemodialysis Fresenius 5008

Major event in 2018:

- Doc. Piřha continues to participate in the organization of the prestigious international angiology course IUA Course for Vascular Specialists – an interactive seminar focusing on vascular diseases for young specialists from approximately 25 countries worldwide.
- Doc. Piřha was once again elected the Secretary General International Union of Angiology.
- Doc. Piřha continues to operate as the main co-organizer of the congress of the Czech Atherosclerosis Society.
- Doc. Piřha is the author of requested lectures at international congresses: 4th An-

nual Congress of the European Society for Vascular Medicine, Prague, 18th -20th March 2018; 2nd IUA Multinational Chapter / XI CEVF / XXVIII MLAVS Congress, Palermo, Italy, 21st -24th June 2018; 28th World Congress of the International Union of Angiology, Beijing, China 18th -21st October 2018.

- Prof. Kvapil was the chairman of the organizing committee of the three-day congress for outpatient diabetologists News in Diabetology – Poděbrady 2018.
- Prof. Kvapil, on behalf of the Diabetes Association CR and the Diabetology Centre of the Department of Internal Medicine, 2nd Faculty of Medicine, Charles University and Motol University Hospital, assumed the expert guarantee of the symposium Myths, Mistakes and Truths in Diabetology – Staré Splavy 2018.
- MUDr. Jan Brož was a member of the organizing committee of the international conference ADIT (Advanced in Diabetes and Insulin Therapy) held in Dubrovnik (Croatia) with participation of approximately 600 physicians from all over the world.
- MUDr. Hloch published in Grada Publishing a book entitled Useful Tables for Practice not only in Internal Medicine Specializations.
- Publications
 - Stechova K, Vanis M, Tuhackova M, Urbaniec K, Kvapil M.: Lessons Learned from Implementing a New Testing/Educational Tool for Patients Using an Insulin Pump. Diabetes Technol Ther. 2018 Aug;20(8):524-530, IF 2.921.
 - Doc. Piřha is the main (co)author of the publication/material for recommendation of statin treatment in older patients in the CR by specialized associations - the Czech Atherosclerosis Society and the Czech Society of Gerontology and Geriatrics (Piřha J, Topinková E, Bláha V, Jurařková B, Bureř I, Holmerová I, Vrablík M.: Statin therapy in elderly patients. Vnitr Lek. 2018;64(11):1021-1027).
 - Doc. Piřha is the author of editorial in the prestigious international magazine (Pitha J.: Improved management of patients after acute coronary syndrome: using nonalcoholic fatty liver disease fibrosis score and ezetimibe? Int J Cardiol. 2018;270:260-261).
 - Hansen AH, Broz J, Claudi T, Årsand E. Relations between the use of eHealth and the use of general practitioner and somatic specialist visits in patients with type 1 diabetes: A cross-sectional study. J Med Internet Res 2018;20(11):e11322 DOI: IF 4.671. (Another outcome of the long-term cooperation with the Norwegian Centre for Telemedicine. The article was published in a magazine taking the first place in the assessment of Web of Science in the category Medical Informatics and the sixth place in the category Health Care Science/Services (Average JIF percentile 96.0%).
 - Broz, J, Janickova Zdarska, J, Urbanova, J, Brabec, M, Krivska, B, Donicova, V, Stepanova, R, Martinka, E, Kvapil, M.: Current level of glycemic control and clinical inertia in subjects using insulin for the treatment of type 1 and type 2 diabetes in the Czech Republic and the Slovak Republic: results of a multinational, multicentre observational survey (DIAINFORM). Diab Therapy. 2018; IF 2,224.

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. The department also has a centre of travel medicine (the so-called inoculation outpatient unit) and an infection centre for drug addicts.

In 2018, 2,562 patients were treated in the outpatient section and 509 patients were hospitalized.

Procedures - lumbar punctures: 21

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 using new generation antiviral drugs to treat genotype 1 (sofosbuvir, ledipasvir, ombitasvir, ritonavir, paritaprevir, dasabuvir, daclatasvir) with a high effective rate (up to 99%) continues at this facility. Combined preparations (elbasvir+grazoprevir and sofosbuvir+velpatasvir and glecaprevir+pibrentasvir) with pangenotypic effectiveness are newly used.

Unique equipment:

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

Major event in 2018:

- The grant of the Ministry of Health of the CR for the operation of the Infection centre for Drug Addicts (ICDZ) was used in 2018. The department has also applied for this grant for this year.

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

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 Motol University Hospital 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 interdisciplinary care concerned solution of serious conditions in cooperation with the Departments of Urology and Gynaecology, the 1st Department of Orthopaedics, the Spinal Unit of the Department of Rehabilitation and the Department of Pediatric Surgery. 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. Robotic surgery of rectum tumors was introduced in 2018. The Sentimag device is 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 2018, 20,757 patients were treated within the outpatient section and 4,128 patients were treated in OUPD, 2,938 patients were hospitalized and surgeries were performed on 2,855 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
- Mammological advisory centre
- Advisory centre for lymphedema
- Endoscopy, anorectal manometry
- Plastic surgery

New methods and procedures:

- Robotic resection of the rectum 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:

- Robotic surgery of the rectum as part of the robotic surgery at the Motol University Hospital

- Dissection and electrocoagulation techniques, including harmonic scalpel and LigaSure 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
- Ferromagnetic detection of the sentinel node using the Sentimag system

Major event in 2018:

- 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 Motol University Hospital "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.
- 4th European Lymphological Congress (doc. MUDr. Martin Wald as the president of the congress);
- Monography: Hoch. J., Antoš F.: Coloproctology - selected chapters II,
- Mladá fronta a. s., 2018, ISBN 978-80-204-4625-1;
- Monography: Lukáš. K., Hoch. J.: Bowel diseases,
- Grada Publishing a.s., 2018, ISBN 978-80-271-0353-9;
- Publications in Czech and foreign peer-reviewed and impact magazines with IF.

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

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

Senior Doctor - MUDr. Jiří Tvrdoň

Head 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 transplantation.**

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).

In 2018, 3,095 surgeries were carried out, 3,592 patients were hospitalized and 20,416 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:

- 3D instruments – for laparoscopic and video-assisted thoracoscopic surgery

Major event in 2018:

- Prize of J. E. Purkyňe awarded by ČLS JEP for 2018 to prof. MUDr. Pavel Pafko, DrSc. After bilateral negotiation with the Ministry of Health of the CR and the SR lung transplantation program launched for the Slovak Republic.

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

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 cardiological care to hospitalized patients and outpatients. It is linked directly to the unit of heart surgery and angiosurgery.

In 2018, more than 23,000 patients were treated in the outpatient section and almost 5,000 patients were hospitalized. 3,290 selective coronarographies, 966 percutaneous coronary interventions, 592 catheterization examinations of peripheral arteries, 85 catheterization implantations of aortic valves, more than 7,500 echocardiographic examinations, 229 radiofrequency ablations of arrhythmia, 102 catheterization isolation of pulmonary veins, 232 implantations of permanent cardiac stimulators, 118 implantations of ICD and 2,650 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:

- Catheterization implantation of a new type of biological valve for aortal position;
- Mechanical circulation support (ECMO - extra-corporal membrane oxygenation)
- Optic coherent tomography;
- Intravascular spectroscopy;
- Alcohol septal ablation - the largest set in the CR;
- Radiofrequency ablation of the interventricular septum in patients with hypertrophic cardiomyopathy;
- Carotid stenting - the largest set in the CR;
- Use of the proximal protection system in stent implantation into the carotid system
- Catheterization occlusion of ventricular septum defects and patent foramen ovale;
- Catheterization closure of the left ventricle;
- Catheterization occlusion of paravalvular leaks;
- Comprehensive solution of rhythm dysfunctions using 3D electroanatomic mapping;
- First performance of the His bundle pacing during implantation of a permanent cardiac stimulator;
- Radiofrequency ablation using catheters with pressure measurement;
- Catheterization treatment of ventricular fibrillation;
- Development of telemedicine, remote monitoring of patients with cardiac stimulators and defibrillators;

- Electrode-free defibrillators;
- Methods for checking body temperature in resuscitated patients;
- Heart imaging with 3D electrocardiography;
- Endomyocardial biopsy;
- 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
- Program for cardiology examination of divers.

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
- Lucas compressive system - device for performing external cardiac massage
- Intravascular ultrasound with infrared spectroscopy
- Device for measuring peripheral blood pressure Huntleigh Dopplex ABILITY

Major event in 2018:

- The facility published 12 articles, of which 7 articles in magazines with IF (4times the 1st author from our department), 2 articles in foreign peer-reviewed magazine, 3 local publications.
- 595 patients and 728 interventions of carotid arteries have already been included in the carotid stenting register (CAS). Study focusing on the use of infrared spectroscopy under CAS was published in a foreign magazine with IF 4.4.
- 204 patients have already been included in the alcohol septal ablation (ASA) register who underwent this intervention at our workplace. A multicentric international study under the leadership of prof. Veselka focusing on the outcomes of 1,310 patients with ASA depending on the number of interventions performed was published in a foreign magazine with IF 4.5.
- MUDr. Bonaventura presented the address “Next generation sequencing in patients with hypertrophic cardiomyopathy” at the anniversary gathering of the European Society of Cardiology in Munich.
- MUDr. Bonaventura received the 2nd prize in the Competition of Young Cardiologists with his address s“Next generation sequencing in patients with hypertrophic cardiomyopathy” at the 26th anniversary gathering of the Czech Cardiology Society in Brno.
- MUDr. Bonaventura, Horváth and Štěchovský presented their work at the anniversary session of the committee for the PROGRES Q38 program (02/11/2018, Faculty of Medicine, Charles University, Plzeň).
- At the 60th Annual World Congress of International College of Angiology in Tokio, prof. Veselka presented the requested lecture “Composition of Carotid Stenosis and Restenosis”.
- Examinations of relatives of patients with identified genetic variant for determining the presence of phenotype of familial cardiomyopathies using standard

examination methods. A total of 336 persons who are not relatives of patients was examined using the methods listed above and genetic analysis and interpretation of the detected variants was carried out. The outcomes were published in an international magazine with IF 2.3.

- Organization of the 12th year of the interdisciplinary conference Prague Intervention. Besides the news in intervention cardiology, palliative care for patients in terminal stage of the disease was one of the topics discussed.
- MUDr. Březák, MUDr. Bonaventura and MUDr. Štěchovský successfully completed their certification in cardiology.
- The department organized seminars on catheterization implantations of valves in aortal position
- Active participation of the nurses Kuchtová and Lhotský at the gathering of the Czech Cardiology Society in Brno and the Congress of Cardiology Nurses in Ostrava
- Under the leadership of the nurse Mgr. Kovalčíková, a national 12th specialized educational conference of the Czech Cardiology Society, Working Group of Cardiology Nurses and related professions focusing on the current issues in cardiology was organized.



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

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 2018, 5,967 patients were treated in the outpatient section and a total of 863 large surgeries were carried out, of which 445 were heart surgeries and 418 were vascular surgeries.

The department's team carried out **52 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. **37 patients with congenital heart defect were operated on in 2018. 31 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 the Motol University Hospital;
- 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;
- Reconstruction (maintenance) surgeries of the aortic valve

Unique equipment:

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

Major event in 2018:

- Active participation of the department's employees at various expert events in the CR and abroad:
Annual gathering of the Czech Society of Cardiovascular Surgery; Annual gathering of the Czech Cardiology Society
- International congress EuroGuch 2018, Munster Germany - award for the best presented poster Antová P. Rohn V., Chaloupecký V: "Long term outcome of Atrial Correction for Transposition of the Great Arteries in the Czech Republic."
- The department organized a one-day course Congenital Heart Defects in the Clinical Practice of an Outpatient Cardiologist.
- Publication of 12 papers in foreign magazines with an impact factor.

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

Head - prof. MUDr. Jan Plzák, Ph.D.

Senior Doctor - MUDr. Jan Klüh

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 2018, 2,689 surgical procedures were performed at the department and 171 of these surgeries were carried out on patients outside the department's operating theatres. 2,982 patients were hospitalized. 60,355 outpatient examinations were carried out.**

Conventional subjective tonal audiometry was carried out in 5,605 patients.

Objective audiometry was carried out on 222 patients and otoacoustic emissions were recorded for 400 patients. The examination of the balance system was carried out in 590 cases, the ENG examination was completed on 75 patients and 91 patients underwent the examination of vestibular myogenic potentials.

The examination for indication of rehabilitation of hearing using hearing aids or alternation of the existing rehabilitation was carried out on 298 patients and 56 hearing aids were handed out.

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 2018:

- 22/01 - 25/01/2018, Temporal bone course - Prague 2018 - The department arranged the specialized program and most of the lecturers.
- The department was the co-organizer or organizer of many IPVZ courses.
- Active participation of pregraduate and postgraduate students at scientific conferences.

Major awards

- Prof. MUDr. Jan Plzák, Ph.D. - acceptance in CORLAS (Collegium Oto–Rhino–Laryngologicum Amicitiae Sacrum).
- Prof. MUDr. Eduard Zvěřina - honorary international membership in the Brazilian Society of Neurosurgeons, Sociedade Brasileira de Neurocirurgia.
- Doc. MUDr. Jan Bouček, Ph.D. - Kutvirt Prize for 2017 in the category over 35 years "J. Bouček, J. de Haan, MJ. Halaska, J. Plzák, K. Van Calsteren, Ch. de Groot, DK Steffensen, R. Fruscio, ET. Massolt, P. Klaritsch, P. Zola, F. Amant. Maternal and Obstetrical Outcome in 35 Cases of Well-Differentiated Thyroid Carcinoma During Pregnancy, Laryngoscope. 2017, doi: 10.1002/lary.26936 (IF=2,471).
- As. MUDr. Zdeněk Čada, Ph.D. - Kutvirt Prize for 2017 awarded in 2018, category over 35 years, monography category "Z. Čada, R. Černý, O. Čákr et al. Dizziness. Havlíčkův Brod: Tobiaš. 2017, p. 516"
- MUDr. Veronika Bandurová - SCIENTIA foundation for the best scientific paper, 1st place; Annual Award of the Czech Histological and Cytochemical Society; Award for the Purkyně Foundation - 3rd place
- MUDr. Simona Maléřová - 1st place in the category Varia 17th Czechoslovak Congress of Young ENT 2018, 20th - 22nd September 2018, Vysoké Tatry, Simonidešová, Hejtmánková, Hamšíková, Saláková, Klozar, Tachezy, "HPV prevalence and risk factors among the healthy population in the CR" (lecture)
- MUDr. Vladimír Koucký - 1st place in the postgraduate poster section 19th Student Scientific Conference 1st Faculty of Medicine, Charles University, Prague, Koucký V., Partlová S., Hladíková K., Bouček J., Fialová A.: HPV dysfunction of 16-specific T-lymphocytes infiltrating oropharynx carcinomas in relation to expression of TIM-3 and PD-1; Award for the best abstract.

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

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 131I-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 131I-MIBG (as the only centre in the Czech Republic).

In 2018, the facility provided outpatient care to 20,000 patients,

1,000 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 16,700 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 Pediatric 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 Motol University Hospital targeted biological treatment of radio-iodine refractory thyroidal carcinomas;
- Arranging genetic examination for patients with the familial form of the medullar carcinoma of the thyroid and patients with papillary carcinoma of the thyroid;
- In cooperation with the Department of Pediatric Haematology and Oncology, treatment of patients with high-risk neuroblastomas with the combination 131I-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 2018:

- Organization of the 11th 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 (Olomouc 03/2018);
- Organization of a multidisciplinary seminar for oncologists, nuclear medicine specialists and endocrinologists focusing on patients with radio-iodine refractory carcinoma of the thyroid (Prague 10/2018);
- Laboratory for the preparation of therapeutic radiopharmaceuticals for oncological patients with the option of expanding the spectrum to new radiopharmaceuticals established in the department's inpatient section.

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

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 the 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 2018, 1,437 patients underwent surgery, 1,581 patients were hospitalized, 13,407 patients were treated in the outpatient unit of spondylosurgery 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

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 2018:

Participation in international and local symposia:

- AAesculap spine days 2018, Berlin, Germany, 6-7. 2. 2018, lecturer: ŠTULÍK, J.: Challenges and complications in spondylolisthesis.
- 25th postgraduate course in neurosurgery, Hradec Králové, 24-26. 4. 2018, lecturer: ŠTULÍK, J.: Luxation spinal fractures - rear, front of combines access?
- 25th postgraduate course in neurosurgery, Hradec Králové, 24-26. 4. 2018, lecturer: ŠTULÍK, J.: Spinal fractures in childhood.
- The first May symposium of spondylosurgery, Prague, 25 May 2018., organizer and lecturer: ŠTULÍK, J.: Surgical therapy of high-level highly dysplastic spondylolisthesis in young patients.
- 5th international spine tumor days, Dresden, Germany, 29-30. 6. 2018, lecturer: ŠTULÍK, J.: Vertebral artery injury revisited: intra and perioperative management and complication avoidance.
- 16th anniversary congress of the Czech Society of Spondylosurgery, Brno, 15-16. 10. 2018, organizing committee: Štulík, J.
- ŠTULÍK, J., NESNÍDAL, P., BARNA, M.: HGHD spondylolisthesis in children treated with complete reduction and monosegmental fixation. Global Spine Congress, Singapore, 4 May 2018.
- BARNA, M., ŠTULÍK, J.: Injuries of the subaxial cervical spine. 22nd national congress of the Czech Society of Orthopaedics and Traumatology, Olomouc, 16 May 2018.
- BARNA, M., ŠTULÍK, J.: Spinal injuries in children. 22nd national congress of the Czech Society of Orthopaedics and Traumatology, Olomouc, 16 May 2018.
- BARNA, M., ŠTULÍK, J.: Dysplastic spondylolisthesis, 5th interdisciplinary symposium on back pain, Lázně Bělohrad, 25th – 26th May 2018

Posters:

- ŠTULÍK, J., NESNÍDAL, P., BARNA, M.: Total En Bloc Spondylectomy Of C3. Global Spine Congress, Singapore, 4 May 2018.
- ŠTULÍK, J., NESNÍDAL, P., BARNA, M.: Medium-term Results Of Surgical Treatment Of Low-grade Isthmic Spondylolisthesis Without Intervention In The Spinal Canal. Global Spine Congress, Singapore, 4 May 2018.

Awards:

- ŠTULÍK, J.: Physician year, category physician at the bedside for 2017/2018

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 2018, the total number of patients was 1,215.** (54 beds were not available for 6 months due to human resource issues). **The number of procedures in the geriatric outpatient unit was 318.**

Specifics of the facility:

The Department of Long-term Treatment - Aftercare Centre specializes in wound healing, nutrition, physiotherapy and occupational therapy. A clinical psychologist, speech therapist, 14 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 Motol University Hospital and functions **as a coordinating site.**

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 events in 2018:

- 23 October 2018 – a socially medical conference under the auspices of the Aftercare Centre of the Motol University Hospital on the topic Dementia and Neurodegenerative Diseases was organized at the Motol University Hospital.
- MUDr. Nováková M. : Mosaic of caring for seniors and chronically ill in the 21st century - 20th Brno Day of Geriatrics (March 2018) + Conference in Kladno;
- MUDr. Krupková J. : Wound healing process (Wound Healing CK 11/2018);
- MUDr. Krupková J. : Nutrition and wound healing (Wound Healing CK 11/2018);
- MUDr. Krupková J. : Long-term care and wound healing (Wound Healing CK 11/2018);
- MUDr. Nováková M. : Angiologic examination from the perspective of internal medicine (Wound Healing CK – 10/2018);
- MUDr. Kamburov – obtained professional qualification in geriatrics by completing the certification exam (October 2018).
- MUDr. Gricajev – completed the certification exam in Palliative Medicine (December 2018).

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

Head - prof. MUDr. Petr Marusič, Ph.D.

Senior Doctor - MUDr. Aleš Tomek, Ph.D., FESO

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 2018, the department's outpatient section examined more than 40,000 patients. 2,291 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

Specialized centres accredited by professional societies and the Motol University Hospital

- Centre for diagnostics and treatment of demyelinating diseases
- Cognitive centre
- Neuromuscular centre
- Centre for Parkinson's disease and other extrapyramidal defects
- Centre for hereditary ataxias
- Neuro-otological centre

Specialized outpatient units

- Advisory centre for neuroAIDS
- Advisory centre for headache
- Advisory centre for neurocutaneous disorders
- Vertebrogenic and myoskeletal advisory centre

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 the Academy of Sciences CR 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 polymorphisms 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 Motol University Hospital) – 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 the 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 Motol University Hospital)
- 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 strabismus, 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 Motol University Hospital
- 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). Introduction 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:

- 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 extra-cranial arteries and peripheral nerves with 3D imaging along with the MR/CT data
- 128-channel EEG system NicoletOne for videoEEG monitoring
- NYDIAK rotating chair for electronystagmography – ENG examination.
- FAN Study system allowing comprehensive evaluation of the function of the autonomous nervous system, including test on a sloping surface
- Samedic thermal tester, Sweden - electrodiagnostic device evaluating the function of thin fibers Adelta + C fibers.
- Digital algometer Samedic, Sweden - electrodiagnostic device for research of deep neuropathic pain
- Experimental laboratory for examination of spatial memory and spatial orientation (Blue Arena) – in cooperation with the Physiological Institute of the Academy of Sciences CR

Major events in 2018:

- Establishment of the EPIREC research centre: The unique platform interconnecting research of epilepsy with clinical practice was established in cooperation between the Motol University Hospital, 2nd Faculty of Medicine of the Charles University, Physiological Institute of the Academy of Sciences of the CR and Electrotechnical Faculty of the Czech Technical University;
- Co-organizer of the 32nd 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 32 professional publications in foreign impacted magazines, 7 articles in local impacted magazines, 5 articles in peer-reviewed local magazines and 16 chapters in local monographies.

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

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 Pediatric 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 2018, a total of 4,461 patients were hospitalized and 67,477 patients were treated in the outpatient section. 4,268 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
- Rheumatosurgery
- Oncology
- General traumatology

New methods and procedures:

- Research and development of new joint implants in cooperation with local and foreign partners;
- New techniques for wrist surgeries;
- Omega splinter introduces in practice for pelvic fractures;
- 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 2018:

- 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 the Motol University Hospital.
- Medical University Educational Centre Verona, Italy: 8th -9th February 2018, specialization course for orthopaedic surgeons: Reverse shoulder joint replacement, 2 days, senior lecturer: prof. David Pokorný (6 lectures, tuition using preparations, live-surgery)
- 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” (Journal of Orthopaedic Research under review).
- Zimmer Biomet – Cooperation on development of a new ankle joint replacement, preparation of the international publication – ankle replacement Rebalance Ankle.

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

Head - MUDr. Libor Fila, Ph.D.

Senior Doctor - MUDr. Lucie Valentová Bartáková

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 non-standard rooms) and 10 intensive care beds. The main programs focus on pneumology, lung transplantation, cystic fibrosis, interventional bronchology and intensive care in pneumology.

In 2018, 1,589 patients were hospitalized, 12,692 were treated in the outpatient section, 1,432 bronchoscopies were carried out and 1,010 chemotherapies were administered. In 2018, 226 patients were hospitalized at the intensive respiratory care unit; 64 patients (28%) were treated with non-invasive ventilation support and 28 patients (12%) 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 (alektinib, osimertinib and nivolumab), cystic fibrosis (lumakaftor/ivakaftor), idiopathic pulmonary fibrosis (nintedanib) and bronchial asthma (mepolizumab and reslizumab).
- Examination using radial EBUS with the option of biopsy of peripheral pulmonary lesions, which is a method allowing us to avoid surgical lung biopsy carried in many patients.
- New protocol for peritransplantation care for patients with cystic fibrosis with infection from the ST32 B. cenocepacia strain.

Unique equipment:

- Bronchoscope with radial EBUS

Major events in 2018:

- Prof. Marel was given the title teacher of the year at the 2nd Faculty of Medicine, Charles University for the sixth time.
- Dr. Fila was elected the national delegate for the European Respiratory Society.
- Dr. Rakita and dr. Kovářiková successfully completed an accreditation course and knowledge test in sleep medicine.
- Our department participates in a national project concerning a registry of patients with lung carcinoma called LUCAS, which is dedicated to biological treatment of this disease.



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

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 oncological centres in the Czech Republic, where highly specialized care is provided. An audit was completed successfully here in 2014. At the end of 2017, the Department was accepted as one of the two National Oncology Centres - NOC) within the Czech Republic. The facility is accredited for specialized education in clinical oncology and radiation oncology.

In 2018, 215,300 outpatient checks, treatments and examinations were carried out. A total of 2,138 patients were hospitalized in 2018 and this outcome was achieved despite the 1st bed station becoming an additional daycare centre for outpatient application of therapy from April 2017 due to the situation in human resources. The number of completed radiotherapy series in 2018 was 924 patients, of which 824 patients were newly irradiated. The number of irradiated fields in 2018 was 142,217, and the number of applications at the brachytherapy department was 665. The number of parenterally applied cycles of chemotherapy/biological treatment was 32,933 in 2018.

Specialized outpatient units:

- Outpatient unit for follow-up care for patients after completion of antitumor treatment
- Outpatient unit for checking patients during chemotherapy and biological treatment
- Outpatient unit for providing symptomatic and supportive care
- 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 the Motol University Hospital 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 system performed in July 2018 meant transition from version 8.6 to the newer version 15.6.
- In 2018, gradual replacement of all three linear accelerators commenced. Truebeam accelerators compared to the original Clinac accelerators ensure higher geometric accuracy (up to 0.5mm), are equipped with irradiation table and low-density board of carbon fibers and modern megavoltage and kilovoltage imaging system allowing 3D imaging of the patient using cone-beam CT - CBCT. Besides the IMRT technique, Truebeam accelerators also allow for movement technique with modulated intensity - VMAT – Volumetric Modulated Arc Therapy, during which modulation of the beam is ensured not only by the dynamic movement of the lathes of the multi-lathe collimator (MLC), but also by a change in the speed of rotation of the arm (gantry) and the dosage input during irradiation of the patient. Besides the standard photon beams, the Truebeam accelerators also produce beams without the homogenization filter, the so-called FFF beams (Flattening-Filter Free), which significantly accelerate irradiation with the IMRT and VMAT techniques owing to very high dosage input and this reduces the time of irradiation and thus inaccuracy caused by movement of the patient and the patient's organs during irradiation. The accelerators are fitted with a system for controlling the patient's breathing movements during irradiation – Respiratory Management System. Radiotherapy controlled by the breathing cycle provides significantly improved accuracy of the treatment in chest and is gentler to the pulmonary or cardiac tissue when irradiating breasts.
- Simulator Acuity EX, Varian Medical Systems for preparation of treatment with irradiation.
- CT device Brilliance Big Bore, Philips for planning treatment.

Major event in 2018:

- The Journal of the Ministry of Health CR 13/2017 established two National Oncology Centres (NOC) in the CR – one of them being the Comprehensive Oncological Centre of the Motol University Hospital and the 2nd Faculty of Medicine, Charles University, Prague.
- The department became a member of The Organisation of European Cancer Institutes (OECI). Membership in the organization provides exclusive access to new preparations for the treatment of patients, allows comparing and jointly presenting data with the best oncological sites in Europe and provides unlimited access to

OECI and EORTC projects in the sense of academic clinical studies.

- The Department of Oncology of the Motol University Hospital is the only representative of the CR in the European initiative for rare tumors – Joint Action for Rare Cancer (JARC).
- The Department of Oncology and the Masaryk Institute of Oncology in Brno became the only reference oncological centres of the European Reference Centre Network for rare diseases in the CR after many years of cooperation with EUCAN.
- The Head of the department, doc. MUDr. Prausová is the Chairperson of the Czech Society of Oncology under the Czech Medical Association of J. E. Purkyně.
- The department cooperated with the Department of Oncology of the University Hospital in Prague 2 on organization of a unique educational event for oncologists - the 2nd year of Best of ASCO in September 2018 in Prague.
- The department contributed to the organization and lectures at the 9th Prague-Onco colloquium, Urological Oncology Symposium, South Bohemian Oncological Days, Brno Oncological Days, Radiological Days and other major Czech symposia.
- Physicians are also actively involved in international events ASCO, ESMO and ESTRO by presenting abstracts and posters.
- The department is an active member of the Sarcoma Group EORTC and contributes to academic clinical studies (such as Survival Outcomes in Adolescent and Young Adults with Colorectal and Pancreatic Cancer).
- The department contributes to the work on the grant of the Czech Science Foundation: Nanofiber Systems for Local Release of Drugs in the Treatment of Oncological Diseases with the Institute of Macromolecular Chemistry of the Academy of Sciences of the CR.
- The facility also contributes to the 5th EU Health Programme: Joint Action on Rare Cancers.
- The work on the pilot study of the impact of genetic factors on the effects of therapy and survival of patients with pancreatic cancer continues (in cooperation with the National Institute of Public Health, Department of Surgery of the 1st and 2nd Faculty of Medicine, Charles University and Motol University Hospital).



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

Head - Prof. MUDr. Marek Babjuk, CSc.

Senior Doctor - MUDr. Marek Schmidt, FEBU

Ward Nurse - Mgr. Jana Boháčová

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 2018, the Centre for Robotic Surgery of the Motol University Hospital was established officially as part of the operating theatres of the Department of Urology. A total of 183 robotic surgical procedures were performed. **In 2018, 27,365 outpatient examinations, 2,073 hospitalizations and 1,866 surgeries were performed.**

Specialized outpatient units:

- Oncology outpatient unit
- Outpatient unit for treatment and metaphylaxis of lithiasis and chronic infection
- Andrology outpatient unit
- Outpatient unit for dysfunction of lower urinary tract
- Centre for treatment and research of prostate cancer (in cooperation with the Department of Radiotherapy and Oncology and the Department of Immunology)
- Centre for surgical treatment of transsexualism
- Centre for Robotic Surgery of the Motol University Hospital

New methods and procedures:

- Advanced laparoscopic procedures - cystectomy, radical prostatectomy, reconstructive surgeries, retroperitoneal lymphadenectomy, kidney resection;
- 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, pyeloplasty

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 2018:

- Opening of the Centre for Robotic Surgery of the Motol University Hospital;
- Course of basic laparoscopic techniques for urologists 22nd -23rd February 2018;
- ESOU Masterclass EAU 1.2-2-2-2018.



COMMON EXAMINATION AND THERAPEUTIC UNITS

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

Head - prof. MUDr. Miloslav Roček, CSc., FCIRSE, EBIR

Senior Doctor - MUDr. Radek Pádr

Senior Radiological Assistant - Mgr. Tomáš Schilla

Basic description:

In 2018, a total of 325,462 examinations were carried out at the Department of Radiology, of which 229,462 were in the adult section and 96,000 in the children's section. Compared to 2017, this means a comparable number of examinations with increased number of procedures in the children's section. The number of procedures in all modalities including MR and especially CT sites increased.

A total of 225,854 patients were examined at the Department of Radiology, of which 68,906 were hospitalized patients and 156,948 were outpatients. This is also an increase from the previous year. The number of exposures was almost identical.

Specifics of the facility:

The reception of the adult section of the Department of Radiology was reconstructed and this significantly improved the entry to the department and made registrations for individual modalities easier for the patients. Reconstruction for the new site MR 3T was also completed.

An internal clinical audit was carried out in the entire Department of Radiology and the local radiological standards and the local diagnostic reference levels were updated.

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

The situation in human resources from middle medical staff is unsatisfactory, there is especially shortage of radiological assistants. The quality of the social facilities for the staff is satisfactory

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
- Angiography Toshiba Infinix
- Mammography, mammary sonography, stereotaxis, vacuum biptome
- Sonography for children and adults, doppler sonography
- 6x fully digitalized sciagraphy, latest sciagraph for Adora traumatology by Canon in the adult section, and a similar, more modern Adora device was newly put into operation in the adults' section

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;
- 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 even outside the CR are carried out via the Polycam device;
- 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.

Major event in 2018:

- The department organized international school of radiology at the 7th Prague European Tutorial of Radiology over two weeks.
- 6th Motol Day of Pediatric Radiology with extensive multidisciplinary participation.
- The Department of Radiology as the main organizer of MOST 2018 - interdisciplinary symposium on MRI and heart CT

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

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 2018, 10,234 consultations to patients /5,696 families/ were provided in the outpatient units of our department under postnatal and prenatal care. Laboratories of the DBMG performed almost 6,000 examinations, of which more than 400 examinations were prenatal.**

The National Coordination Centre for Rare Diseases, Centre for Diagnostics and Treatment of Pediatric 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 the Motol University Hospital

New methods and procedures:

- Diagnostics of new microdeletion syndromes using the FISH and acgh method are expanded. Diagnostics not requiring direct cultivation of amniotic / chorionic cells are also being expanded.
- 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 2018.
- We developed, verified and put into the diagnostic practice our own new diagnostic panel NGS allowing for more precise and significantly faster diagnostics of NF and rasopathy and genetically preconditioned cardiomyopathies and we expect to commence the clinical use of the new panel in 2019.
- 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 are introducing new procedures for more precise interpretation of mutations of an unclear significance.
- We screen newborns for cystic fibrosis throughout the Czech Republic in cooperation with the University Hospital in Vinohrady and the General University Hospital in Prague (approx. 50,000 newborns).
- In assisted reproduction, we offer cryopreservation of ovarian tissue for oncological patients prior to commencing their treatment in cooperation with the Department of Pediatric Haematology and Oncology and the Department of Gynaecology and Obstetrics.

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 for DNA/RNA isolation
- HiSeq 2500 by Illumina
- MiSeq by Illumina and MiniSeq by Illumina for NGS
- cBot, Covaris S200, pipetting robot Agilent Bravo for NGS
- Cryptor Compact Plus by Thermo Scientific for biochemical screening in pregnant women

Major event in 2018:

- Professor Macek, the Head of the DBMG in his position of the coordinator of the National Coordination Centre for Rare Diseases continues to guarantee inclusion of a large part of the departments at the Motol University Hospital in the European

- Reference Networks (ERN) for rare diseases.
- The DBMG works on projects of the 7th framework program of the European Commission, Prague Competitiveness Operational Programme and Norway Grants, Horizon 2020 in medical genetics and genomics.
- 10/05/2018, iDNES.cz : “The genetic expert is the last hope - searching for the disease even in the facial features like a detective”, interview: Senior Doctor MUDr. Markéta Havlovicová.
- 26/10/2018, Deník N: “She had six fingers and prognosis two days, I didn’t want her to live and then I apologized to her, a father of a one-year-old girl says”, interview: MUDr. Pavel Tesner, Ph.D.
- Permanent cooperation with the Czech Association for Rare Diseases (ČAVO) for raising awareness of rare diseases – relating articles in the regular ČAVO newsletter, press releases on the web pages <http://www.vzacna-onemocneni.cz/>, which is shared for these activities with the National Coordination Centre for Rare Diseases.

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

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

Senior 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 **96,413 unique personal ID numbers** every year. **The laboratory examines 2,070 biological samples on average per day, i.e. 624,290 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 2018, more than 7,491,477 procedures were carried out, i.e. by 2% less than in 2017.** 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 2018, 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:

- 2016 - new method for determining glycated hemoglobin on the principle of capillary electrophoresis
- 2016 - transition of SHBG determination to automated immunochemical analyzer Centaur XPT by Siemens with automated calculation of the free androgen index (FAI)
- 2016 - restandardization of testosterone, folate, HBeAg methods
- 2016 - new determination of thyroglobulin in tapped fluid for the Department of Nuclear Medicine
- 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 a 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)

Unique equipment:

- 2016 - 2x new immunochemical analyzer Centaur XPT
- 2016 - immunochemical analyzer Cobas 6000 – two modules e601
- 2016 - immunochemical analyzer Architect i4000SR
- 2016 - automated osmometer Advanced A2O, by Advanced Instruments
- 2016 - osmometer Osmostation 6060
- 2016 - immunochemical analyzer Vitros 4600
- 2016 - installation of deionized water maker GORO and the related structural modifications
- 2016 - installation of weight spectrophotometer
- 2018 - new urine analyzer – Atellica, chemical + microscopical module
- 2018 - new analyzer Optilite, replacement for Immage 800
- 2018 - new gamma counter Berthold LB 2111, replacement for the old item

Major event in 2018:

- Menhir of Professor Masopust 24 January 2018, specialized conference (over 100 participants from the entire CR).
- National gathering of biochemical laboratory technicians BIOLAB 27th - 30th May 2018, where DMCCB represented the Motol University Hospital with one lecture and three posters, one of which was evaluated as the best in the poster section.
- Total number of publications: 18
- of which with IF: 9
- peer-reviewed articles 4
- educational articles for the general public 5



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

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 Pediatric 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. Since 2012, the Department of Immunology has also operated the Vaccination Centre and the Liquor Laboratory. The department is the base for pregraduate 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 2018, 15,752 patients were examined in the outpatient section and laboratories performed 249,230 examinations for these patients; laboratory statistics do not state the number of patients. The liquor laboratory carried out additional 19,303 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, monoclonal antibody against ige)
- Centre for the treatment of hereditary angioedema (substitution of c1inhibitor, inhibition of bradykinin)
- Centre for diagnostics and treatment of immunopathological conditions of the Department of Immunology, 2nd Faculty of Medicine of Charles University and Motol University Hospital

Specialized laboratory:

- Liquor 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

Major event in 2018:

- 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;
- Organizing the international spring school ESID Eastern Spring School in Primary Immunodeficiencies in April 2018;
- Continuing in the work of the Centre of Excellence FOCIS (Federation of Clinical Immunology Societies, USA, EU);
- Work on projects of Institutional Support of the Motol University Hospital; work on grants of the Czech Health Research Council
- 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 study of a rare disease Activated Kinase Syndrome with Specific CCD-Z173X2201 Inhibitor; inclusion of a patient from Germany in this study
- 18 foreign impacted publications, 9 publications in Czech, 3 chapters in books.



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

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. It provides consultation in ATB therapy, differential diagnostics of infections and infection complications. 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 ČLS JEP and the committee of the Society for Medical Microbiology ČLS 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 2018, the department reported a total of 133,163,122 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 the Motol University Hospital in preparation of fecal transplantation in patients with recurrent colitis caused by *C. difficile*.

Unique equipment:

- Isolator of nucleus acids for PCR diagnostics Qiacube
- Anaerobic boxes JOUAN and BENTLEY
- MALDI-TOF, equipment for weight spectrometry 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*
- System for extracting bacterial and fungal DNA (NA Select)
- BD MAX, fully automated system for molecular diagnostics of a wide spectrum of infection originators

Major events in 2018:

- Active participation at conferences and congresses abroad: 29th European Congress of Clinical Microbiology & Infectious Diseases, ECCMID 2018, Madrid; 18th International Symposium on Staphylococci and Staphylococcal Infections, ISSI 2018, Copenhagen; North American Cystic Fibrosis Conference, Denver 2018; 6th International *C. difficile* Symposium 2018, Bled, Slovenia; European Conference for Clinical Virology 2018, Athens;
- Participation in preparation of specialized seminars held by the Society for Medical Microbiology.
- Contribution to the preparation and organization of professional events: 4th year of the interdisciplinary conference "Clostridium Day" in Olomouc, interdisciplinary seminar Třeboň 2018, Antibiotic Policy Soláň 2018;
- Prof. MUDr. Pavel Dřevínek, Ph.D.: head of the European project Standards of Care under the European Society for Cystic Fibrosis, in 2018 elected Committee of the European Society for Cystic Fibrosis (ECFS), also elected as the chairman of the Society for Medical Microbiology ČLS JEP; senior author of recommended procedures "ECFS best practice guidelines: the 2018 revision" (*Journal of Cystic fibrosis*, 2018,17:153-178).
- Mgr. Marcela Krůtová, Ph.D.: member of the European ESCMID Study Group for *Clostridium difficile* – ESGCD; in 2018 received support as the main researcher in the grant of the Czech Health Research Council focused on colistin resistance.
- *Publication activity*: 16 foreign impacted publications, 2 local impacted publications, 4 articles in Czech peer-reviewed magazines; RNDr. Jaroslav Nunvář, Ph.D., was awarded Ervín Adam prize by the Scientific Council of the 2nd Faculty of Medicine for the publication What matters in chronic *Burkholderia cenocepacia* infection in cystic fibrosis: Insights from comparative genomics (Nunvář J, ČapekV, Fišer K, Fila L, Dřevínek P).

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

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 used conventional histology methods with additional subsequent special laboratory examination methods. **In 2018, 24,501 patients were examined, which is 402,546 histological and cytological preparations. The laboratory of molecular pathology carried out 33,656 examinations for 1,599 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 fulfils 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:

- We continuously introduced new immunohistochemical methods for diagnostics of tumors throughout the year, for example GATA3 in mammary gland carcinoma, SOX10 for melanoma diagnostics and NKX2.2 for diagnostics of Ewing sarcoma.
- Introduction of new coloring methods in the biopsy laboratory for the proof of bilirubin
- Introduction of the new generation sequencing (NGS) methodology on paraffin tissues in tumorous diseases.
- New coloring methods in pulmonary cytology that accelerated the examination process significantly.
- Introduction of the “liquid biopsy” methodology and detection of circulating tumorous DNA(c+DNA)

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 2018:

- The project of institutional support of science from the Ministry of Health CR continued in 2018 at a good level, the total IF for 2018 was 81.628.
- In 2018, certification in pathology was carried out at the department.
- The department’s physicians actively participated in numerous congresses in the Czech Republic and abroad.
- Publications in 2018:
 - Krskova L, Kabickova E, Drahokoupilova E, Kopeckova K, Plank L, Vitkova P, Mrhalova M, Zamecnik J, Kodet R.: An undifferentiated sarcoma with BCOR-CCNB3 fusion transcript - pathological and clinical retrospective study. *Neoplasma*. 2018;65(4):630-636.
 - Lokvenc M, Kalinova M, Forsterova K, Klener P, Trneny M, Fronkova E, Kodet R.: Cyclin D1 mRNA as a molecular marker for minimal residual disease monitoring in patients with mantle cell lymphoma. *Ann Hematol*. 2018 Mar;97(3):467-474.
 - Fabian O, Hradsky O, Drskova T, Mikus F, Zamecnik J, Bronsky J.: Immunohistochemical Assessment of CD30+ Lymphocytes in the Intestinal Mucosa Facilitates Diagnosis of Pediatric Ulcerative Colitis. *Dig Dis Sci*. 2018 Jul;63(7):1811-1818.
 - Fabian O, Mokra D, Masopust J, Skorepa J, Kodetova D, Zamecnik J.: 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. *Cardiovasc Pathol*. 2018 Nov 30;39:8-11.



Department of Clinical Hematology

Senior Doctor - MUDr. Jitka Segethová

Senior Laboratory Technician - Blanka Hájková

Basic description:

The department provides extended haematological care according to the criteria of the Czech Haematological Society ČLS JEP.

It is divided into two sections - the laboratory and the clinical section. The laboratory performs routine and special haematological examinations for the Motol University Hospital and for requests from outside the region. **In 2018, 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' haematology is focused on precise morphological diagnostics of the myelodysplastic syndrome.

The clinical section includes an outpatient unit for the children's and the adults' section. **35,000 procedures were carried out in the outpatient section in 2018.** The adults' outpatient section includes application rooms used for the application of transfusion preparations and chemotherapy.

New methods and procedures:

- Examination of the function of thrombocytes.
- Introduction of the methodology for examination of levels of new 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)

Major event in 2018:

- Cooperation with the Department of Medical Microbiology on early commencement of hemoculture cultivation was established.
- The Day of Blood was held in the hematological laboratory on 9/18 with many attendees from the general public.
- Practical tuition for medical laboratory technicians and other medical staff continues at the Department of Clinical Haematology.



Department of Clinical Psychology of Motol University Hospital

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 Pediatric section. These psychologists provide preventive, diagnostic, psychotherapeutic and rehabilitation care for hospitalized patients and outpatients, as well as their families. **In 2018, the department provided services to 3,621 patients and performed 6,627 examinations.**

The department is a facility accredited by the Ministry of Health CR and provides theoretically practical and practical part of the pre-certification preparation in clinical psychology and Pediatric clinical psychology. The facility obtained accreditation of the certified course "Pediatric clinical neuropsychology", which will be held in cooperation with the Department of Pediatric Psychiatry and the Department of Pediatric Neurology.

New methods and procedures:

- Development of comprehensive psychological care for adult and Pediatric patients before and after transplantation
- A team of neuropsychologists successfully continued in the development of diagnostics of neurodegenerative disorders and examination of patients in the surgical epileptic program; continued examination of the developmental level in children born prematurely as part of the Comprehensive Care Centre; psychologists continued to develop psychological diagnostics for Pediatric patients with autistic spectrum disorders as part of psychiatric care;
- Further development of the project in cooperation with the organization Zdravotní klaun o.p.s supporting adaptation of children with serious chronic diseases;
- Continuation of a research project that aims to verify the effectiveness of the existing program NOS for managing anxiety of children prior to surgery.
- Commencement of intervision groups for employees of the Motol University Hospital.
- Involvement in new projects for palliative care for children and adults.

Major event in 2018:

- Employees of the Department of Clinical Psychology were involved in international research projects and actively participated in lecturing activities for professional and general public. They published in major scientific magazines and actively participated in international and Czech conferences. Two colleagues successfully completed their PhD studies.

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 the Motol University Hospital. It ensured purchasing, storage and issue of all types of transfusion preparations for patients in the Motol University Hospital. **In 2018, the department issued a total of 30,682 T.U. of all types of transfusion preparations**, 19,647 T.U. of erythrocytic preparations, 7,575 T.U. of plasma, 3,418 T.U. of thrombocytic preparations and 42 T.U. of granulocytic TP. Compared to the volumes issued in 2017, the consumption of all types of transfusion preparations remained the same.

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 2018, 9,416 blood group examinations, 20,340 antibody screening tests, and 41,619 compatibility tests were carried out as part of the basic pre-transfusion examinations.** The number of specialized immunohaematological examinations remains the same as in 2017, specifically 1,465. Prenatal examinations are without any major changes. The number of irradiations of transfusion preparations is essentially the same as in 2017 – 8,973 irradiations.

At the autotransfusion section, autologous full blood is collected mainly for patients from the Departments of Orthopaedics of the Motol University Hospital, Department of Urology of the 2nd Faculty of Medicine and Motol University Hospital, and for patients of the Na Homolce Hospital. **In 2018, a total of 238 autologous collections of full blood and 25 leukapheresis procedures were carried out.**

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 peripheral stem cells (PBPC) was introduced in routine operation.

Unique equipment:

- Automated immunohaematological analyzer Erytra + Eflexis

Major event in 2018:

- Separation of autologous peripheral stem cells (PBPC) is carried out for Pediatric patients from the Department of Pediatric Haematology and Oncology of the 2nd Faculty of Medicine, Charles University and Motol University Hospital.

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 Pediatric and adult patients suffering from inflammatory rheumatic diseases, focusing on juvenile idiopathic arthritis, rheumatoid arthritis, ankylosing spondylitis and other forms of spondyloarthritis, psoriatic arthritis, system diseases of the connective tissue and primary vasculitis. Other cooperating fields and laboratory services contribute to the care for patients. The department actively participates in the medical advice activities of the Motol University Hospital and provides medical consultancy also to other facilities nationwide. **In 2018, 4,940 collections, 4,660 inpatient examinations, 2,834 minimum contacts, 282 consultations by phone and 327 specialized ultrasound examinations were carried out at the department and 180 medical consultations were provided for inpatients at various departments of the Motol University Hospital.**

Specialized outpatient units:

- Outpatient unit of rheumatology for adults
- Outpatient unit of rheumatology for children
- 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 indications of ankylosing spondylitis and psoriatic arthritis. We are also newly using JAK inhibitors for the treatment of RA.
- Bedside diagnostics and dynamic monitoring of the activity of inflammatory rheumatological diseases with musculoskeletal ultrasonography was introduced.
- Ultrasound examination of damage to the cartilage in inflammatory and non-inflammatory rheumatological diseases was introduced as part of projects with institutional support of the Motol University Hospital.
- We are newly carrying out ultrasound guided punctures of joints and soft tissues in the locomotor system.

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 2018:

- The department's employees contributed to local specialized congresses organized by the Czech Rheumatological Society ČLS 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.
- Work on the internal grant with institutional support entitled "Use of musculoskeletal ultrasonography in detection of cartilage damage in patients with rheumatoid arthritis and osteoarthritis" continued successfully.

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 Pediatric part of the hospital, except for cardiac surgeries. Pregraduate and postgraduate tuition for physicians and other medical staff is carried out in the premises of the central operating theatres for children.

7,793 surgical procedures were carried out in 2018.

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;
- The first thoracoscopic surgery of long gap atresia in a child's esophagus in the CR;
- Establishment of a multidisciplinary group for comprehensive surgical and conservative treatment of lymphangiomas and hemangiomas of the head and neck;
- Robotic surgery introduced in Pediatric urology;
- Extension of surgery in orthopaedics by including individual tumorous endoprosthesis;
- New methods for endoscopic surgeries in proctology and continued extension of endoscopic and 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 Pediatric surgery (image and sound);
- Introduction of central vascular catheters led from the peripheries PICC and Midline.

Unique equipment:

- Plasma generator – plasma coblation
- 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 operating table accessories - mechanism for head support for NCH surgeries and suspension mechanism for fixation of hand during 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 anesthesiology devices by GE, series Aisys, Avance and Carestation

Major event in 2018:

- Liver transplantation in a child weighing 3.5 kg was carried out in cooperation with IKEM.
- The central operating theatres for children are a highly sought-after training site for tuition in Pediatric anaesthetics.

Department of Central Operating Theatres for Adults

Ward Nurse - Mgr. Vladana Roušalová

Supervising Physician - MUDr. Petr Přikryl, KARIM

Basic description:

The department provides facilities for 9 out of 11 surgical departments of the adult section of the Motol University Hospital. It has 21 operating theatres and participates in surgical procedures in additional 6 theatres. **Therefore, the department covers approximately 2/3 of surgeries in the adult section, which meant 17,623 surgeries in 2018.**

Unique equipment:

- The monitoring technology in theatre COS-A4 used by the 3rd Department of Surgery was modernized in the same manner as theatre COS-A3 last year.
- Theatre COS-C4 used by the 2nd Department of Orthopaedics was fitted with an arthroscopic tower.

New methods and procedures:

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

Major event in 2018:

- Two nurses for perioperative care completed their specialization studies..

Department of Transplantations and Tissue Bank

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

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 the Motol University Hospital.

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

In 2018, 11 multi-organ collections (MOC) from cadaverous donors were carried out.

16 kidney transplantations in children (7 from cadaverous + 1 from a living donor) were carried out.

42 lung transplantations were carried out (93% of which were bilateral and 76% on ECMO!) and 1 heart transplantation in a child was performed.

103 hearts were received in the cardiovascular tissue bank and 136 grafts for transplantation of heart valves and conduits were issued, 127 of which were transplanted.

95 bone grafts were carried out and 46 grafts were issued. 34 collections of the calva from living donors for autologous use were carried out and 10 cranioplasty procedures were carried out. Amniotic membrane grafts from the placenta were collected from 24 living donors and 225 grafts were issued for transplantation.

Major event in 2018:

- The highest number of kidney transplantations in the history of the program was achieved last year.
- The program for processing the amniotic membrane was put into routine operation owing to the grant support provided by the AZV Czech Health Research Council.



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 comprises Emergency and Admissions for Children or "LSPP". Patients arrive at the emergency admission for children mainly with the ambulance. The admissions for children operate during the day for incoming Pediatric patients as acute Pediatric outpatient unit and during evenings and weekends as an emergency unit. During the emergency hours, acute outpatient departments – Pediatric surgery, Pediatric orthopaedics, ENT for children, etc. - also operate in our premises. The examination methods available directly at our department are POCT ABR, ECG. CT, US, X-ray and MR are located near the emergency admissions. Patients of the Emergency Department are children from birth to 17 years + 364 days.

In 2018, 27,116 children were treated at the Emergency Department and LSPP, of which 5,124 children through the emergency admissions.

Department of Dermatovenereology for Adults

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

Ward Nurse - Mgr. Helena Janoušková

Basic description:

provides basic and specialized care in dermatology and venerology focusing on dermatoallergology and occupational skin defects, prevention and treatment of skin tumors and treatment of psoriasis. **In 2018, more than 8,223 patients were treated in the outpatient care and almost 23,042 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 esthetic medicine
- Surgical procedures on nails (such as ingrown nails, nail plate deformation)
- Laser treatment of onychomycosis

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. Štěpánka Čapková

Department Nurse: Alena Kurešová

Basic description:

The department comprises of 2 outpatient units with 4 part-time physicians and 2 full-time nurses. The department treats patients in Pediatric dermatology from the entire CR and provides not only medical consultancy services for all inpatient departments of the Pediatric part of the hospital, but in serious diagnostic or therapeutic cases also for the entire CR through outpatient consultancy service. **In 2018, 8,240 inpatient procedures were carried out and 316 medical consultations were provided** for inpatient departments and units of the Pediatric part of the hospital. Internships of physicians preparing for certification in dermatovenereology, tuition in paediatric dermatology for a certified course and short-term internships for allergists, Pediatric physicians and general practitioners for children and adolescents are conducted at the department.

Specifics of the facility:

Physicians provide specialized consultancy for especially severe cases of atopic eczema, nevus diseases, genodermatosis and hemangiomas. Close cooperation in the care for the most severe dermatological cases with physicians of the Department of Pediatrics (hospitalization of severely affected patients), Department of Pediatric Haematology and Oncology, Department of Pediatric Surgery, Department of Pediatric Neurology and physicians from the Department of Rheumatology, Department of Biology and Medical Genetics, and Department of Immunology is an important specific part of the department's work. The department is also involved in their publication activities.

New methods and procedures:

- In 2018, examination of high-risk pigment lesions was improved with the use of the DermoGenius ultra digital dermatoscope.

Unique equipment:

- DermoGenius ultra (dermoscan) digital dermatoscope

Major event in 2018:

- The department organized the Conference of Pediatric Dermatology in cooperation with the Department of Pediatric Dermatology of the university hospital in

Brno. The Senior Doctor MUDr. Čapková and MUDr. Čadová delivered lectures at this conference.

- The physicians also delivered lectures at the Congress of Primary Care, during courses organized by the Czech Medical Chamber for Pediatric physicians, during the course of Pediatric dermatology in IPVZ and during pre-certification courses for Pediatric physicians and allergy specialists.
- The physicians wrote 4 publications for local magazines.

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.

26,211 patients were treated at the Primary Care Department in 2018.

Department of Emergency Admission and Medical First Aid Service for Adults

Senior Doctor - MUDr. Lenka Kozlíková

Ward Nurse - Bc. Lucie Vacková

Chief Physician of LSPP - MUDr. Aleš Ducháček

Basic description:

The Department of Emergency Admission for Adults (DEAA) specialized 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. 60% of patients are brought in by the ambulance, 25% of the cases arrive without referral and 15% of the cases come with a referral of an outpatient specialist, usually a general practitioner.

The department has an inpatient unit for emergency admissions equipped with 17 monitored beds, acute outpatient unit of surgery with beds, traumatology, neurology, urology and outpatient unit for medical first aid service (LSPP), which share additional 12 examination beds. The DEAA also has 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 73,764, of which 21,768 patients are in admission outpatient units, 9,067 patients in acute outpatient department of surgery, 5,578 patients in the outpatient unit of neurology, 20,752 in traumatology and 16,599 in LSPP. 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:

Inspection and prevention of infections associated with the provided medical care, community infections, implementation of measures for limiting their occurrence and spread, application of hygienic and counter-epidemic requirements for medical and other operations according to the specific conditions of individual sites, creation of a healthy and safe environment for patients and working conditions for the staff.

Specifics of the facility:

The results of monitoring of the incidence of infections associated with the medical care provided show 2.21% of the reported infections. During the year, data from the prevalence study in 2017 detected from this type of monitoring and comparable to the CR and the EU was available.

184 cases of clostridium infections were reported, 131 of which were toxigenic ribotypes, which was the most frequent reason for hospitalization. 285 extracts from medical documentation were sent to individual local public health offices, of which

18 cases of invasive pneumococcal diseases, 21 cases of measles were investigated, of which 4 cases were employees, including counter-epidemic and quarantine measures in responsive contacts. 50 serious influenza cases were hospitalized. We recorded 2 cases of pertussis in children up to one year of age.

Inspections of compliance with hygienic and epidemiological regime in medical facilities including internal hygiene audits at worksites were carried out in accordance with the valid legislation, 262 inspections of sterilization equipment were carried out and public health protection authorities continuously conducted inspections at selected worksites with cooperation of the local staff.

As part of the department's laboratory activities, 3,453 cultivations of smears for checking the bacterial cleanliness of the environment were performed. Special attention was paid not only to sites important from the perspective of epidemiology, but also to the so-called clean spaces, where the environment underwent regular aeroscopic monitoring and monitoring for requirements according to classes of cleanliness in 108 comprehensive measurements (microorganisms and microparticles in the air of the clean spaces). The regular hygienic supervision included examination of the hot industrial and drinking water (288 samples), water treated for dialysis, pool water and water from rehabilitation sites, including detection of the occurrence of legionella.

713 community infections documented for subsequent spread of infection were reported to public health authorities through the administrative process. The institutional disinfectant arranged 455 space disinfections.

The Observe program for monitoring compliance with hand hygiene continued this year and was also applied to the activities of the occupational medical services.

The occurrence of measles among the hospital staff and the subsequent quarantine and counter-epidemic measures were a serious epidemiological event. 1,360 employees were examined for measles virus antibodies and 197 employees were vaccinated in 2018.

Hospital Pharmacy of the Motol University Hospital

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 the Motol University Hospital is to provide effective and safe drugs for hospitalized patients and outpatients and generally to set up and inspect all steps required in 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 Pediatric 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 the Motol University Hospital by participating in the Committee for Effective Pharmacotherapy. The pharmacy also drafts internal regulations of the Motol University Hospital for handling drug.

In 2018, approximately 2,000 ready-to-use doses of cytotoxic drugs for adults and more than 900 doses for Pediatric patients were prepared each month in the Hospital Pharmacy - Department for Preparation of Cytostatic Drugs.

The department for individual preparation of therapeutic preparations prepared almost 300 thousand capsules.

In 2018, the Hospital Pharmacy prepared and issued parenteral nutrition and relating drugs for 35 patients, 12 Pediatric patients had sacks individually prepared in the Department for Preparation of Sterile Drugs (DPSD). The DPSD prepared 9,147 individual preparations (of which there were 804 sacks for newborns). 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.

854,620 packs of mass produced medicines were issued to the hospital. The department for mass produces medicines processed 3,692 requests on average per month, including in summary 17,382 items/month (this does not include carriers and large-volume infusion preparations).

1,037,605 items of drugs, medical devices and supplementary goods and additional products were issued to the public, of which 559,053 medicine packs were prescribed by physicians on 234,795 prescriptions. The pharmacy participates in all clinical assessments of drugs that are in progress at the Motol University Hospital in accordance with the good clinical practice principles and good pharmacy practice principles. 7,412 items of drugs were issued under the clinical assessment regime. Our clinical pharmacists carried out 2,140 assessments of pharmacotherapy of hospitalized patients and provided 204 medical consultations upon request.

In the scientific and publication activities, the pharmacy focused on individual preparations for patients of specific age groups, especially Pediatric 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 impacted magazines.

New methods and equipment:

- Hot-air sterilizer Memmert UF 30 m
- Laboratory washer Miele PG8583 AE WW ADP PD
- Robot Kenwood type KVL61 for large volumes of topical semisolid preparations
- Introduction of individual preparation of solid drug forms containing medicinal cannabis

Major event in 2018:

- Publication of results of European research of the level of implementation of the European "statements" in hospital pharmacy.
- Active participation in theoretical and practical tuition of pharmacy students and newly also medical students in pharmacology.
- Active participation in national and international events, such as EAHP Academy Seminar, Congress of Hospital Pharmacists, etc., and membership in the leadership of European and national professional societies and contribution to the management of major European projects, such as the Common Training Framework in Hospital Pharmacy.
- In 2018, Dr. Horák accepted the role of the president of the European Association of Hospital Pharmacists (EAHP) associating more than 22,000 hospital pharmacists from 35 countries for the next 3 years.

NURSING CARE

Nursing plays an essential role in healthcare. In 2018, we continued to improve the quality of the care provided and ensuring patients' safety. We focus 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. The Motol UH has participated for the fifth time in the international "Stop Pressure Ulcers" day on 15/11/2018. 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.

The pilot project for new electronic processing of reported risks and occurrence of poorly healing wounds and falls in the records of hospitalized patients, which was launched towards the end of the year, was another major topic for year 2018. Our sophisticated prevention and the improved quality of our diagnostics helped us maintain the occurrence of pressure ulcers at the Motol UH at the level achieved in 2017 and the number of falls of hospitalized patients was also similar to that for the previous year. The reduction of falls resulting in serious injuries is a major achievement.

We have 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.

Social care

The social department provided social care to 4,958 adult patients, which is an increase by 101 patients compared to 2017. Social care was provided to 3,579 patients in acute beds and to 1,379 patients at the Aftercare Centre (further CNP-LDN). 966 patients from all inpatient departments were released with home healthcare provided and 49 patients were released to home hospice care. 335 patients were released into inpatient rehabilitation aftercare and inpatient hospice care was arranged for 31 patients. 1,259 patient requested long-term inpatient treatment and 1,099 of these were transferred to CNP-LDN. 437 patients were released to their homes and 123 patients were transferred to residential facilities - seniors' homes and homes with special regime.

The total number of Pediatric patients and their families under social care (including newborns and children at the Department of Pediatric Psychiatry) is 875. This is a year-on-year increase by 151 children.

Four medical and social workers were integrated in the palliative team for the adult part and one works as a consultant in the children's palliative outpatient department of the Motol UH. Employees of the social department participate in pregraduate and postgraduate education of healthcare professionals and tuition.

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 the 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 2018, we carried out 8,792 cycles in steam sterilizers, 31 in plasma sterilizers and 2,182 in chemical sterilizers. Automated washing machines carried out 29,894 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 850 hospitalized patients and provided care to 1,250 children and adult patients in the outpatient part. They paid particular attention to educating patients and their carers.

Spiritual care

Providing spiritual care has become an integral part of supportive care for hospitalized patients. In 2018, hospital chaplains provided care for 3,430 patients. 610 employees also used the services of the hospital clerics.

Hospital supporting health

The project entitled "Support for Hospital Culture" continued also in 2018. Walks to locations outside Prague were organized. The AcorD choir represented the hospital actively on various occasions. Libraries located within the hospital premises have been very popular with patients, as well as the general public and staff.

The hospital has joined the network of non-smoking hospitals and received an international certificate. Another of our projects entitled "Do you want to quit smoking? - We will support you!" focuses on the current issue of "smoking in a hospital". In June 2018, both projects were presented on a poster at the international conference in Bologna.

Intervision case sessions for physicians, nurses, physiotherapists, occupational therapists, speech therapists and social workers have been newly introduced. The so-called Balint groups, which have proven effective in supporting professions as they allow members to support each other, are another form of meeting among the professionals.

Volunteer Centre

In 2018, volunteers worked 3,113 hours providing care for 4,162 patients. Volunteer activities include groups attending specific departments regularly once a week, irregular help, for example accompaniment of patients during various events, etc., and performing volunteers.

The program of animal assisted therapy and especially the canistherapy program have been extended. The program involved

20 canistherapy teams with 25 dogs, who worked 284 hours in total. Canistherapy was conducted regularly for Pediatric patients (neurology, neurologic surgery, Department of Psychiatry and Department of Anaesthesiology) and seniors in CNP. A new pilot project entitled "Canistherapy for the Staff" was conducted at the Emergency Department for Adults.

In 2018, the Volunteer Centre organized a total of 38 events (theatre, musical and visual arts events), which were attended by 882 patients and registered volunteers, as well as 117 non-registered volunteers. The Methodical Centre for Animal Assisted Therapy was established under the Volunteer Centre in March 2018 and the newly established centre organized 3 two-day seminars for coordinators of animal assisted therapy in medical facilities.

The conference "Pathway to Modern Nursing XX" held in September 2018 with attendees from the CR and abroad was very well received by the participants.



HOSPITAL OMBUDSMAN

Nemocniční ombudsman působí ve Fakultní nemocnici v Motole od ledna 2012. K The hospital ombudsman has been operating in the 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 the 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 388 submissions were addressed during 2018. Furthermore, 461 enquiries, which often represented a precursor to a potential complaint, were addressed and responded to. Of the total number of 388 submissions, 364 were complaints. A vast majority of the complaints was assessed as unjustified complaints; there were 46 partially justified complaints and 56 justified complaints. Corrective measures involving mainly education of employees were applied in the case of justified or partially justified complaints.

Patients (197 submissions) and legal representatives of patients who are minors (80 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 (97 submissions).

All submissions are always dealt with the managements of individual sites. Where suitable in view of the character of a complaint, complaints are discussed orally with participation of management of the sites involved to find a suitable resolution. In the 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 and provides comments on draft legal regulations sent to the Motol University Hospital in its role of an authority providing comments

SCIENTIFIC RESEARCH ACTIVITY

The Motol University Hospital supports scientific research activities as an integral part of its activities stipulated in the hospital's articles of association. 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. The Motol UH supports innovation and integration of research outcomes in practice in accordance with new trends in the application of outcomes of scientific research activities.

Science, research and innovation (SRI) is supported in the Motol University Hospital through combined financing using institutional and special purpose funds obtained mainly from grants. Research teams of the Motol University Hospital participate in international projects, especially within the EU, where projects of the 7th EU Framework Program, Horizon 2020 program and other EU schemes and funds of the EEA and Norway are carried out.

Institutional support for research and grants

- The Motol UH has received institutional support administered by the Ministry of Health of the CR since 2012. The Motol UH was listed in the state registry of Research Organizations in 2017 and as such receives institutional support.
- Institutional support of the research organization is organized at the Motol UH through a system of internal grants at the hospital's individual departments and institutes. Year 2018 was the seventh year of application of this scheme.
- **In 2018, the hospital carried out 17 projects of the Czech Health Research Council of the Ministry of Health of the CR as the principal researcher and 50 projects as the cooperating researcher.**
- **28 internal grant projects were conducted in 2018 under institutional support. The hospital was also active as a cooperating researcher in GAČR (Czech Science Foundation) projects and significantly contributed to the FP7 and Horizont 2020 system within the EU.**
- In 2018, the 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	46 786 000	17
AZV (Czech Health Research Council) as the cooperating researcher	27 265 000	50
TAČR (Technology Agency of the CR) as the cooperating researcher	0	0
GAČR (Czech Science Foundation) as the cooperating researcher	1 639 000,00	2
IP	72 542 194,00	28
FP7	524 828,33	2
Norwegian Funds	0	0
Horizont 2020	137 038,34	2
Other resources	5 575 359,90	9
Total 2017	166 634 079,96	99

- 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 2018, the summary impact factor increased, reaching 2094.199 points and the average impact factor reached 4.7 points.
- In 2018, assessment according to Metodika 17+ was carried out with the Motol University Hospital taking the leading positions especially in the assessment of quality of scientific outcomes with significant representation of the hospital's outputs in the first decile in medical sciences.
- Priorities of the scientific research activities were gradually defined at the Motol University Hospital. Pediatric specializations appear to be the strongest directions in research. The Department of Pediatric Haematology and Oncology with its laboratory and research facility at the CLIP site is the dominating actor in research. Furthermore, Pediatric specializations, such as the Department of Pediatrics, Children's Heart Centre and Department of Pediatric Neurology, are traditionally strong. 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 Pediatric 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

The Motol UH introduce a system of “Modern Therapies” projects in accordance with the support for innovation and integration of scientific research outcomes in practice. Under this scheme, 5 projects were conducted in 2018 and practical output in the form of new diagnostic or therapeutic options is expected from all five projects. 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.

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 86 students have been educated through the 15 years of the program's operation and 16 students have obtained the Ph.D. title and postgraduate certification in their specializations.** 39 active students are enrolled in the program.

International activities

In 2018, the hospital continued to develop its international research activities especially at the level of individual departments and institutes. **We conducted 3 FP7 EU projects and 3 projects under the Horizont 2020 system in 2018.** Our publication activity reflecting the international cooperation also intensified.

As regards international activities, the Motol University Hospital was actively involved in the system of European Reference Networks for Rare Diseases, ERN. **11 sites participating in the ERN currently operate within the hospital under this Europe-wide scheme** and this confirms the leading position of the Motol University Hospital in rare diseases.

Creative act

The Motol University Hospital monitors and appreciates quality and success in medicine and scientific research progress. The best creative act for the previous year was acknowledged in 2018 for the tenth year running with the award being granted to the team of the Department of Paediatric Neurology, 2nd Faculty of Medicine, Charles University and Motol University Hospital for the study “Introduction of Molecular and Genetic Diagnostics and Personalized Therapy in Patients with Unmanaged Epilepsy”.

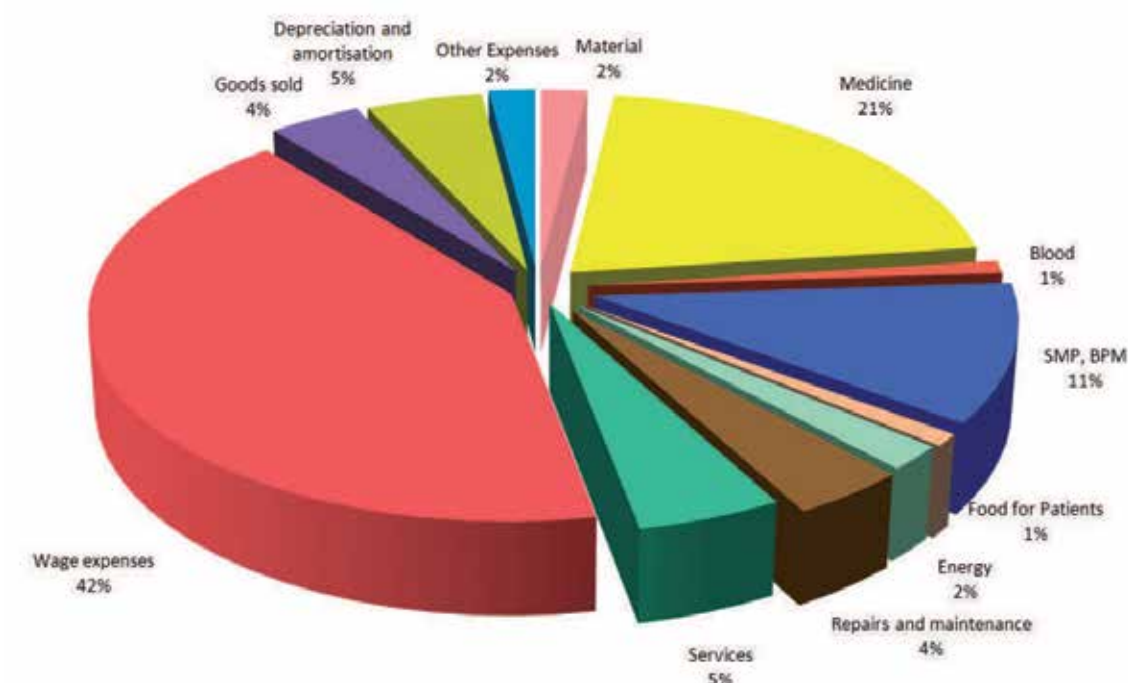
An award for a JUNIOR creative act was newly granted to young scientists up to 35 years of age. The title was awarded to MUDr. Dagmar Myšíková of the 3rd Department of Surgery, 1st Faculty of Medicine, Charles University and Motol University Hospital for the study “Specific Antitumor Antibodies in Lung Cancer”.



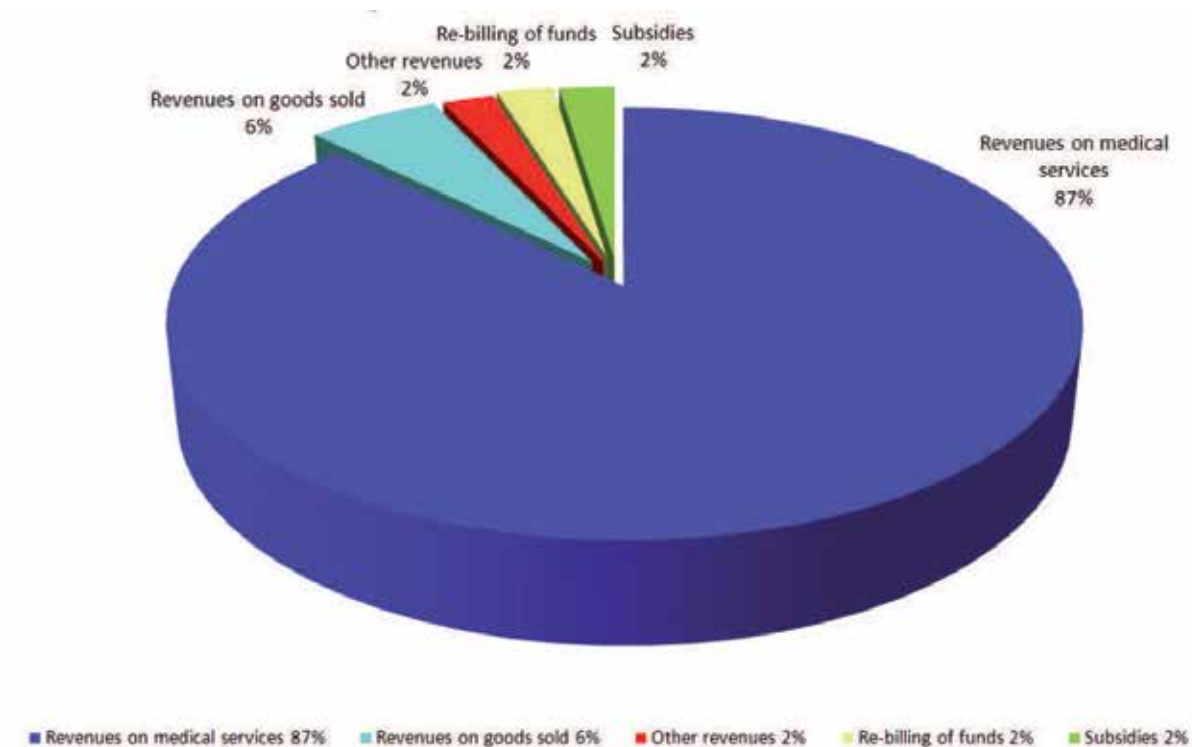
ECONOMIC ACTIVITY

BALANCE SHEET (abbreviated balance sheet in thous. CZK)	status as at 01/01/2018	status as at 31/12/2018
ASSETS	10 947 750,43	11 283 196,95
Fixed assets	8 931 058,55	9 405 208,31
Fixed intangible assets	7 603,96	6 640,49
Fixed tangible assets	8 913 069,40	9 383 965,06
Long-term financial assets	0,00	0,00
Long-term receivables	10 385,19	14 602,76
Current assets	2 016 691,88	1 877 988,64
Stock	159 435,39	142 378,03
Receivables	1 027 134,48	720 766,82
Financial assets	830 122,01	1 014 873,79
LIABILITIES	10 947 750,43	11 283 196,95
Own resources	9 865 232,59	9 938 539,13
Assets of unit of account	8 952 319,75	9 421 310,46
Funds of unit of account	2 335 231,93	1 932 798,12
Profit/loss for current accounting period	3 301,61	6 799,64
Unpaid loss of past years	-1 425 670,70	-1 422 369,09
Profit/loss under approval proceedings		
Foreign resources	1 082 517,84	1 344 657,82
Reserves	0,00	0,00
Long-term liabilities	223 437,27	238 635,37
Short-term liabilities	859 080,57	1 106 022,45
Bank assistance and loans	0,00	0,00

Summary of Expenses 2017—Motol University Hospital



Summary of Revenues 2017—Motol University Hospital



BALANCE SHEET (abbreviated balance sheet in thous. CZK)		status as at 01/01/2018
ASSETS		10,947,750.43
Fixed assets		8,931,058.55
Fixed intangible assets		7,603.96
Fixed tangible assets		8,913,069.40
Long-term financial assets		0.00
Long-term receivables		10,385.19
Current assets		2,016,691.88
Stock		159,435.39
Receivables		1,027,134.48
Financial assets		830,122.01
LIABILITIES		10,947,750.43
Own resources		9,865,232.59
Assets of unit of account		8,952,319.75
Funds of unit of account		2,335,231.93
Profit/loss for current accounting period		3,301.61
Unpaid loss of past years		-1,425,670.70
Profit/loss under approval proceedings		

The economic outcome of the Motol University Hospital was balanced as at 31/12/2018 and the accounting period this year ended with a profit - the profit after tax was CZK 6.79 million, of which the hospital's main activity reported a loss of CZK -42.254 million and the profit of economic activity was CZK 49.054 million.

Owing to the increased performance in the previous period, the hospital received a balance payment for medical care from health insurance companies to the amount of CZK 130 million, which helped to balance the reduced volume of medical procedures during the year due to a lack of medical staff. The lack of medical staff on the labor market resulted in increased overtime and the impact of this was intensified by bonuses provided to this category of employees. Personnel expenses thus increase and this significantly affects the hospital's costs. Personnel costs account for 42% of the hospital's total costs.

The hospital's financial performance was also affected by increased costs of especially centric drugs in the hospital's centres. As the university hospital regularly treats patients with more severe morbidities, the cost of their treatment is also higher.

The hospital's cash flow in 2018 was also significantly influenced by financing investment from the hospital's own resources, as we gradually pay for the reconstruction of the Pediatric University Hospital and Polyclinic. Depreciation of assets decreased year-on-year. However, the hospital does not need to ensure reproduction of assets, as investment into modern technology also reduces the cost of repairs and maintenance.

The payment decree approved for 2018 defined payment of acute inpatient care through a lump-sum payment to the amount equal to 112.4% of the payment in the reference year 2016, with achieving the minimum production of 95% of the reference period. The production was measured through casemix of all cases according to the IR DRG rules. Coefficient for increasing payments for individual groups of diseases were determined according to the payment decree in the case of specialized centres and a part of our specialized centres was without limitation. The inpatient part of the payment was also paid by a lump sum increased against year 2016 with the condition of achieving the same production as in 2016.

A balanced financial outcome is the most important economic objective of the Motol University Hospital. The hospital has been economically stable on a long-term basis and has no tax arrears. During 2018, the hospital paid installments on its long-term liabilities regularly and these installments will continue to influence the hospital's cash flow.

HUMAN RESOURCE ACTIVITY

University Hospital in Motol employed in 2018:

in converted numbers 5,299 employees, of which 4,221 medical staff

in natural persons: 5,954 employees, of which 4,869 medical staff

	2016	2017	2018	2016	2017	2018	INDEX 18/17	
	NP	NP	NP	CN	CN	CN	NP	CN
Total	5 820	5 801	5 858	5 180	5 191	5 220	1,01	1,01
PHYSICIANS	1 218	1 238	1 279	888	917	945	1,00	1,03
PHARMACISTS	33	33	33	29	30	30	1,00	1,00
NURSES	2 000	1987	1989	1851	1829	1814	1,01	1,00
QUALIFIED MEDICAL STAFF	390	459	598	362	434	569	0,99	1,31
SPECIALIZED MEDICAL STAFF	249	241	244	200	193	193	1,02	1,00
SUPERVISED MEDICAL STAFF	774	729	590	741	709	568	1,01	0,80
OTHER QUALIFIED STAFF	62	59	59	50	51	49	1,03	0,96
TECHNICAL AND ECONOMIC STAFF	740	735	753	708	724	745	1,02	1,03
WORKERS	3544	318	312	351	314	307	1,01	0,98

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

Qualification structure - status as at 31/12/2018

Achieved education among nurses and midwives	Total	%	of which with specialization	%
Secondary medical	1285	64	841	65
Higher medical	204	10	149	73
Tertiary bachelor's	343	17	158	46
Tertiary master's	176	9	39	22
Total	2008	100	1187	59

Employees according to education and gender - status as at 31/12/2018

achieved education	men	women	total	%
basic	101	120	221	3,7
vocational certificate	310	227	537	9,1
vocational secondary	46	10	56	1,0
completed general secondary	24	58	82	1,4
completed vocational secondary	271	1968	2239	37,9
higher vocational	54	261	315	5,3
tertiary	843	1638	2481	41,3
of which bachelors	77	461	538	
masters	766	1177	1943	
total	1649	4282	5931	100

Employees according to age and gender - status as at 31/12/2018

age	men	women	total	%
up to 20 years	10	29	39	0,66
21 - 30 years	332	819	1151	19,41
31 - 40 years	437	873	1310	22,09
41 - 50 years	330	1221	1551	26,15
51 - 60 years	283	965	1248	21,04
61 let a years and more	257	375	632	10,65
total	1649	4282	5931	100
%	27,80	72,20	100	

Medical staff pursuant to Act No. 95/2004 Coll. = physicians and pharmacists: total 1,312

Of the 1,279 physicians in total, 426 (33%) only have professional qualification and 876 (67%) 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).

Medical staff pursuant to Act No. 96/2004 Coll. = medical professions other than physicians: 3,480 in total, of which 1,989 general nurses and midwives.

Wages

A total of CZK 2,922,546,043 (excluding other personnel expenses - remuneration for work performed outside employment) was expended on wages in 2018. This was an increase by CZK 299,159,442, i.e. by 11.4% compared to 2017.

The increase in wage expenditures was caused by the wage regulation effective as of 01/01/2018 pursuant to Government Decree No. 316/2016 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 31/12/2018 was CZK 46,657. This is an increase by 10.8% compared to 2017.

Development of average salary over the last 10 years

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TOTAL	29925	30824	33356	35016	34364	34893	36302	38529	42111	46657
PHYSICIANS	50565	51373	61510	67464	65564	66478	68962	71753	76316	81758
NURSES	29171	30206	31307	32853	32079	32035	33425	36390	40317	45637



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We care for generations!



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