

Annual report
2015 Motol
University Hospital





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Introductory Word

Dear friends,

The year of 2015 was perceived from the view of Czech health care system as a year of personnel crisis. This has also affected the Motol University Hospital, but it managed to keep the situation under control – the situation of about 40 missing nurses did not force us to make restrictions in our standards of provided care. In the same way, the hospital has not experienced a lack of physicians and it was successful in fulfilling the requirements of the labour code regarding ordered overtime shifts.

In 2015, an extension of underground - Line A - brought along metro to our hospital and that had a significant impact on an increase in the number of outpatient patients. The hospital was ready for this situation and it dealt with it by a huge modernization and increase in capacity of the Emergency Department for Adults. The department reaches the size and standards of such hospital emergency departments in the most developed countries in the world, e.g. Israel and the USA.

Among the other new departments which were newly established are the Department of Subsequent Intensive Care and the Department of Long-term Intensive Nursing Care. That has significantly improved providing of intensive care for chronically ill patients. At the present, it is probably one of the most advanced medical centres of this type in the country.

Also during the past year, the MUH continued with the modernization of its Children's Hospital. The wing B was being gradually built and it is planned to be open in 2016. The final part of Children's Hospital reconstruction – the paediatric outpatient department – was intensively planned and throughout the year of 2015, the hospital was seeking for a suitable building contractor.

In terms of economic stability, the Motol University Hospital continued to keep the economic result slightly positive and in the same time it dealt with two big new economic circumstances – with the cancellation of regulatory fees in health care system as well as with the increase in the wage scales.

The development of international scientific cooperation, which is one of the priorities of the hospital, continued in all directions. The hospital cooperates with leading hospitals in China (Beijing and Shanghai), as well as with hospitals in Western Europe and in the USA.

Dear friends, I hope that with all the support of professionals and public, the Motol University Hospital will remain one of the pillars of the Czech health care system.



A handwritten signature in black ink, appearing to read 'Miloslav Ludvík'.

Miloslav Ludvík, LLD, MBA
Director

Management

Director of the Hospital

Miloslav Ludvík, LLD, MBA

Deputy Manager for Medical Preventive Care

Martin Holcát, MD, MBA

Deputy Manager for Nursing Care

Jana Nováková, MBA

Deputy Manager for Economy

Jiří Čihař

Personnel Deputy Manager

Jindřiška Feldmanová

Deputy Manager for Engineering and Technology

Pavel Budinský, MD, Ph.D. MBA

Deputy Manager for Science and Research

prof. Anna Šedivá, MD, DSc.

Deputy Business Manager

Luděk Navara

Scientific Board

prof. Marek Babjuk, MD

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

assoc. prof. Jiří Bronský, MD, Ph.D

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

assoc. prof. Ondřej Cinek, MD, Ph.D.

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

assoc. prof. Pavel Dřevínek, MD, Ph.D.

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

prof. Tomáš Eckschlager, MD

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

Markéta Havlovicová, MD

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

prof. Jiří Hoch, MD

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

Martin Holcát, MD, MBA

Deputy Manager for Medical Preventive Care, Motol University Hospital

prof. Jakub Hort, MD, Ph.D.

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

prof. Jan Janoušek, MD, Ph.D.

Head of Children´s Heart Centre, Motol University Hospital

assoc. prof. Tomáš Kalina, MD, Ph.D.

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

prof. Josef Koutecký, MD

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

assoc. prof. Pavel Kršek, MD, Ph.D.

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

prof. Milan Kvapil, MD, MBA

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

prof. Robert Lischke, MD, Ph.D.

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

prof. Jan Plzák, MD, Ph.D

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

prof. Miloslav Roček, MD

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

prof. Anna Šedivá, MD, DSc.

Senior Consultant of Department of Immunology, 2nd Faculty of Medicine, Charles University and Motol University Hospital, Deputy manager for Science and Research

assoc. prof. Radek Špíšek, MD, Ph.D.

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

prof. Zdeněk Šumník, MD, Ph.D.

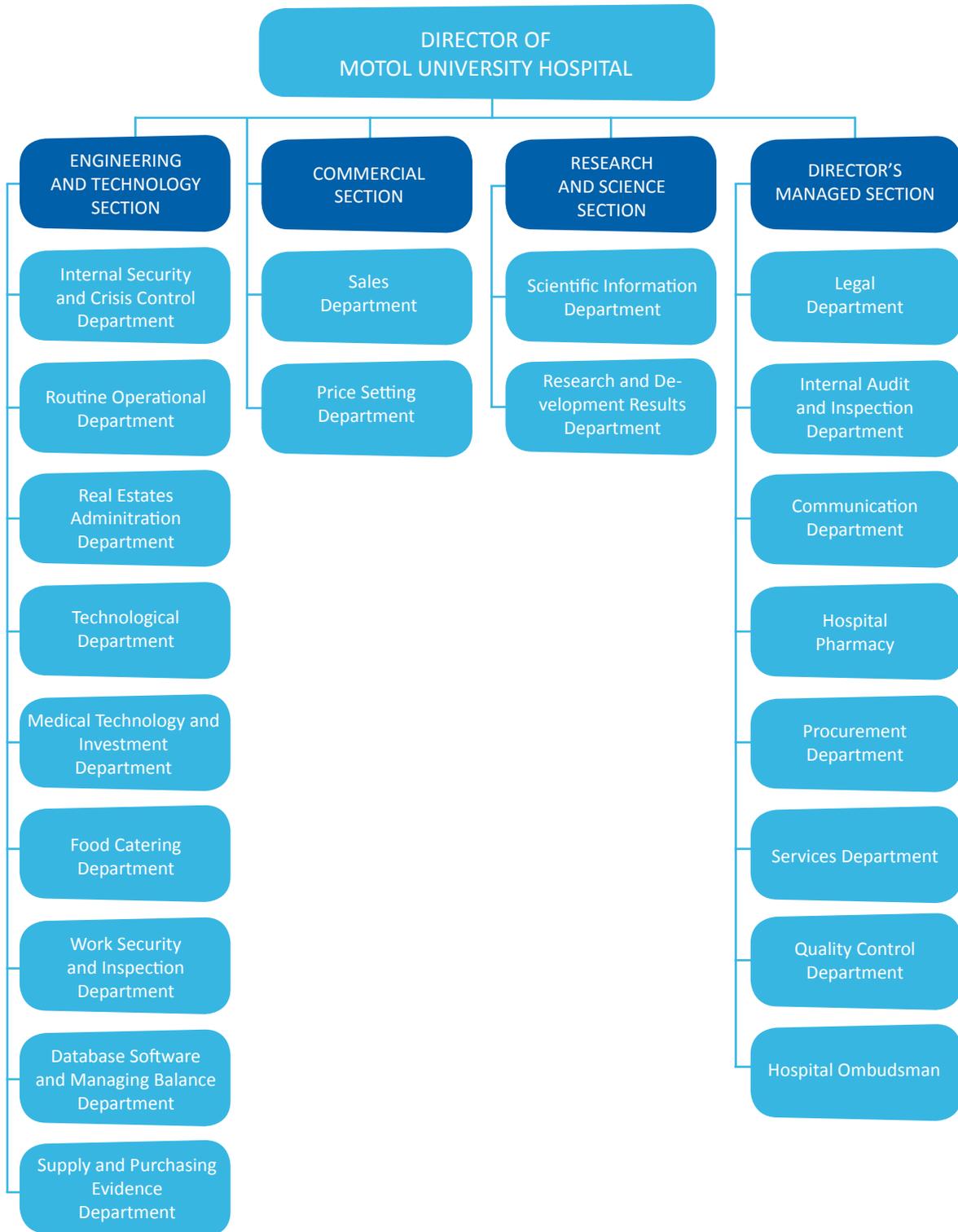
Department of Paediatrics, 2nd Faculty of Medicine, Charles University and Motol University Hospital

assoc. prof. Josef Zámečník, MD, Ph.D.

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

Basic Organizational Structure





Basic Data to 31. 12. 2015

Estate area (m ²)	348 000
Assets (in thousands of CZK)	10 802 874
Total turnover (in thousands of CZK)	7 788 153
Employees (Natural Person)	5 780
Employees (Employment)	5 160

Beds

-Of Which:	Children	Adults	Total
Standard	421	1007	1438
ICU	150	216	366
Acute in total	571	1233	1804
Aftercare -intensive	4	10	14
-longterm	-	361	361
-intensive nursing	-	20	20
Total	575	1624	2199

Number of hospitalisations	76 755
Number of outpatient treatments	848 221
Number of treatment days (without Longterm)	463 512
Number of anesthesia treatments	40 633
Number of childbirths	3 441
Death rate	1,43

List of Departments

Paediatric Inpatient Part

Department of Paediatrics *)

Head: prof. Jan Lebl, MD

Children's Heart Centre,*)

Head: prof. Jan Janoušek, MD, Ph.D.

Department of Paediatric Psychiatry *)

Head: prof. Michal Hrdlička, MD

Department of Stomatology *)

Head: prof. Taťjana Dostálová, MD, Ph.D., MBA

Department of Paediatric Surgery *)

Head: prof. Jiří Šnajdauf, MD, Ph.D., FEBPS

Department of Paediatric Haematology and Oncology *)

Head: prof. Jan Starý, MD, Ph.D.

- Bone Marrow Transplant Unit

Head: prof. Petr Sedláček, MD

Department of Paediatric Neurology *)

Head: prof. Vladimír Komárek MD

Department of ENT *)

Head: Jiří Skřivan, MD, Ph.D.

– Department of Phoniatics

Head: Eva Vymlátílová, Ph.D.

Adult Inpatient Part

Department of Obstetrics and Gynaecology *)

Head: prof. MUDr. Lukáš Rob, MD

– Department of Neonatology with IRCU

Head: Miloš Černý, MD

Department of Surgery *)

Head: prof. Jiří Hoch, MD

3rd Department of Surgery **)

Head: prof. Robert Lischke, MD, Ph.D.

Department of Internal medicine *)

Head: prof. Milan Kvapil, MD, MBA

Department of Cardiovascular Surgery *)

Head: assoc. prof. Vilém Rohn, MD

Department of Cardiology *)

Head: prof. Josef Veselka, MD, FESC

Department of Otorhinolaryngology and Head and Neck Surgery **)

Head: prof. Jan Betka, MD, Ph.D.

*Department of Nuclear Medicine and Endocrinology *)*

Head: prof. Petr Vlček, MD

Department of Long-term treatment - Aftercare Centre

Head: Martina Nováková, MD

Department of Neurology *)

Head: assoc. prof. Petr Marusič, MD, Ph.D.

Centre for Spinal Surgery, **)

Head: prof. Jan Štulík, MD

1st Department of Orthopaedics **)

Head: prof. Ivan Landor, MD

Department of Pneumology *)

Head: prof. Miloslav Mareš, MD

Department of Oncology *)

Head: assoc. prof. Jana Prausová, MD, Ph.D., MBA

Department of Urology *)

Head: prof. Marek Babjuk, MD

Common Inpatient Sites of Paediatric and Adult Parts

Department of Anaesthesiology and ICM *)

Head: Tomáš Vymazal, MD, Ph.D.

Department of Subsequent Intensive and Long-term Intensive Nursing Care

Head: Kateřina Čadová, MD

Department of Rehabilitation and Sports Medicine *)

Head: prof. Pavel Kolář, Ph.D.

– Department of Rehabilitation

Head: Martina Kövári, MD

– Department of Pain Research and Treatment

Head: Jiří Kozák, MD, Ph.D.

– Spinal Unit

Head: Jiří Kříž, MD

– Department of Sport Medicine

Head: assoc. prof. Jiří Radvanský, MD

Department of Ophthalmology *)

Head: prof. Dagmar Dotřelová, MD, FEBO

Department of Neurosurgery *)

Head: assoc. prof. Michal Tichý, MD

Department of Orthopaedics *)

Head: prof. MUDr. Tomáš Trč, MD, MBA

Common Examination and Therapeutic Units

Department of Radiology *)

Head: prof. Miloslav Roček, MD

Department of Clinical Haematology, Motol University Hospital

Head: Ivana Hochová, MD

Blood Bank Department, Motol University Hospital

Head: Eva Linhartová, MD

Department of Biology and Medical Genetics *)

Head: prof. Milan Macek, MD, Ph.D.

Department of Immunology *)

Head: prof. Jiřina Bartůňková, MD, Ph.D.

Department of Medical Chemistry and Clinical Biochemistry *)

Head: prof. Richard Průša, MD

Department of Medical Microbiology *)

Head: Pavel Dřevínek, MD, Ph.D.

Department of Pathology and Molecular Medicine *)

Head: prof. Roman Kodet, MD

Department of Clinical Psychology, Motol University Hospital

Head: Mgr. Zuzana Kocábová

Department of Rheumatology, Motol University Hospital

Head: Rudolf Horváth, MD, Ph.D.

Department of Transplantations and Tissue Bank, Motol University Hospital

Head: Jan Burkert, Ph.D., MD

Outpatient Sector

Central Operating Theatres – paediatric part, Motol University Hospital

Head: Drahomíra Fryčová

Central Operating Theatres – adult part, Motol University Hospital

Head: Mgr. Vladana Roušalová

Department of Dermatovenerology, Motol University Hospital

Head: Alena Machovcová, MD, Ph.D., MBA

Emergency Department for Children, Motol University Hospital

Head: Marie Mikulecká, MD

Emergency Department for Adults, Motol University Hospital

Head: Jiří Šoupal, MD

Department of Pediatric Dermatology, Motol University Hospital

Head: Štěpánka Čapková, MD

Primary Care Department, Motol University Hospital

Head: Jaroslava Kulhánková, MD

**) 2nd Faculty of Medicine, Charles University in Prague and Motol University Hospital*

****) 1st Faculty of Medicine, Charles University in Prague and Motol University Hospital*

MEDICAL PREVENTIVE CARE

PAEDIATRIC INPATIENT PART

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

Head physician: Prof. Jan Lebl MD

Senior consultant: Jana Tejnická, MD, MBA

Head nurse: Bc. Jitka Kaplická

Basic characteristics:

The department provides diagnostics, treatment and dispensary care for paediatric patients from the Czech Republic in almost all branches of internal medicine. **During the year 2015, a total of 4,815 patients were hospitalized at the clinic, and the outpatient treatment was provided for 24,548 patients. 9 patients successfully underwent kidney transplantation (2x from a living donor), 9 patients were prepared for liver transplantation in the IKEM¹ (3 children from Slovakia), 1 child underwent a lung transplant, which was performed successfully in Motol University Hospital. On the endoscopic operating theatres, 952 interventions were performed and at the department of elimination methods, 1,233 performances were achieved.**

Specialised outpatient facilities for:

The department involves 17 specialist outpatient clinics (including ambulances for children after kidney, liver and lung TX) and department of elimination methods. All clinics provide examinations for patients from all over the Czech Republic.

New methods and procedures:

- Nephrology working group successfully continued with a unique elimination method – immunoabsorption in children and adults. Successfully provides care for patients with renal failure (weight by 3 kg) who require long-term home peritoneal dialysis.
 - Pneumology team developed a method of investigation of exhaled gases (LCI) for testing of lung function, further installed highly specialized examination of pulmonary function by using multiple leaching tidal indicator gas (nitrogen sulfur, hexafluoride). The team implemented a program of domestic non-invasive ventilator to support patients with respiratory failure; it is for patients with neuromuscular disease.
 - Working team for patients with cystic fibrosis has been routinely using new method for investigating chloride in sweat – Macroduct.
 - Gastroenterology team successfully continued in the treatment of patients with oesophageal stricture by balloon dilation. It provides comprehensive care for patients before and after liver TX.
 - Working group for diabetology and endocrinology introduced into routine operation the examination of the pulse wave in type 1 diabetes, it is a non-invasive method for assessing arterial stiffness.
-

Unique technological equipment:

- exhaled gas analyser (LCI) for testing of lung function
- fan trialogues to support non-invasive ventilation
- Cough Assist Device

Important event in 2015:

- Members of the working groups presented significant work on domestic and international scientific conferences, publications were very attractive.
- Pneumology team hosted the fifth course of flexible bronchoscopy in children at the Conference of Czech Society of Paediatric Pneumology
- Gastroenterological working team won the Czech Society of Gastroenterology award for monograph – Practical Gastroenterology, Hepatology and Nutrition. Diabetes-Endocrinology team was the organizer of the conference – Paediatric diabetes 2015. This working group has won several awards for most valuable publications in the field of paediatric endocrinology and diabetology. He also published a book – Diabetes Alphabet.

Children's Heart Centre

Head physician: Prof. Jan Jan Janoušek, MD

Senior consultant of the dept. of Cardiology: Prof. Václav Chaloupecký, MD,

Senior consultant of the dept. of Cardiosurgery: Prof. Tomáš Tláškal, MD,

Senior consultant of the dept. Functional Diagnostics: Petr Tax, MD

Head nurse: Mgr. Dana Křivská

Basic characterization:

Children's Heart Centre is the Czech Republic's only comprehensive cardiovascular centre for children nationwide. It mainly deals with the diagnosis and treatment of congenital heart defects in children, collaborates with other departments in the treatment of adult patients with congenital heart disease. Workplace is characterized by preference of non-invasive diagnostic procedures (ECHO, MRI, CT) and primary corrections of defects at an early age. **In 2015 495 operations were carried out (+ 25 arterial ligation of open duct), 311 catheterization (of which 219 interventional) 824 patients were hospitalized (+507 accompaniments) and 4,936 emergency departments treated patients.** These numbers mean staying in revenue growth in the segment operations and catheter interventions compared to previous years, reflecting to move to a new workplace which was capacity-suitable in 2011. In 2015 the department provided a care for **foreign patients** under the humanitarian program Medevac, through charitable / humanitarian missions in Amman (Jordan x 2) Phnom Penh (Cambodia, 1 x) and Nairobi (Kenya, 1 x) where it operated a total of 47 patients.

Specialized outpatient facilities:

- Clinical cardiology clinic
- Ambulance of electrophysiology and pacing
- Prenatal cardiology
- Connective tissue disease

- Cardiac transplantation

New methods and procedures:

- Program of long-term implantable mechanical heart support – in 2014 the first patient successfully treated for 7 months and then transplanted
- Program of heart transplantation in children – in 2014 successfully performed in 4 patients and in 2015 in 1 patient

Unique technological equipment:

- Centrifugal pump Rotaflow for ECMO and short-term mechanical heart support

Important event in 2015:

Organizing the annual congress of AEPC (Association for European Paediatric Cardiology and Congenital in Prague, 20th – 23rd May, 2015, Prague Congress Centre, 1,110 participants from all five continents.

5 publications in international journals with impact factor

Janoušek, J. Kovalev, I.A. Kubuš, P. Černyšev, A.A. Krivoščekov, E.V. Krivolapov, C.N. Sokolov, A.A.: Cardiac resynchronization therapy in the treatment of heart failure in children. *Kardiologia* 55 (2): 87-95, 2015, IF 0.117

Happonen, J.H. Blom, N. Celiker, A. Drago, F. Hebe, J. Janoušek, J. Kornyei, L. Kriebel, T. Papagiannis, J. Paul, T. Pfammatter, J.P. Rosenthal, E. Tuzcu, V.: Management of paediatric arrhythmias in Europe. *Europace* 17(12):1879, 2015, doi: 10.1093/europace/euv091, IF 3.670

Roston, T.M. Vonocur, J.M. Maginot, K.R. Mohammed, S. Salerno, J.C. Etheridge, S.P. Cohen, M. Hamilton, R.M. Pflaumer, A. Kanter, R.J. Potts, J.E. LaPage, M.J. Collins, K.K. Gebauer, R.A. Temple, J.D. Batra, A.S. Erickson, C. Miszczak-Knecht, M. Kubuš, P. Bar-Cohen, Y. Kantoch, M. Thomas, V.C. Hessling, G. Anderson, C. Young, M.L. Cabrera Ortega, M. Lau, Y.R. Johnsrude, C.L. Fournier, A. Kannankeril, P.J. Sanatani, S.: Catecholaminergic polymorphic ventricular tachycardia in children: An analysis of therapeutic strategies and outcomes from an International Multicentre Registry. *Circ Arrhythm Electrophysiol* 8 (3): 633-642, 2015, IF 4.678

Kotaška, K. Popelová, J. Průša, R.: NT-proBNP levels and their relationship with systemic ventricular impairment in adult patients with transposition of the great arteries long after Mustard or Senning procedure. *Clin Chem Lab Med* 2015, doi: 10.1515/ccim-2014-06562, IF 2.707

Rubáčková Popelová, J. Kotaška, K. Tomková, M. Tomek, J.: Usefulness of N-terminal pro-brain natriuretic peptide to predict mortality in adults with congenital heart disease. *Am J Cardiol* 2015, doi: 10.1016/j.amjcard

Publication of the book: Šamánek, M.: My memories of the beginning of the Children's Cardio in Prague. Grad Publ., Prague, p. 96, 2015

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

Head physician: Prof. Michal Hrdlička, MD,

Senior consultant: Jiří Koutek, MD

Head nurse: Mgr. Mária Vacová

Basic characteristics:

Paediatric Psychiatry is the only independent clinical device in this field in the country. It deals with the diagnosis, treatment and prevention of mental disorders in childhood and adolescence, is focused on childhood autism, eating disorders, attention deficit hyperactivity disorder, psychotic disorders and suicidal behaviour in children and adolescents. A Family Centre, which is family oriented, is also a part of the clinic. The department's undergraduate and graduate teaching facility. For postgraduate education is accredited in the field of child and adolescent psychiatry and adult psychiatry. **In 2015 6,700 outpatient procedure and 1,888 consultations were carried out and 440 admissions to the inpatient department took place.**

Specialized outpatient centres:

- Family Centre for Family Therapy of paedo-psychiatric patients

New methods and procedures:

- In 2010 the department joined the international scientific research consortium COST surveying an early diagnostics of disruptions of autistic spectrum and for the project, the Department of Paediatric Psychology acquired a financial subvention from The Ministry of education, youth and sport for years 2011-2014. A new diagnostic method for autism spectrum disorders - Autism Diagnostic Observation Schedule (ADOS) was put into operation. Since 2012, the ADOS examination has been routinely used at the clinic and hundreds of patients were tested until now.
- Hospital workers further in screening for autism participated in the transfer, standardization and issuance of CAST screening test for school children (Dudová, I., Beranová, Š., Hrdlička, M., Urbánek, T.: CAST – screening test for autism spectrum disorders. 1st edition., Prague, National Institute of Education 2013. 54 pages) and translated and published a screening test M-CHAT for children of 2 years age (Dudová, I., Beranová, Š., Hrdlička, M.: Screening and diagnosis of childhood autism in early childhood. Paediatrics Practice, 14, 2013, No.3, pp. 153-156.) Both methods are already commonly used in the hospital. The hospital continue in conducting a unique research of early markers of bipolar disorder in high-risk offspring in the Czech Republic, which was supported by the IGA NT 13337. (Principal investigator, MD. Michael Goetz, Ph.D.). The hospital cooperates with the National Institute of Mental Health. Doctor Goetz was also involved in the standardization and publication of clinical scales:
 - - Theiner, P., Urbánek, T., Goetz, M., Fajmonová, V. Assessment scale ADHD-IV screening test attention deficit hyperactivity disorder. 1st edition, Prague, National Institute of Education 2015.
 - - Ptáček, R., Kuželová, H., Goetz, M. Rating Scale CONNERS 3, 1st edition, Prague, Hogrefe, 2016, in press

- In collaboration with the Centre for comprehensive care for children with perinatal stress of the 1st Faculty of Medicine, doctor Goetz is a co-investigator of the New Method project of aftercare of children with perinatal stress.
- Currently is in effect comprehensive therapy for eating disorders, in which the hospital has an international importance. In 2015 research of suicidal behaviour and self-harm in patients with eating disorders continued at the hospital and the research on eating disorders with early onset of the disease started.
- Diagnostics and full therapy of psychotic conditions is of supra-regional importance.
- Since 2014, the Paediatric Psychiatry of MUH offers electroconvulsive therapy for children and adolescents

Unique technological equipment:

- Device for electroconvulsive therapy: Thymatron DG

Important event in 2015:

Hospital worker significantly contributed to the college textbook Psychiatry and Child Psychiatry (Editors: Hosák, L., Hrdlička, M., Libiger, J.) published by Carolinum in 2015. The book was created as a joint textbook of Medical Faculty of Charles University in Hradec Kralove and of the 2nd Faculty of Medicine in Prague, but a team of authors includes a total of 32 experts from almost all medical faculties in the Czech Republic. Primarily, the book is designed for medical students, young doctors in training attestation in psychiatry and child psychiatry, psychologist and specialists in other fields of medicine can also take advantage of the textbook.

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

Head physician: Prof. Jan Starý, MD, Ph.D.

Senior consultant: Vladimír Komrská, MD

Senior consultant: Vratislav Šmelhaus, MD

Head nurse Bc. Jitka Wintnerová

Basic characterization

The department is focused on diagnostics, treatment and research of oncological diseases in childhood, benign diseases such as anaemia, haemorrhagic conditions and congenital coagulation disorders (haemophilia). At the transplantation unit are performed surgeries such as allogeneic and autologous transplantation of hematopoietic stem cells in the treatment of high-risk leukaemia, surgeries of selected solid tumours, and congenital disorders of the immune system or metabolic defects. **In 2015, a total of 14,889 examinations and treatments were performed, 2,698 patients with oncological diseases and 1,476 patients with benign diseases were treated. Newly were diagnosed: 169 children with malignant solid tumours, 26 children with leukaemia and myelodysplastic syndrome, 194 patients with benign tumours, 484 children with non-oncological disease. The total number of hospitalised patients was 3,388 plus 2,367 relatives who accompanied them. In total there were 36 allogeneic bone marrow transplantations, of which 33 from unrelated donors from the register, 3 bone marrows were offered from relatives and 5 operations were autologous.**

Specialised outpatient facilities for:

- Oncology
- Centre of late consequences
- Haemangiomas
- Tumours of the central nervous system
- Ambulance for Hodgkin's disease
- Hodgkin's disease care
- Haematology outpatient clinic
- Haematology stationary ward
- Congenital disorders of blood coagulation and haemorrhagic conditions
- Care for patients after bone marrow transplantation

New methods and procedures:

- Hospital's Laboratory Centre acquired in accordance with § 16 of Act no. 22/1997 Coll. on technical requirements for products, as amended accreditation certificate no. 673/2015 for medical laboratory no. 8276. Range of granted accreditation: Laboratory diagnostics expertise in haematology, flow cytometry and molecular genetics including shared examination. The certificate is a proof of accreditation based on the assessment of compliance with the accreditation requirements of ISO 15189: 2013. Accreditation is valid until September 20, 2016.
- Initiation of genetic diagnosis of immune disorders and related diseases program;
- Initiation seminars of personalized medicine (Precision Medicine Board) analysing results of celegenom examination of patients with leukaemia, immune disorders and selected non-oncologic blood diseases.
- Seminars significantly contribute to the diagnosis, prognosis and selection of the optimal therapy for individual patients.
- Opening of a specialized laboratory for lymphangia.

Important event in 2015:

- Publishing activities of the clinic in 2015: published and taken into print 50 publications on aggregate IF = 332
- In February 2015 the first edition of the Day of Paediatric Oncology took place. The Czech Republic joined alongside with more than 90 countries around the world annually recalling the Day of Paediatric Oncology. Day program culminated in the city centre by video-mapping unique show on the facade of the Rudolfinum, the seat of the Czech Philharmonic. More at www.dendetskeonkologie.cz
- Organization of trilateral conference in Prague – Dresden – Wroclaw with the theme of children's haemato-oncology in Liberec.

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

Head physician: Prof. Jiří Šnajdauf, MD, FEBPS

Senior consultant: Richard Fryč, MD

Head nurse: Mgr. Ilona Mayerová

Basic characteristics:

In frame of specialised skills – neonatal surgery, thoracic surgery, oncological surgery, proctology, urology, liver surgery, portal hypertension, biliary tract, exstrophy of the bladder and children polytraumas – the department provides care for paediatric patients from the whole country and super-counselling also for foreign patients.

Specialised outpatient facilities for:

- Thoracic surgery
- Oncosurgery
- Surgery of the liver, biliary tract and pancreas
- Neonatal surgery
- Urology
- Proctology
- Traumatology
- Burns
- Paediatrics
- Consultation for home parenteral nutrition
- Psychological consultation centre

New methods and procedures:

- In collaboration with the 3rd Surgical Clinic we are developing laparoscopic surgery of achalasia in childhood.
- For the first time in the world we have made duodenum sparing resection of the pancreatic head of a child diagnosed with Pancreas divisum.
- An extension of the performance spectrum of minimally invasive surgery was conducted – the first operation of Morgagni diaphragmatic hernia laparoscopically with child and first operation of mediastinal neuroblastoma in children thoracoscopic;
- Implementation of early enteral nutrition after bowel anastomosis according to world trends;
- Surgical treatment of hypospadias expanded of a use of lobe of the tunica dartos in tubulise sculpture of urethra and foam dressing in the postoperative care – this technology will be used this way with malformed children.
- Implementation of operations of exstrophy of the bladder according to Kelly and hypospadias using a foam covering.
- Laparoscopy – methodology of pyeloplasty and laparoscopic splenectomy technique saw further developed.
- The introduction of new techniques in solving of funnel chest by minimally invasive method according to professor Nuss. New scheme of antibiotic therapy achieved a reduction in consumption of antibiotic after surgery of funnel chest by minimally invasive method by 70%.

Unique technological equipment:

- Duet Encompass – a modern video device for urology and the EMG of the pelvic floor
- Laparoscopic and thoracoscopic device for small children
- CUSA
- New harmonic scalpel
- Ligasure – coagulation

Important event in 2015:

Publications:

Frybova B, Vlk R, Kokesova A, Rygl M

Isolated prenatal ultrasound findings predict the postnatal course in gastroschisis.

Pediatr Surg Int. 2015, 31: 381-387 ISSN 0179-0358

Supported by Grant NT/13483 MZ ČR a OPVK CZ.2.16/3.1.00/24022.

Dedic T, Jirsa M, Keil R, Rygl M, Snajdauf J, Kotalova R

Alagille Syndrome Mimicking Biliary Atresia in Early Infancy.

PLoS ONE 10(11): e0143939. doi:10.1371/journal.pone.0143939, November 30, 2015

IF 3.234 ISSN 1932-6203

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Rygl M, Rounova P, Sulc J, Slaby K, Stranak Z, Pycha K, Svobodova T, Pohunek P, Skaba R
Abnormalities in pulmonary function in infants with high-risk congenital diaphragmatic hernia.

Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub. 2015, 159(3):497-502 | 10.5507/bp.2015.040 IF 1.200 ISSN 1213-8118

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Hojdak I, Kolacek S, Folmer Hansen L, Bronsky J, Piekkala M, Lionetti P, Skaba R, Kolho K-L
Long-term outcomes after elective ileocecal resection in children with active localized Crohn’s disease—a multicentre European study.

Journal of Pediatric Surgery, October 2015, Volume 50, Issue 10, Pages 1630–1635

Significant participation of physicians from the Department of Paediatric Surgery in the 61st Congress of Czech and Slovak Paediatric Surgeons with high international participation held in Czech Krumlov during 30.09.2015 – 2.10.2015 (11 lectures)

Significant active participation at the International Congress of Paediatric Surgeons 16 at 16th European Congress of Paediatric Surgery, Ljubljana, Slovenia 17 – 20 June 2015 (5 lectures, 2 posters)

Active participation of our Proctologic groups on 22nd Congress of the International Meeting of the Paediatric Colorectal Club, Milan, Italy, 14. – 15.6 2015.

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

Head physician: Prof. Vladimír Komárek, CSc.

Senior consultant : Věra Sebroňová, MD

Head nurse: Gabriela Pavlová

Basic characteristics:

The department provides diagnostics and treatment of paediatric patients from the whole Czech Republic in all branches of paediatric neurology and it serves as both a pre-graduate and postgraduate teaching workplace. A part of the department is standard beds, ICU beds of a lower type, outpatient clinics, laboratories for electrophysiology and specialized centres. In 2015, 1,173 children were hospitalized and a total number of inpatients were 1,614. 17,601 outpatient clinical examinations were performed, 1,308 patients were diagnosed with epilepsy. In the electrophysiology laboratory were performed 5,557 interventions, of which 3,308 EEG, 362 fixed video/EEG and polysomnography, 1,277 and 616 EMG.

Specialised outpatient facilities for:

- Comprehensive centre for epilepsy and epilepsy surgery
- Centre for hereditary neuropathy
- Centre for hereditary ataxias
- Neuromuscular consulting centre
- Centre for neurocutaneous diseases
- Demyelination consulting unit
- Centre for botulotoxin application
- Clinic for sleep disorders in children

New methods and procedures:

- In 2015 automatic detection interictal epileptiform activity was published and to preoperative diagnosis was implemented high-density EEG, purchased by the Internal Grand of Motol University Hospital.
- The original study analysing the pathogenesis of speech disorders in children with developmental dysphasia was published. Using DTI (i.e. Tractography), we studied the changes in white matter in children with developmental language disorder. We detected specific connectivity disorders associated with this disease.
- Within the neuromuscular project a protocol MR of diagnosis of hereditary myopathies was created in 2015
- In the framework of interdisciplinary collaboration with the Pneumology Department of Motol University Hospital was recently in the care of congenital neuromuscular diseases (NMD) set the algorithm of care for patients with spinal muscular atrophy (SMA) type I. International research project of pathogenesis NMD was launched – participation in EU COST Action BM1304 gran continues, newly we are participating in the project of the Norwegian Fund and grant EU Horizon 2020 – The Vision DMD. The research results were published in two communications in international journals with collectively IF 12, continuing clinical trial of PTC124-GD-020e-DMD, newly we participate in the study BMN-051-302. Within the project a

total of 5 scientific articles were published with the higher IF. We started a project of investigating patients with severe childhood epilepsy and epileptic encephalopathies using massively parallel sequencing. We successfully use the method HaloPlex and experience gained in the project NGS examination of patients with hereditary neuropathy. We have examined first group of 47 selected patients with early severe epilepsy by using the 97 currently known genes associated with early severe epileptic encephalopathies. In the study of generic causes of epilepsy of 2015, there were several studies in prestigious international journals with high IF (e.g., Nature Genetics, Neurology, and American Journal of Human Genetics). Total IF of these publications with the complicity of our department is 82.

Unique technological equipment:

The device which allows scanning scalp EEG up to 256 channels (high density EEG). It can non-invasively map the source of epileptic seizures while some cognitive testing paradigms in the context of experimental projects. The device will be used not only in epileptology, but also in other groups of patients with neurological disabilities.

Department of E.N.T., 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head physician: Assist. Prof. Jiří Skřivan, MD

Senior consultant: Michal Jurovčík, MD

Head nurse: Adriana Laudátová

Basic characteristics:

The department is concerned with diagnostics and both surgical and conservative treatment of the E.N.T.- related diseases in children from birth up to 18 years of age. As a super-consulting workplace, it provides medical care for children with diseases difficult to diagnose and treat from the whole country. The Centre for cochlear implants in children is a part of the phoniatic section of the department. The department provides surgeries for new-borns with cleft face defects within multidisciplinary cooperation as one out of two departments in the Czech Republic.

In 2015 the clinic performed 2,026 operations, 2,279 hospitalizations and emergency departments treated 20,136 patients.

A part of the clinic is Phoniatic department and rehabilitation centre for cochlear implants in children. The department is primarily focused on the selection of candidates for cochlear implantation in children and preoperative and postoperative care for long-term users of cochlear implant, which provides a comprehensive speech therapy, speech therapy and psychological care, including programming of speech processors. Further, it actively provides additional speech therapy rehabilitation at home in the Czech Republic. Leader of our station is Ph.D.r. Eva Vymlátlová.

Specialised outpatient facilities for:

- Kophosurgery – in the Centre for Cochlear Implants
- Audiology
- Comprehensive Care for Hearing Impaired Patients including rehabilitation after Cochlear Implantation in Mrazovka centre

- Ambulance assessing candidates for Baha implant
- Solution of developmental defects of the neck and the head
- Monitoring of glandular swelling
- Phoniatic outpatient clinic
- Ambulance for a comprehensive solution lymphangia and haemangioma of the head and neck
- Diagnosis of GERd
- Somnology
- Plastic Surgery

New methods and procedures:

- Bilateral cochlear implantation since the year 2014;
- Solution of choanal atresia with the help of BD stent;
- Laryngotracheal reconstruction with the help of Monnier LT-Mold stent;
- A methodology for measuring of oesophageal impedance, which extends options of the current pH-metry;
- Application of the BAHA system in clinical practice, it is a unique application of bone hearing aid, a part of it is imbedded into the skull behind the ear. After its incorporation (osseointegration) a special external hearing aid can be connected, it provides significantly better auditory perception for indicated patients than conventional bone hearing aids.
- The introduction of a high-frequency tympanometry in routine treatment of the tympanic cavity in the youngest children, where conventional devices show false negative results;
- Sleep monitoring in apnoics / PSG /;
- Into the clinical practice, a new software for programming sound processor – Custom Sound Suite 1.3 with enhanced features was established.
- A new diagnostic method on the basis of DPOAE – CochleaScan and the use of the bone (BC) module in technology of the SSEP measurement were introduced. Both methods significantly contribute to refined acoustic diagnostics in youngest children.
- Programme of early surgeries of cleft defects in new-borns. The early detection and treatment of secretory otitis symptoms in children with cleft defects.
- Implementation of wireless module for automatic pre-operative measurement of STR and NTR (neural response telemetry) for Cochlear Implantations.
- Establishing of a multidisciplinary working group for complex surgical and conservative solutions lymphangia and haemangioma of the head and neck.

Unique technological equipment:

- Polysomnography
- PH Impedancemetry device
- Maico MI 34, a high frequency tympanometer
- CO2 Laser with a micromanipulator
- A high speed bone cutter Bienaire
- CochleaScann on the DPOAE basis – a new technology of objective audiometry
- Wireless unit NRT/Neural Response Telemetry/ module in pre-operative measurement of the C1 function, second generation

- Screening AABR device
- Shaver / microdebrider / with an attachment to pharynx and larynx
- Harmonic scalpel
- Measurement of steady potentials by M.A.S.T.E.R. device
- 3-channel intraoperative monitor of peripheral nerves NeuroStim 3

Important event in 2015:

- Organization of seminars for paediatricians and otolaryngologists at IPVZ “audiology problems in childhood”
- Interdisciplinary working group for comprehensive solution of lymphangioma and haemangioma of the head and neck
- 6th Czech and Slovak Congress of Otorhinolaryngology and head and neck Surgery, 77th Congress of the Czech Society of Otolaryngology and head and Neck Surgery (ČLS JEP), 62nd Congress of the Slovak Society for Otorhinolaryngology and Head and Neck Surgery, 3rd Congress of the European ORL HNS society; active participation

Publications:

- Polyclonal, newly derived T cells with low expression of inhibitory molecule PD-1 in tonsils define the phenotype of lymphocytes in children with Periodic Fever, Aphthous Stomatitis, and Pharyngitis and Adenitis (PFAPA) syndrome. Petra D., Petra K., Michaela K., Daniela K., et al Mol Immunol, 65, 2015, s. 139-147., IF 3.003
- Halkova T., Dvorakova S., Vaclavikova E., Sykorova V., et al.: A novel RET/PTC variant detected in a pediatric patient with papillary thyroid cancer without ionization history. Hum Pathol, 2015, s. IF 2.769
- Sykorova V., Dvorakova S., Vcelak J., Vaclavikova E., et al.: Search for new genetic biomarkers in poorly differentiated and anaplastic thyroid carcinomas using next generation sequencing. Anticancer Res, 35, 2015, s. 2029-2036, IF 1.826
- Corrosion Oesophageal Disk Battery in Children , Urbanová G., Gernertová L., Katra R., Dytrych P., Kabelka Z., Jurovčík M., Otorinolaryng. a Foniát. /Prague/, 64, 2015, No. 2, pp. 87-92.
- Jurovčík M., Borský J., Černý M., Groh D., Katra R., Biskupová V., Skřivan J., Neonatal Surgery of Cleft Defects in Terms of Otolaryngology, Neonatology Leaves, year 21, 2015, s. 31-33
- Detection of Helicobacter Pylori and Human Papillomavirus in Peroperative Tissue Biopsies Collected from Malignancies in Oropharyngeal Area., Pavlik, E., E. Nartova, J. Astl, B. Drnkova, P. Lukes, B. Potuznikova, R. Katra, J. Kraus, and Sterzl. American Journal of Clinical and Experimental Medicine 3, no. 6, 2015, s. 364-67
- Chapter in monograph of Dršata J. and others, Edition: Medicine head and neck Tobiáš 2015, Skřivan J., Kabelka Z, Implantable Hearing Correction Systems, s.282-292

COMMON INPATIENT DEPARTMENTS OF PAEDIATRIC AND ADULT PARTS

**Department of Anaesthesiology and ICM, 2nd faculty of Medicine,
Charles University and Motol University Hospital**

Head physician: Tomáš Vymazal, MD, Ph.D., MHA

Senior consultant: Radka Klozová, MD

Head nurse: Mgr. Taťána Maňasová

Basic characteristics:

The department provides anaesthesiological and resuscitation care for both paediatric and adult patients in accordance with the needs and requirements of the MUH. With its number of physicians, in the last year their number overcame 120, other nursing staff as well as the range of its activities it is the biggest workplace in the Czech Republic. This workplace provides a specialized care requested by health centres of a lower type in the whole republic. It is a leading and coordinating centre for the postgraduate education of doctors and nurses; it provides training for anaesthesiologists and other specialists. It also ensures teaching of students in the Master's degree programme and the Bachelor's course at 2nd Faculty of Medicine and in international educational projects.

In 2015 a total of 1,306 patients were hospitalised at the department, of which 750 patients were adults, 556 children and 38 patients were provided with chronic intensive care. The number of hospitalizations has been rising slightly, but medical and economic severity has dramatically increased. **The permanent upward trend in intensity and extent of care provided by the department is demonstrated also by the total number of performed anaesthesiological interventions 40,000, of which 11,770 in children.**

New methods and procedures:

- Routine use of ECMO technology not only for lung transplantations, but also in other conditions associated with acute life-threatening lung and heart failure in adult and paediatric intensive care;
- In collaboration with the 3rd Surgical clinic and multidisciplinary team the first heart-lung transplantation in an adult patient has been performed at Motol University Hospital
- In collaboration with the Children's cardiocentre heart transplantation was performed in paediatric patient;
- Routine use of sonography in ultrasound-guided puncture of blood vessels and techniques of regional nerve blocks in children and adults;
- Gradual implementation of technologies in order to introduce the paperless documentation of the children's intensive care unit and in the future also in paediatric operating theaters.
- Extensive use of echocardiography in patients undergoing cardiac and other performance, including lung transplantation, in collaboration with surgeons, Project "Ex-vivo lung perfusion before Tx";
- In 2015, the highest number of patients after lung transplantation in the history

- of the lung Tx project in Motol was hospitalised by KARIM (35 patients).
- Routine use of technology Target Temperature Management – targeted cooling in patients after cardiac arrest;
 - Routine use of hemocoagulation investigation at the bedside - TEG, ROTEM for early diagnosis of coagulopathy, change of the actions in case of bleeding significantly saving blood derivatives, economic savings in the hundreds of thousands of Czech crowns per year;
 - Implementation of modern pharmaceuticals in everyday anaesthesiology care;
 - Modernization of instrumentation based on the latest ventilation techniques using trans pulmonary pressure measurement;
 - Modernization of instrumentation of anaesthetic theaters;
 - Use of ultrasonography in the early diagnosis of bleeding into cavities in traumatized patients;
 - Use of the latest techniques in video-laryngoscopy in difficult intubation, including disposable intubation aids and resources;
 - Use of a combination of neuroaxial blockades in replacements of large joints (hip, knee), including staff training in specialized institutions.
 - Use of a peripheral nerve blocks in paediatric and adult patients;
 - Routine use of the possibility of reliable reversal of neuromuscular blockade after anaesthesia;
 - Using the techniques of non-invasive ventilation for treatment of respiratory distress in children and adults;
 - Routine monitoring of cerebral oximetry and cerebral perfusion during surgery in children and adults, not only during extracorporeal circulation with the use of deep hypothermia;
 - Comprehensive therapeutic protocol to manage diastolic heart failure.

Important event in 2015:

Opening of upgraded rooms with acute intensive care beds for long-term intensive nursing care for adults - a total of 30 beds fully equipped with the latest modern technology;

Upgrading of technology for electronic documentation on adult resuscitation beds;

The implementation of technologies for electronic documentation on paediatric resuscitation beds;

Historically, most publications in peer-reviewed journals;

Edition of textbook of Recommended Practices for administering anaesthesia (MF 2015);

Preparation of textbook Anaesthesia and intensive care in thoracic surgery (to release 2016);

A part of the Department of Anaesthesiology and ICM, 2nd faculty of Medicine, Charles University and Motol University Hospital is:

Department of subsequent intensive care and the Departments of long-term nursing care

Head physician MUDr. Kateřina Čadová

Head nurse Mgr. Soňa Hájková

Basic characteristics:

Intensive care for long-term ventilated patients, weaning off the ventilator, hemodynamic stabilization, modification of internal environment, neurorehabilitation, physio and occupational therapy, recondition with mobilization; artificial nutrition, basal stimulation.

Specific features of the workplace:

- Consulting services for patients and families in crisis, practicing alternative communication, development of the program of home artificial lung ventilation and dispensary surveillance in patients with the home artificial lung ventilation
- Training for home artificial nutrition – PEG, training of patients for the care of chronic tracheostomy and tracheostomy tube;
- Acute consultant service for emergency cases in the building 22 (“former infections”), training of physiotherapists in the studio Bc. in a special issue of patients at subsequent intensive care and department of long-term nursing care.

Unique technological equipment:

- Capnometer to control the training of spontaneous breathing and outpatient monitoring of patients with home artificial lung ventilation
- Electrolarynx to practice alternative voice in patients with a tracheostomy
- Sonography
- Device to scan and index of bispectrality evaluation

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

Head physician Prof. PaedDr. Pavel Kolář, Ph.D.

Senior consultant: Martina Kövári, MD

Senior rehabilitation physiotherapist: Mgr. Kateřina Míková

Parts of the department are: **Department of Rehabilitation, Spinal Unit, Section of Sport Medicine and Pain Treatment and Research Centre**

1. Department of Rehabilitation

Head physician: Martina Kövári, MD

Head nurse: Mgr. Hana Jirků

Basic characteristics:

The department is concerned with rehabilitation for adult and paediatric patients with vertebrogenic disorders, neurological and internal diseases, after orthopaedic surgeries and injuries of the locomotor apparatus and spinal surgeries. It also provides some special rehabilitation programmes. **In 2015, 637 patients were hospitalised at the inpatient section of the department, its outpatient part examined 4,350 patients and rehabilitation was also provided to 12,608 patients of other departments of the Motol University Hospital.**

Specific features of the workplace:

Some physicians and physiotherapists participate in interdisciplinary super-consulting programmes for patients with Cystic Fibrosis, DMO (poliomyelitis) patients, hereditary

motoric-sensitive neuropathy, swallowing disorders, for patients with urine and faecal incontinence, spastic patients and lymphology programme. The department provides specialised prosthetic care and prescription of suitable aids for patients after amputations regarding the whole Motol University Hospital. Some physiotherapists participate in the multidisciplinary team of the Neurootology, specialized in patients with dizziness and disorders of stability.

New methods and procedures:

- Newly available training of walking with functional electrical stimulation by so-called Walk-Aide system
- Second year of examination of standing and walking on the sidewalk with integrated dynamic pressure sensors and virtual reality
- Third year of continued cooperation measure changes in the activity of the oesophagus due to changes in afferent locomotor system
- The standard extension of the use of biofeedback (biofeedback) in patients with faecal incontinence, biofeedback and the possibility of renting to home therapy.
- Within the centre of spasticity, common clinical seminars rehabilitation-neurological applications of botulinum toxin under EMG stimulation, the newly established cooperation with the hand surgery – doctor Fialova from Surgical clinic of Motol University Hospital.
- Very successfully developed program of rehabilitation of swallowing disorders in collaboration with ENT clinic.
- Ongoing program so called NORA seminars (neuro-orthopaedic and rehabilitation), focusing on paediatric patients primarily with cerebral palsy is unique in the Czech republic
- New development of a comprehensive program of rehabilitation in hematoonco-logy sick children and childcare system for children which were born prematurely.

Unique technological equipment:

- Walk-Aide system for functional electrical stimulation of the muscles in the central paresis of leg
- Dynamic sidewalk with integrated pressure sensors and virtual reality
- „Brain port“ device for diagnostic of vertiginous conditions;
- „Balance master“ device for the therapy of stability disorders and vertiginous conditions;
- “X box” device and “Wee” system for the training of stability and coordination skills in children
- Myofeedback device for electrical stimulation of pelvic floor muscles
- Electromyography device Medelec/Synergi for equipment of electrophysiology laboratory

Important event in 2015:

Foreign publications:

Two chapters published in the book Oxford Textbook of Musculoskeletal Medicine on dynamic neuromuscular stabilization and the role of the central nervous system in the pathogenesis of musculoskeletal disorders.

Safarova M, Kobesova A, Kolar P. Dynamic Neuromuscular Stabilization and the *Role of*

central nervous system control in the pathogenesis of musculoskeletal disorders. In Hutson M., Ward A ed. OXFORD TEXTBOOK OF MUSCULOSKELETAL MEDICINE 2e, London, UK, Oxford University Press, 2015:66-83. ISBN 978-0-10-967410-7.

Kobesova A, Safarova M, Kolar P. *Dynamic Neuromuscular Stabilization: Exercise in the developmental positions to achieve spinal stability and functional joint centration*. In Hutson M., Ward A ed. OXFORD TEXTBOOK OF MUSCULOSKELETAL MEDICINE 2e, London, UK, Oxford University Press, 2015:678-689. ISBN 978-0-10-967410-7.

2. Spinal unit at the Clinic of Rehabilitation and 2nd Faculty of Medicine, Charles University and Motol University Hospital

Head physician: Jiří Kříž, MD, Ph.D.

Head nurse: Mgr. Hana Jirků

Basic characteristics:

Spinal unit provides therapeutic and rehabilitation care for patients in the subacute stage after spinal injuries and also for patients in the chronic stage after the injury of the spinal cord with health complications.

In 2015, a total of 89 patients with acute spinal lesion and 32 spinal patients in the chronic stage with acute complications were hospitalised here and approximately 250 patients were treated on the outpatient basis within the dispensary or newly emerging problems.

New methods and procedures:

- Development of electronic forms
- for neurological examination in accordance with the International Standards for Neurological Classification of Spinal Cord Injury (ISNCSCI)
- for functional assessment of independence (SCIM)
- for walk tests
- for the assessment of spasticity in spinal patients
- launching of website forms on www.spinalcord.cz
- Termination of the NT 12381 grant “Dysfunction of the Respiratory System in Patients after Spinal Cord Injury”.
- Continuing of the common project “Sperm Taking in Spinal Patients via Vibrostimulation Method” in cooperation with the Department of Urology.
- Continuation of the European project “European Multicentre Study about Spinal Cord Injury (EMSC)”. IFP 2001 / P 66
- Participation in the European project “Antibodies against Nogo-A to Enhance regeneration and functional recovery after acute spinal cord injury, a European multicentre clinical proof of concept trial”. H2020, PHC 15-2015

Unique technological equipment:

- Ferticare Multicept device for vibrostimulation in cooperation with the Department of Urology (gift from Foundation Movement without Assistance)
- Misonic SonicOne device for the removal of necrotic material and devitalized tissue from skin defects (gift from Foundation Movement without Assistance)
- Medelec Synergy EMG / EP device for electrophysiological laboratory of the Department of Rehabilitation and Sport Medicine (financial gift from foundation J

- and T)
- Finapres NOVA devices for evaluating of disorders of the autonomous nervous system (Grant from the Ministry of Health of the Czech Republic)
 - ABPM device – pressure holder (Foundation Movement without Assistance)

Important event in 2015:

- 3.12.2015 Head physician Kříž received the annual price of Minister of Health for his work in favour of disabled people for 2015
- Important publications in Czech and foreign magazines

3. Department of Sports Medicine

Head physician: Ass. Prof. Jiří Radvanský, MD

Head nurse: Mgr. Hana Jirků

Basic characteristics:

It focuses on consulting and counselling activities in patients with an excessive or inadequate physical exercise regimen, functional ballast diagnostics in paediatric and adult patients after heart defects surgeries and in adults before elective surgeries. It provides special sport investigations and superconsiliary activities in course of licensing for racing sports. It also provides superconsiliary activities in the field of comprehensive lifestyle changes including nutrition counselling and physical exercise programme in patients with civilisation diseases (metabolic syndrome, obesity, diabetes mellitus) and pediatric patients with chronic diseases, restricting sport activities.

The department performs specialized load testing before the movement therapy, under the leadership of physiotherapists.

In 2015, a total of 2,397 of athletes were examined at sporting preventive examinations and 2,107 patients with stress and difficulties, this was done within diagnostic and preoperative stress tests and prescribed physical therapy. Controlled exercise therapy was done 2,500 times.

New methods and procedures:

- In collaboration with paediatric cardiology, we have introduced a system for displaying outpatient physical therapy and physical therapy for patients after surgical correction of congenital heart defects.
- Diagnosis of intensity during exercise in the field in individualized physical activity and determine the energy intensity of movement by motor disability;
- Analysis of body composition by bioelectrical impedance tetrapolar;
- Determining the risk of postoperative complications and elective surgeries by simple spirometry

Unique technological equipment:

- Complex equipment of exercise physiology laboratory (treadmill, ergometer, winch, dynamometer) for ergo metric and spiro-ergometric tests, an analyser of breathing gases exchange with differential paramagnetic sensor

Important event in 2015:

- Publication activity in magazines

4. Centre for Pain Research and Treatment

Head physician: Jiří Kozák, MD., Ph.D..

Head nurse: Lenka Gavendová

Specific features of the workplace, specialised outpatient facilities for:

The Centre for Pain Treatment and Research has a multidisciplinary character in care of chronic pain, it is one of the six neuromodulation centres in frame of the Czech Republic, it is also a postgraduate educational workplace in the field of algesiology and neuromodulation techniques. The department runs a consulting telephone service „Line against pain“. Specialized outpatient facilities: Psychology, Clinic for the Treatment of Neuropathic Pain.

New methods and procedures:

Centre for Pain Treatment is the reference centre for these neuromodulation techniques that offer alternative in the treatment of pain conditions, when less invasive therapies are not effective or are burdened by unmanageable side effects, causal therapy is not possible and non-destructive performances are not indicated. Workplace improved invasive techniques in pain management. For detection of viral structures the Centre introduces navigation under sonographic control. Centre uses targeted injections of nerves and nerve structures, the introduction of catheters continuous analgesic for chronic pain, including cancer diagnoses, devotes more to peripheral nerve stimulation of neuromodulation within the program. Also uses radio-frequency method for precisely specified development of disorders and disabilities of nerve structures. In 2015 starts with using of RF electrodes (type Pasha).

Important event in 2015:

- The Institute was a co-organizer of the event called Czech-Slovak dialogues on pain, Brno and the main organizer of the spring seminar of pain “Chronic pain treatment with opioids”, Hradec Kralove, Praha, Plzen, Brno. Participation at other international and national congresses

Publications:

Kozák J., Běžná pain and its pharmacotherapy, *Causa subita*, 2015;18:2,80-83

Kozák J., Pain of mixed etiology in polymorbid patient, *Neurology practice*, 2015; 16(5), 293-296

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

Head physician: Prof. Dagmar Dotřelová, MD, FEBO

Senior consultant: Milan Odehnal, MD, MBA

Head nurse: Bc. Jana Králíčková

Basic characteristics:

The department of Ophthalmology provides preventive, diagnostic, conservative and surgical care for patients from the birth till old age.

In the field of paediatric ophthalmology, the department serves as a superconsiliary centre in Central and Eastern Europe.

In the field of adult ophthalmology our department covers a wide spectrum of up-to-date modern diagnostic-therapeutic interventions, including cataract and vitreo-retinal surgery.

In 2015, a total of 1,280 surgeries in both children and adults and 550 examinations under general anaesthesia in hospitalized children. 5,200 children and 5,800 adults were ambulatory treated.

The most frequent surgical interventions were cataract operations in adults. Among paediatric patients the most frequent interventions are surgeries of strabism, cataract surgeries and plastic surgeries of the eyelids.

Specialised outpatient facilities for:

Paediatric ophthalmology

- Centre for immature babies with retinopathy
- Centres for strabology, glaucoma, cataract and oncology
- Adult ophthalmology
- Vitreo-retinal centre, Centre for diabetology, cataracts, glaucoma and for plastic surgery
- Orthopaedic outpatient centre

New methods and procedures:

- Developing methods of corneal confocal microscopy, enabling the study of the various structures of the cornea with an impact on the practical modalities of treatment.
- A new variant of surgical treatment of congenital ptosis was drafted and put into practice (i.e. Tarsosfrontal curtain using allogeneic graft).
- In the Czech Republic a cap implant made of platinum was first implanted in a patient with facial nerve palsy.
- In the treatment of retinal retinopathy of prematurity use during photocoagulation or kryopexie under the direct control of the retinal camera (device RETCAM).
- Using the new implants in glaucoma surgery in children and adults. Implants optimally accelerate and control the amount of intraocular fluid postoperatively.

Unique technological equipment:

- UBM – a unique device to detect microscopic changes of the eye using ultrasound\
- Plus-Optix – a device designed for screening diopter defect
- Confoscan - confocal microscope, which allows monitoring and studying of corneal

endothelial cells “in vivo”

Important event in 2015:

- Second revised and enlarged edition of multiple copyrights monograph “Neonatology”. The book received in 2014 the award of ČLS JEP as the most successful project during 2014.
- Awards of solicited lecture: Eyelid implants in the treatment of lagophthalmos: presented at the XXXVI national Congress of Plastic Surgery with international participation.
- Opening of the eye clinic in the emergency department for adults.
- First results in the creation of a database of patients with retinoblastoma in cooperation with the Children’s Oncology and Children’s Eye Clinic in Brno.
- Within multicentre International Study, monitoring side effects of antiglaucoma latanoprost in 14 countries in Europe and America was the first eye clinic, which ended in accordance with the Protocol A6111143 study tracked subjects and included in follow-up study A6111144 long-term monitoring of hyperpigmentation, ocular tissues. (Principal Investigator: Doc. MUDr. Ales Filouš, Ph.D.).

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

Head physician: Prof. Tomáš Trč, MD, MBA

Senior consultant: Daniel Rybka, MD

Head nurse: Helena Hlásková

Basic characteristics:

The department provides diagnostic and therapeutic care in terms of orthopaedics and traumatology for both paediatric and adult patients not only in the catchment area, but also superconsiliary and consulting services in the whole Czech Republic. **In 2015, a total of 1,376 paediatric and 2,141 adult patients, which is 3,517 patients were hospitalized. A total of 1,376 interventions in paediatric patients and 2,155 interventions in adults were performed here, which is all together 3,320 surgeries.**

The treatment on an outpatient basis in the paediatric part was provided for 24,697 children and in the adult part for 14,070, together a total of 38,767 outpatient patients were treated.

The department further participates in the development and implementation of new methods in orthopaedics, traumatology, sport medicine and new biotechnologies used in the treatment of the locomotor apparatus (cartilages, ligaments, tendons and bones). At the present time, the employees of the department are investigators of several grant projects at the national as well as international level.

Specialised outpatient facilities for:

- Onco-orthopaedics
- Scoliosis
- Sport traumatology for both children and adults
- Specialised arthroscopic interventions
- Neurogenic defects
- Congenital skeletal defects

- Primary and revise endoprosthetics
- Complex surgery of the humeral joint
- Complex surgery of the shoulder joint

New methods and procedures:

- Application of V.A.C. (Vacuum Assisted Closure) – system with extended active automatic automatic cleaning wounds V.A.C. ULTREA VERAFLU. Vacuum therapy is combined with flooding defect rinsing solution or with treatment solution. The result is a very significant removal of bioburden, demarcation necrosis and acceleration of proliferation of fibrocytic;
- Transplantation of cartilages using cultivated chondrocytes;
- Use of mesenchymal stem cells in the treatment of diseases of articular cartilages, combinations of the ASK intervention and performance of microfractures by KB;
- Use of autologous blood plasma (growth factors obtained by the thrombocyte centrifugation in the treatment of bone cartilage degeneration (PRGF);
- Use of the PRGF cell method in the treatment of enteropathies;
- Treatment of rupture of the rotator cuff of the humerus treated with the help of PRGF;
- Surgery of the replacements of anterior cruciate ligament in children with open growth plates via special technique without breaking the growth plate - we are the leading workplace for this technique in the Czech Republic - a unique group of patients presented at national congresses;
- Preparing of a strategy for the treatment of patellar luxation in children and adolescents - preparation of a nationwide treatment standard, publications in domestic and foreign literature, organization of international monothematic congress;
- Treatment of rotator cuff calcification in arm joint - a unique technology of mini-invasive (arthroscopic) treatment using radiofrequency energy;
- Development of restorative surgery of the hip joint by mini-invasive technology - the inclusion of arthroscopy of the hip joint between the standard operating procedures;
- Mini-invasive TEP of the hip joint as a standard operating procedure at the clinic. In Europe, this method is standard or at least a matter of choice, in the Czech Republic it is conducted only in a few workplaces;
- Individually designed hip replacements of resurfacing type.

Unique technological equipment:

- Modern surgical instrumentation for navigated surgery of large joints
- The latest type of arthroscopic device
- Sonograph for diagnostics of congenital hip dysplasia and other bone diseases
- Centrifugation system of blood plasma in order to obtain the PRGF

Important event in 2015:

- Organization of the international event “V. Orthopaedic Spring Symposium “on 19th and 20th March, 2015 in Spa Belohrad including professional guarantee on the subject. Current practices in rheumatic-surgery;
- Organization of XVIIIX. Traditional December orthopaedic symposium from 10th to 11th December, 2015 in Teplice including professional guarantee on the subject:

- Children's leg, miscellaneous;
- Evaluation of patients enrolled in clinical trials of therapy rotator cuff with the help of cultivated stem cells and scientific publication of the first results of this internationally unique method of treatment;
 - Publication of a scientific publication of prepared methodical outcomes when treating paediatric patients with damage to the anterior cruciate ligament.

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

Head physician: Ass. Prof. Michal Tichý, MD

Senior consultant: Jiří Steindler, MD

Head nurse: Gabriela Šuláková

Basic characteristics:

The department is focused on specialised neuro-surgical acute or planned care for paediatric and adult patients; it provides consulting services in the whole range of its specialisation. It also provides education for pre- and postgraduate study courses and scientific and research activities. **In 2015, a total of 1,271 patients were hospitalised in both paediatric and adult parts, 1,055 patients were operated and the outpatient treatment was provided for 5,782 patients.**

Specialised outpatient facilities for:

- Neurosurgery for children
- Neurosurgery for adult patients

New methods and procedures:

Measurement of neurophysiological functions in surgeries of brain and spinal cord with the help of a multimodal device, intraoperative stimulation of brain centres in young children; Continuing of programmes in solution of age-limited tumours and congenital defects of the CNS;

Continuing of implantation of baclofen pump for the treatment of generalised spasticity in children and in adults;

Broad area of surgical treatment of craniosynostosis. Our department is due to many years of experience and presence of maxillofacial surgeon at the department able to treat even the most complex deformity and annually treats most of patients affected by this disease from across the country.

Continuing of the treatment programme for refractory epilepsy – resection epileptosurgical surgeries and implantation of vagal nerve stimulators in paediatric and adult patients;

Orientation towards mini-invasive methods in the treatment of degenerative diseases of the spine;

Vertebroplasty and stentoplasty in the therapy of osteoporotic spinal fractures in cooperation with the Department of Imaging methods and the Department of Rehabilitation and Sport Medicine;

Radiofrequency neuromodulation used in painful conditions (vertebral, peripheral nerves);

Within the multidisciplinary collaboration with maxillofacial surgeon, ENT specialist and a plastic surgeon, we are engaged in solutions of large lesions in skull base and face. These

are often performances unsolved and unsolvable elsewhere, where a multidisciplinary approach is essential. A reconstruction often follows the resection performance with the need to treat huge soft tissue defects. The reconstructive part of our team has an extensive experience with coverage of such defects via microvascular transfer of free flap. The department is the only one which is dealing with reanimation of paretic face with the use of dynamic and passive suspensions and reinnervation of paretic face via cross-face method.

Using of highly specialized multimodal monitoring in patients with craniocerebral injury in the field of neuro-traumatology;

Within the neurovascular programme, the surgical programme and endovascular techniques are both developed in cooperation with the Department of Imaging methods. Also decompressive craniotomy in patients with ischemic diseases is performed in collaboration with the Department of Neurology;

Working out and using of frame and frameless stereotaxy- use in case of implementation of deep brain electrodes and brain biopsies;

Initiation of cooperation with the Prague epilepsy group, which performed in adult patients stereotactic implantation of deep brain electrodes intended for subsequent long-term video-EEG monitoring for Farmaco-resistant epilepsy.

Unique technological equipment:

- Electromagnetic neuronavigation Medtronic without fixation of the head on the new central operating theatres for children (including frameless stereotactic).
- Cerebral neuronavigation BrainLab, integrated with the Pentero microscope (Zeiss), Hew SW equipment.
- Neuro-monitoring device Nicolet Endeavor for the intra-operative follow up of neurophysiological functions
- Ultrasound applicator of the fixation of absorbable osteosynthesis SonicWeld.
- Stereotactic frame device Radionics
- Neuroendoscopic device
- DIGI - LIFE IP digital transcranial Doppler

Important event in 2015:

Active participation of doctors from the department on a number of professional events at home and abroad

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

Head physician: Prof. Tatjana Dostálová, MD, MBA

Senior consultant: Milan Hubáček, MD

Head nurse: Mgr. Václava Jirků

Basic characteristics:

Paediatric and adolescent stomatology directed at both healthy and handicapped patients – a multidisciplinary cooperation of practical dentist, paedostomatologist, parodontologist, prosthetist, orthodontist, dentoalveolar as well as craniomaxillofacial surgeons in treatment of congenital and acquired developmental defects, further injuries and tumours, the paediatric centre for distraction osteogenesis of the facial skeleton with congenital defects

and articular central for total endoprostheses of the jaw articulation. In cooperation with other departments (e.g. the Neurosurgery, ENT, Ophthalmology, oncology, plastic surgery, biology and genetics) provided treatment of inborn and additional defects of splanchno-neurocranium. A development of a method of microscopic craniomaxillofacial surgery is under way.

In 2015, a total of 31,898 outpatient examinations and 950 one-day surgical interventions / 509 dental rehabilitations under total anaesthesia and 441 surgical procedures/ were performed at the department. A total of 760 patients were hospitalised at the inpatient section and 747 surgeries were performed there, including 309 dental rehabilitations in handicapped patients under total anaesthesia.

Specialised outpatient facilities for:

- Maxillofacial surgery /with specification on distractions of congenital defects/
- Diseases of the jaw articulation
- Oncology
- Diseases of the salivary glands in children
- Prosthetics
- Implantology
- Parodontology
- Orthodontics
- Orthodontic-surgical focusing on the treatment of jaw malformations

New methods and procedures:

- Use of resorbable osteosynthetic materials for injuries and in reconstructive surgeries in children;
- Use of new augmentation materials (MEDPOR);
- Care for patients with clefts (general stomatological care);
- Orthognathic surgical methods including special counselling and a 3D reconstruction;
- dental implantology and guided bone regeneration with a special reference to young handicapped patients;
- treatment of the teeth of handicapped patients under general anaesthesia and analgosedation;
- surgery of the jaw articulation including subtotal and total endoprosthesis;
- Distraction of the facial skeleton in children with congenital defects.

Unique technological equipment:

- DIAGNOCAM 2170 / digital camera system for the diagnosis of dental lesions /
- Reciproc, BEEFILL /special device for endodontics/
- UZ-taxidermy for hard dental tissues
- CATCAM / technology for dental refunds creation/
- PC dental arch
- 3-D imaging system CBCT I-CAT

Important event in 2015:

- Awards: 1st place for IMPLANTS DENTSPLY Symposium “Restoring Quality of Life – a premium functional and aesthetic solutions in modern dental implantology”:

post therapy of adolescent patients – 5-year clinical study with a focus on osseointegration of implants;

- A medal FJFI second degree of Merit for Development of the department granted to prof. MD. Taťjana Dostalova, MD., MBA;
- Publishing of a book: paediatric dentistry – selected chapters; Author: Michael Seydlová. Publisher: Mlada fronta, 2015;
- Granting a prize of Interior Minister for outstanding achievements in the field of security research, experimental development and innovation of prof. MD. Taťjana Dostalova, MD., MBA for the results achieved within the project “Utilization of dental imaging technology in forensic anthropology” (12 November 2015)

ADULT INPATIENT PART

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

Head physician: Prof. Lukáš Rob, CSc.

Senior consultant: Roman Chmel, MD

Head nurse: Bc. Libuše Hofmannová

Basic characteristics:

The department provides care in the full range of its specialisation – gynaecology and obstetrics – including methods of assisted reproduction and specialised interventions in the field of oncological gynaecology, senology and uro-gynaecological diagnostic examinations as well as interventions. The department is the Perinatology Centre of the highest level, thus providing care to pregnant women with pathological pregnancies or comorbidities. The follow-up unit of intensive resuscitation neonatal care provides care for extremely immature neonates with regional and nationwide. There is Oncogynecological centre in the clinic accredited by the European oncological centre (ESGO and EBCOG accreditation). In 2015, 9,228 patients were hospitalised there, a total number of surgeries was 6,237 and a total number of outpatient examinations were 93,350. 3,441 of childbirth were conducted out of which 29.7 % were performed by Caesarean section.

Specialized outpatient facilities for:

- Oncogynaecology and Colposcopy;
- Urogynaecology;
- Senology;
- Endoscopy;
- Centre for assisted reproduction;
- Ultrasound diagnostics and Fetal Medicine
- Prenatal Diabetology;
- Cardiopathies and Haematological diseases in pregnancy

New methods and procedures:

- In the therapy of vulvar carcinoma, in the standard therapeutic procedure the preoperative detection and extirpation of the sentinel lymphatic node (an alter-

native to a complete inguinal lymphadenectomy), which will significantly reduce postoperative morbidity in patients (mainly lymphoedema of the lower limbs).

- Treatment of cervical cancer – less radical treatment procedures are based on the detection of sentinel lymph nodes, which in selected groups of women reduces the extent of the surgery, thus reducing postoperative morbidity.
- Among the treatment procedures for young women in the early stage of cervical cancer, who are planning to become pregnant, fertility sparing treatment algorithm in two treatment protocols was put into operation.

Unique technological equipment:

- LigaSure- coagulation.
- Laser – for the treatment of premalignant and malignant gynaecological epithelial lesions.

Important event in 2015:

Publications:

Halaška, MJ, Rob L. et al. Oncological diseases during pregnancy. Mlada fronta Inc., 2015
Amant F, Vandenbroucke T VERHEECKE M, Fumagalli M, Halaška MJ, Boere I, Han S, Gzira MM, peccator F, Rob L, Lok C, Witteveen P Voigt JU, Naulaers G, Vallaey L, Van den Heuvel F Lagae L, Mertens L, Claes L, Van Calsteren K; International Network on Cancer, Infertility, Pregnancy and (INCIP). Maternal Pediatric Outcome after diagnosed Cancer During Pregnancy. N Engl J Med. 2015 Nov 5; 373 (19): 1824-1834. IF 55873

Part of Department of Obstetrics and Gynaecology of the 2nd Faculty of Medicine of Motol University Hospital is:

Department of Neonatology with ICRU

Senior consultant: Miloš Černý, MD

Head nurse: Dana Šmídlová

Basic characteristics:

The department of Neonatology is a part of the Perinatology Centre of Intensive Care of the MUH with regional and nationwide activity. In cooperation with paediatric internal and surgical disciplines, it ensures the comprehensive care for neonates with congenital developmental defects (CDD) from the whole Czech Republic. During the last year, a total of 240 children were born with a severe congenital defect with the need for urgent or early intervention. (60% outside Prague residents) This department further provides care specialised care and intensive resuscitation to immature babies, primarily extremely immature neonates and all critical ill neonates regardless their gestation age. The care of physiological neonates mainly in the room-in regimen is a routine.

In 2015, a total of 3,517 infants were born there, of which 325 with low birth weight (less than 2,500 g), thereof 64 infants with extremely low birth weight (below 1500 g). At the ICRU/ICU/IMP, a total of 411 neonates were treated in 2015.

Specialized outpatient facilities for:

- Children at risk and Comprehensive Care Centre for children with risky psychomotor development

New methods and procedures:

- In collaboration with the ENT department of the Motol University Hospital and a plastic surgeon program of early correction of cleft lip in new-borns continues (i.e. The 8th day after birth). In 2015 a plastic correction was performed with 25 new-borns.
- Program of non-invasive respiratory support in new-born infants with reducing the duration of mechanical ventilation in the minimum continues (Insure).
- A study of NEuroSIS continues – Neonatal European Study of Inhaled Steroids.
- Use in clinical practice methods of CGM (continuous glucose measurement) groups at risk new-borns.

Unique technological equipment:

- Screen for continuous monitoring of electrophysiological activity of the CNS (a EEG).
- Therapeutic unit for providing controlled whole-body hypothermia after neonatal asphyxia
- “B-side” analyser Radiometer ABL 800 Flex with a broad spectrum of biochemical variants of determination.
- NIRS: Screen that measures the oxygenation of the brain tissue using spectrophotometry.

Important event in 2015:

- 23 books, posters and lectures in domestic and foreign journals with and IF 64, two recommended practices for neonatology, Czech publications of the second edition of Neonatology – awarded by the price of Bureau ČLS JEP;
- Initiation of a cycle of seminars “Interdisciplinary problems of neonatology of 21st century,” the theme “10 years of experience with early plastic correction of cleft lip in the Czech Republic”.
- Internal grant project: “Adaptation of glucose homeostasis of a new-born baby “of a diabetic mother and polarization of the immune response:” Nationwide data collection of late perinatal morbidity risk in children ((Doc. MUDr. P. Zoban, CSc.);
- The work of the Czech Neonatology society for data collection of neonatal infection from perinatal intensive care centres in the Czech Republic (MUDr. P. Švihovec);
- Organizing of the 8th edition of meetings with former ICU patients at Ladronka.

Basic characteristics:

Department of Internal medicine provides full diagnostic and therapeutic care almost in the whole range of its specialisation, for hospitalised patients from the catchment area and super consulting services for patients from the whole Bohemia. It offers pregraduate education for Czech and foreign students of 2nd Faculty of Medicine from the 3rd to the 6th year of their studies as well postgraduate course In frame of the discipline.

In 2015, the department provided outpatient treatment for 55,318 patients, 4,520 patients were hospitalised.

Specialised outpatient facilities for:

- General internal medicine (including consulting services)
- Gastroenterology (including endoscopy and sonography)

- Diabetology
- Nephrology (including peritoneal dialysis)
- Cardiology (incl. ECHO)
- Angiology (incl. DUS examination of arteries and veins)
- Podology
- Nutrition
- Lipidology
- Endocrinology

New methods and procedures:

- New possibilities in investigation of the biliary tract using endoscopic system Spy-glass which allows direct visualization of the biliary tract mucosa with targeted biopsy or lithotripsy of intraductal stones. Examination is indicated especially in stenosis of the biliary tract of uncertain biological nature or difficult choledocholithiasis.
- Associate Professor Štěchová performs method of continuous monitoring of glucose concentration focused on pregnant women, with subsequent binding to a child monitoring diabetic mothers after birth.
- Method of pH impedance testing of esophagus and electrogastrography allowing an accurate diagnosis of functional disorders of the oesophagus and stomach was put into practice.
- SLEDD method (Sustained Low-Efficiency Daily Diafiltration) was introduced in the treatment of cardio-renal syndrome.
- The PICC team of nurses (for implementation of central venous catheters by peripheral route) was established at the Metabolic Unit, also taking care for all types of long-term vascular entry. It is the first team in this field of study in the Czech Republic.
- Working group for “Diabetes connected with Cystic Fibrosis” was established - a system of dispensary care of adult patients with CFRD, in cooperation with internists, paediatricians and pulmonologists.

Unique technological equipment:

- VAC therapy (Vacuum Assisted Closure) in hospitalized patients with diabetic foot syndrome was put into practice
- “Pocket” infusion dosing for patients on the “home” parenteral nutrition
- New device Toshiba Xario 200 to Doppler blood vessels.

Important event in 2015:

- Prof. Matoušovic was a co-organizer of the traditional Brod days - 6th educational symposium of Czech nephrology association on the Future of pharmacotherapy in nephrology.
- Four symposiums was conducted for diabetologists, internists and cardiologists named
- “Conundrum”.
- In Podebrady, 21st graduate seminar was organized “News in diabetology”
- In Prague and Brno, 11th edition of the traditional symposium on the theme “Individual treatment of type 2 – Strategy 2015”

- MD. Piřhová, MD. Źákoviřová and MD. Havlín successfully completed their Ph.D.
- Doc. řteřhová received in 2014 Award of Czech Diabetes Society for the best monograph which in 2015 was published in a book for the general public: řteřhová K. Children of diabetic mothers in questions and answers, Geum, Semily, 2015.
- Doc. Keil and colleagues are the authors of the article What is the role of Retrograde cholangiopancreatography in Assessing traumatic rupture of the pancreatic in children, published in Scand J Gastroenterol (IF 2.361).
- Doc. Chlumsky co-authored the article Endoxaban for treatment of venous thromboembolism in patients with cancer published in magazine Thrombosis and Haemostasis (IF 5,7)
- Prof. Peruřiřová published the following publications: Diabetes mellitus and cardiovascular disease - Kardiabetes Diabetes mellitus and gastrointestinal tract, diabetes mellitus and respiratory system, Controversies in Diabetology.
- Dr. Broz et al. are the authors of the article Fear of driving license withdrawal in Patients with insulin-treated diabetes mellitus negatively influences their decision to report severe hypoglycemic events to physicians published in Patient preference Adherence (IF 676)
- Dr. Drabek with colleagues in Aurora Article Clinical features and characteristics of Clostridium difficile PCR-176 ribotype infection: results from a one-year university hospital ward internal study published in Ann Clin Microbiol Antimicrob (IF 2.19).
- Dr. Piřhová et al. are the authors of the article Determinants of preclinical atherosclerosis are different in type 1 and type 2 diabetic women published in Physiol Res (IGF1.293).
- Catherine Lisová the collaborators published an article Experience of the first PICC team in the Czech Republic in the British Journal of Nursing.

Part of the is the 6th clinic is – Infectious Diseases

Head physician: Jan Dvořák, MD

Basic characteristics:

Department of Infectious Diseases provides outpatient and inpatient care for patients with infectious diseases or suspicion on them. It performs the diagnosis and treatment of fever, respiratory tract infections, blood vessels, soft tissues, CNS infections, acute infections of the digestive tract, incl. acute and chronic infectious inflammation of the liver, as well as imported infections etc. Care is granted to adults and children since three years of age. The department has 24 beds including one insulating box.

The number of hospitalizations in 2015: 544. Rating - Spinal Tap: 11th

Specialized outpatient facilities for:

- Consultations for liver infection
- Travel clinic
- Infectious centre for drug addicts

New methods and procedures:

- Since 2015 therapy of chronic hepatitis C antivirals operating a new generation

(simneprevier) to treat genotype 1 in combination with ribavirin and pegylated interferon a. is in action started with HCV without interferon therapy.

- The station is equipped with ultrasound probe to investigate veins and abdominal organs since 2015.

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

Head physician: Prof. Jiří Hoch, CSc.

Senior consultant: Zbyněk Jech, MD

Head nurse: Bc. Jitka Kabrnová

Department of Surgery, 2nd Faculty of Medicine, Charles University and Motol University in 2015 ensured patients with complete surgical outpatient, consulting and hospital care across the entire field, i.e. - General and abdominal surgery and traumatology, abdominal and chest. Plastic surgery patients tended range of outpatient and secured to the beds of plastic surgery procedures in the framework of the interdisciplinary care at the workplace other operating disciplines. Interdisciplinary care is covered under the Workplace addressing other serious conditions, in collaboration with the Spinal Unit Orthopaedic Clinic, 1st Faculty, surgeons and plastic surgeons - defects in plegiks. Reconstructive surgery on a preventive breast was performed by default. The number of operated patients with spastic hand arose.

The clinic has participated in undergraduate and postgraduate teaching, was a research workplace of tasks and was a leading workplace of multidisciplinary grant IGA.

In 2015 25,077 patients were treated at the emergency department and 3,414 patients were hospitalized and 3,017 patients were operated.

Specialised outpatient facilities for:

- Proctology
- Patients with colostomy – an educational and training centre
- Diseases of the pancreas and the biliary tract
- Malignant melanoma
- Endocrinology
- Mammology
- Lymphedema treatment
- Endoscopy, Anorectal manometry
- Plastic Surgery

New methods and procedures:

- OTSC-OVESCO for medics.
- Certified course of laparoscopic surgery for doctors.
- The conventional and microsurgical methods by using thanks to the method Tamis are performed by trans anal surgery.
- Several methods including methods DG HAL is available for treatment of haemorrhoidal disease.
- Following the national screening program for colorectal cancer range of consulting services has spread including endoscopic examination.

- Functional anorectal examination which is part of the activities carried out on outpatient basis.

Unique technological equipment:

- Dissection and electrocoagulation technology including a harmonic scalpel and LigaSure
- The scintillation detector for the identification of the sentinel lymph node during breast and malignant melanoma surgeries.
- The ultrasonic dissector is available during liver surgery.

Important event in 2015

- Head of Department professor George Hoch Petřivalský received the award for the surgery development.
- Organization of Working day Coloproctological section ČCHS CzMA with foreign participation;
- Course “Comprehensive care for patients with “breast” cancer; Certified course endo-stitching.
- ConvaTec Academy - certified training course for stomatology-nurses; Leading of multicentre study of stoma appliances.
- Management of multicentre grant IGA in the Czech Republic “NT 13726 parametric monitoring the quality of TME as a tool to reduce local recurrence after surgery for rectal cancer”;
- Continuation of Grant of Motol University Hospital “Modern Technology” - nanofiber technology; filing a patent.
- Fourteen doctors and three foreign students allowed for Surgery internship.
- Three doctors are chairmen of specialized sections, the other two are members of various international companies, and one of the doctors is a member of the Czech Medical Academy.

Lectures, posters and publications:

Hoch J.: Surgical issues in inflammatory bowel diseases. Postgraduate Gastroenterology & Hepatology, 2015/01, pp. 80-86

Kocian P., J. Hoch, Halaška M. : Sigmoid colon cancer in pregnancy - a case report, Rozhl Chir. 2015, 94, 4, pp. 170-173

L. Martinek, Kupka, T., J. Shimea, Klvaňa P., M. Bojková, Uvírová M., P. Dite, Dvorackova J., J. Hoch, Zonca P. : NOD2 / CARD15 mutations and the risk of reoperation in Patients with Crohns disease. Rozhl Chir. 2015 Summer; 94 (6): 242-246.

B. East, Hoch J. : Acute gastrointestinal bleeding - truly surgical diagnosis? Rozhl Chir. 2015, 94, 7, p. 289-292

Bavor P., P. Kocian, Hoch J. : Critical complications of intestinal tuberculosis - a case report? Rozhl Chir. 2015, 94, 7, p. 293-296

Hoch J. : coloproctology in the course of time. Editorial, Perspectives in Surgery 2015 Vol. 94, no. 5, p. 183-184

Kocian P., Hoch J. : Functional disorders after resection of the rectum. Rozhl. Chir., 2015, vol. 94, no. 3, p. 96-102

Mrňa L. Dude L., J. Hoch, Hyšperská V. : sores in paraplegics. RCH 2015, Vol. 94. no. 8, pp. 329-332

Hoch J. : Letter to a friend. Postgraduate Gastroenterology & Hepatology. common diseases in gastroenterology. 2015, 1, no. 4, pp. 297

Hoch J. : Editorial. Postgraduate Gastroenterology & Hepatology. common diseases in gastroenterology. 2015, 1, no. 4, pp. 251

L. Martinek, Kostrouch D. Hoch J. : cholecystostomy - obsolete or current solution? Rozhl Chir., 2015, vol. 94. no. 9, pp. 367-371

Hoch J, J. : Örhalmi Professor Lars Pålmanem. RCH 2015, Vol. 94. no. 12, pp. 534

L. Martinek, Dostálík J., Hoch J. : Iatrogenic ureteral injury in the era of minimally invasive colorectal Surgery - review. Minimally invasive surgery and endoscopy surgery Currently, Vol. XIX, 2015, 3, pp. 11 to 15 ISSN: 1336-6572; 9771336657008 EAN-

Hoch J., A. Ferko, Blaha M. : Parametric monitoring the quality of TME as a tool to limit local recurrence after surgery for rectal cancer. Prague 6th interdisciplinary colloquium, 21 to 23 1st, 2015 Clarion Congress Hotel Prague. Poster

Hoch. : neoadjuvant therapy for rectal carcinoma - positives? Coloproctological International Conference, 12 - 13. 2. 2015 Hotel IF Prague.

Jet Z. : Anal cancer Coloproctological conference with international participation, 12 to 13 second 2015 Hotel ILF Prague.

Stamped P. Jech, Z., Hromádka, R. : pelvic chondrosarcoma - changes in treatment strategy XVII. Motol days, University Hospital Motol, Prague, 26.3-27.3. 2015

Hoch J.: We leave Nero / CT in rectal cancer? XXIV. The spring meeting of Locket 2015, and the seventh postgraduate course Society for Gastrointestinal Oncology, Locket, 27. 3. 2015

Hoch J.: Surgical treatment of diseases of the rectum and intestines (Past, present and future from the perspective of the surgeon). Coloplast Symposium 26, 27. 2. 2015 Corinthia Hotel Prague

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

Head physician: Prof. Robert Lischke, MD, Ph.D..

Senior consultant: Jiří Tvrdoň, MD

Head nurse: Mgr. Ida Šmolíková

Basic characteristics:

The department is the biggest workplace of abdominal surgery in the Czech Republic - the centre of excellence, it provides comprehensive care in many fields of thoracic surgery (surgery of lung, trachea and respiratory tract, chest wall and chest deformities, surgery of oesophagus, mediastinum, myasthenia gravis, diaphragm, surgery of sarcomas of the chest and abdominal cavities).

The department is the only centre in the Czech Republic with the Pulmonary transplantation programme. It is also the only accredited medical centre for thoracic surgery of the second degree.

It provides medical care in the whole range of abdominal surgery (surgeries of oesophageal reflux disease, diaphragmatic hernia, oesophageal achalasia, a surgery of the stomach and small intestine, liver, biliary tract and pancreas, a surgery of the colon and rectum, hernia surgeries, minimally invasive laparoscopic techniques, thoracic and abdominal traumatology and endocrinosurgery). The clinic is the leading workplace **of Centre for**

the treatment of soft tissue sarcomas and laryngotracheal centre of Motol University Hospital.

In 2015, 3,194 surgeries were performed here, 3,460 patients were hospitalized and outpatient treatment was provided for 21,272 patients.

Specialised outpatient facilities for:

- Lung transplantation
- One-day surgery
- Diseases of intestines and rectum
- Endocrinosurgery
- Diseases of veins and lower extremities
- Diseases of livers, biliary tract and pancreas
- Surgery of sarcomas of soft tissues
- Diseases of oesophagus and stomach
- Diseases of lungs, mediastinum and chest wall
- Diseases of mammary gland
- Internal clinic

New methods and procedures:

- Preparation of the programme Ex vivo lung perfusion and reconditioning, a method to increase the number of suitable grafts for lung transplantation;
- Initiation of program of minimally invasive surgery of the lungs – pulmonary resection VATS
- Introduction of a surgical rectoscope for the mini-invasive surgery in the rectum;
- Introduction of an endoscopic application of absorbable stents in diseases of oesophagus, stomach and respiratory tract;
- Introduction of surgery of varixes with the help of radio-frequency ablation (RFA).

Unique technological equipment:

- Cardiohelp - centrifugal pump for extracorporeal membrane oxygenation
- videobronchoscopy, gastroscopies
- Surgical rectoscope for mini-invasive interventions in the rectal region;
- Hemron – a device for the outpatient treatment of haemorrhoids;
- Device for radio-frequency ablation Habib, together with the department of imaging methods
- Harmonic scalpel, electrocoagulation and dissection unit LigaSure.

Important event in 2015:

- 26.11.2015 – Organization of meeting of Czech Republic thoracic surgeons, with international participation.
- In 2015, 34 lung transplants were performed, which is the highest number since the start of the program in the country.

3 major publications:

Myšíková D, SVOBODOVÁ T, R. Lischka Tracheal diverticulum with decompensation after eight years of conservative therapy requiring surgical solution. Pulmonol Pediatrician, 2015, 50 (12) E44-7. ISSN 8755-6863.

IF = 2.704 Haruštiak T Pazdro A Šnajdauf M Stolz A, R. Lischka Anastomotic leak and stricture

after hand-sewn versus linear-stapled oesophagogastric intrathoracic anastomosis: a single-centre analysis of 415 oesophagectomies. *Eur J Cardiothorac Surg* 2015 Nov 15th [Epub ahead of print] .IF = 3304

MRÁZKOVÁ, Hana - Lischka, Robert - Hodyc, Daniel - Herget, Jan. The protective effect of hypercapnia on ischemia-reperfusion injury in lungs. *Respiratory Physiology and Neurobiology*, 2015, 205 (January), 42-46. ISSN 1569-9048. IF = 1.971

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

Head physician: Prof. Josef Veselka, MD, FESC, FSCAI, FICA

Senior consultant: Jana Páleníčková, MD

Head nurse: Bc. Jana Kovalčíková

Basic characteristics:

The department provides comprehensive cardiological care for hospitalised and outpatient patients. It is directly related to the Department of Cardiosurgery and Angiosurgery.

In 2015, an outpatient treatment was provided for approximately 22,000 patients, almost 4,300 patients were hospitalised. 2,000 selective coronary angiographies were carried out, 722 percutaneous coronary interventions, 365 catheter examinations of peripheral arteries and more than 7,000 echocardiographic examinations were done, 95 radiofrequency ablations of arrhythmias, 107 ICD implantations and 2,800 duplex ultrasound examinations of peripheral vessels were carried out.

Specialised outpatient facilities for:

- Congenital and acquired cardiac defects,
- Cardiac failure
- Hypertrophic cardiomyopathy
- Electrophysiology and cardiac pacing
- Angiology

New methods and procedures:

- Intravascular spectroscopy - in the Czech Republic this is a unique research use of new invasive methods for evaluating the qualitative composition of the atherosclerotic plaque;
- Extension of using the fractional flow reserve technique in patients with a stable AP and angiographic findings at the borderline level
- Catheterisation implantation of biological valve in the aortic position
- Unique method of genetic testing in patients with hypertrophic cardiomyopathy using next generation sequencing that allows simultaneous screening of large numbers of genes;
- Alcohol septal ablation - the largest set in the Czech Republic;
- Carotid stenting – the largest collection in the Czech Republic;
- Using of the proximal-protection system during the stent implantation in the carotid bed;
- Catheterisation occlusion of atrial septal defect and patent foramen ovale (PFO);
- Catheterisation occlusion of para-valvular leak and aortic valve Amulet;

- Method of controlled hypothermia in resuscitated patients;
- Imaging of the heart by 3D echocardiography;
- Programme of endomyocardial biopsy;
- Treatment of rhythm disorders with the help of 3D electroanatomical mapping;
- Programme for cardiological examination of marathon runners.

Unique technological equipment:

- TVC Imaging system for infrared spectroscopy and intravascular ultrasound
- New echocardiographic instruments of the highest category with 3D transoesophageal echocardiography
- Innovation of catheterization hall
- Lucas Compression System – a device for external cardiac compressions

Important event in 2015:

Publications:

The first interactive textbook in clinical medicine, which is available for free on the Internet (www.kv-medicina.eu). It is intended for medical students and candidates cardiology. The book provides a foundation for 370 pages of Cardiology, Cardiac Surgery, Angiology and angiosurgery, accompanied by hundreds of movies, pictures, diagrams and tables. Three months since the internet has seen nearly 2,000 textbooks for each download.

Published 18 papers in international journals with impact factor (13x first author of our workplace).

Under the “Late Breaking Trials” Congress of the European Society of Cardiology in London data from the European registry alcohol septal ablation were presented (ASA Euro-Registry), which was organized by our clinic. This work was simultaneously accepted for publication in the European Heart Journal.

Award for the best publication of the Czech Society of Cardiology. In the competition for the best Czech Cardiology publication 2014 we won first and third place (Eur Heart J - IF 15, JACC Cardiovascular Interv - IF 7), while the top eight publications from which five of them were from our Department.

Price for creative achievement in Motol Hospital project for diagnosis and treatment of hypertrophic cardiomyopathy.

Assigning of Organization Annual World Congress of the International College of Angiology 2016 reflects the international recognition of prof. MD. Josef Veselka, MD. After many years of work in the field of interventional angiology.

Victory of MD. M. Spacek in the competition of Czech cardiologists at the age of 35 years (formerly Day of young cardiologists) is a research project related to the cerebral circulation.

Our youngest doctors asserted themselves on the international stage and lectured on PCR in Paris and ICA Congress in Jakarta.

At the international congress of graduate students in Kosice gained MD. Horvath, MD. Štěchovský two second places in the section of the best poster and best study.

We organized as every year interdisciplinary symposium Prague Intervention IX with presentations by renowned speakers from Cleveland Clinic and Tufts University in Boston. We held regular frequently visited arhythmology day called arhythmology for practice.

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

Head physician: doc. MUDr. Vilém Rohn, CSc.

Senior consultant: Milan Horn, MD

Head nurse: Mgr. Barbora Kolářová, MSc.

Basic characteristics:

The clinic provides comprehensive care in cardiac surgery and vascular surgery. It is directly related to the Clinic for Cardiology and Medical Imaging cooperates closely with the 3rd Faculty of Medicine, Transplantation Centre and Clinic of anaesthesia, resuscitation and intensive care.

The department provides continuous surgical emergency for all urgent cardiovascular system including traumas.

In 2015, the outpatient care was provided for 4,484 patients and 918 major surgeries were performed, of which 486 were cardiac (An increase of 16% compared to r. 2014) and 432 vascular interventions.

A team of our clinic has performed a total of **45 extracorporeal membrane oxygenation (ECMO)** in own patients, patients of the 3rd Faculty of Medical Surgery and Clinic of Anaesthesiology and Intensive Care Medicine.

Within transplant programs were extracorporeal circulation secured 34 lung transplants.

Specialised outpatient facilities for:

- Cardiology
- Cardiosurgery
- Vascular diseases
- Congenital heart defects in adults
- Treatment of ischaemic defects of lower extremities
- Clinic for patients after surgical treatment of infective endocarditis

New methods and procedures:

- video-assisted surgery in all patients with disease of the mitral valve, tricuspid valve and atrial septum;
- miniinvasive surgery of the aortic valve, use of non-stitches valvular prosthesis;
- Video-minimally invasive surgery of some congenital heart defects (eg. Atrial septal defect, cardiac resynchronization therapy);
- Comprehensive care for adult patients with congenital heart disease;
- Surgical treatment of infectious endocarditis, including the treatment of drug addicts in collaboration with the Department of Infectious Motol Hospital;
- Hybrid minimally invasive solutions of polymorbid patients with CAD (PCI - stent + MIDCAB - from minithoracotomy bypass without extracorporeal circulation);
- Mechanical heart and lung support - ECMO;
- Reconstruction (conserving) surgery of the aortic valve.

Important event in 2015:

- Together with the authors of Cardiology Clinic, we released a new textbook of J. Veselka, V. Rohn and team of authors: Cardiovascular Medicine, ISBN 978-80-88056-00-3 (online: pdf), which is processed in the form of e-books available free at <http://www.kv-medicina.eu/>.
- Award at the Bahrain International Vascular Symposium 2015 for -V.Rohn lecture: "Is there Still a Place for Open Surgery for the Descending Thoracic Aorta?"
- Active participation of the clinic staff at a number of professional events at home and abroad;
- Annual Congress of the Czech Society of Cardiology; Annual Conference of the Working Group; Acute cardiology Czech Society of Cardiology;
- A separate block of lectures to our clinic on an annual interdisciplinary symposium of Prague Intervention with international participation, organized by the Department of Cardiology;

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

Head physician: Prof. Jan Betka, MD, FCMA

Senior consultant: Pavol Jablonický, MD

Head nurse: Jana Jandová

Basic characteristics:

The department provides a complete spectrum of examinations and treatment of diseases in the ENT field. Surgical methods are performed in the full extent including super-specialised interventions and are conducted in most cases for the whole Czech Republic.

In the year 2015, a total of 3,222 patients were hospitalised, of which 1,433 at the ICU.

The average casemix index of patients was 1.84 (an increase of 10% compared to the year 2014), indicating a rise in demands for medical care.

In our operating rooms, 3,095 surgeries were performed including 166 surgeries performed outside the clinic. The department performed 41,160 outpatient examinations, of which 5,514 examinations were performed during the emergency service. In 2,573 patients there were performed further specialised audiometric examinations and a total of 7,673 surgeries were undertaken. Objective audiometry was performed in 278 patients and otoacoustic emissions in 330 patients. The examination of the statokinetic apparatus was performed in 651 cases and the ENG examination in 128 patients. Department performed examination for indication of hearing aid in 211 patients.

Specialised outpatient facilities for:

- Oncology
- Kophosurgery
- Rhinology
- Endocrinosurgery
- Otoneurology
- Correction of hearing disorders - hearing aids
- Laryngo-phonosurgery
- Rehabilitation of voice - voice prostheses

- Snoring-related problems and sleep disorders
- Sonography
- Salivary glands disorders
- Swallowing disorders
- Neurosurgery and cranial base disorders

Specialised outpatient centres:

- Centre for lasersurgery
- Centre for surgery of the thyroid and parathyroid glands
- Centre for cochlear implant
- Centre for head and neck oncosurgery
- Centre for rehabilitation in patients after total laryngectomy
- Centre for electronic hearing replacements
- Centre for salivary glands diseases
- Centre for treatment of sleep insufficiency
- Multidisciplinary cooperative centre for swallowing disorders

New methods and procedures:

- Use of Montgomery Salivary Bypass Tube after resection and reconstruction interventions in oncological surgery of head and neck
- Augmentation of vocal cords via Radiesse
- Treatment of patients with sleep apnea using the DISE method (Drug Induced Blindly Endoscopy)
- Treatment of Frey's syndrome by botulinum toxin
- CODACS – the first surgery of this cochlear implant in Czech Republic
- Endoscopic approaches in removal of tumours of the internal auditory canal
- Perioperative neuromonitoring
- Fibroendoscopy of swallowing pathways (FEEST)
- Extended microsurgery in tumours of paranasal sinuses using the navigation
- Identification of the target structure in the course of cochlear implantation by means of EABR
- Endoscopic resection of esophageal diverticula
- Endoscopic diagnostics of respiratory tract tumours and tumours of swallowing pathways with the help of MBI
- Endoscopic examination of the salivary glands and endoscopic treatment of sialolithiasis
- Rehabilitation of patients after total laryngectomy by synthetic voice recordings in collaboration with the University of West Bohemia in Pilsen - Department of Cybernetics

Unique technological equipment:

- CO2 Laser, Dioxi Laser, Argon Plasma Coagulation Laser
- Harmonic scalpel, radio-frequency scalpel, shaver;
- Endoscopic equipment for mini-invasive interventions of thyroid gland and in the surgery of cranial base and inner auditory meatus;
- Videostroboscope, ENG Video
- NBI in the early diagnostics of tumours

- Neuronavigation, radionavigation
- Video-endoscopy of salivary glands
- Microcutter for stapedius ear surgery

Important event in 2015:

- 2nd April 2015 Prague, 15th GSK ENT Forum
- 9th - 10th April 2015, International course Medical Expert Training on Clinical Benefits of NBI in Diagnostic Endoscopy in Laryngology, Prague (The department is the first country in Central and Eastern Europe, which became the organizer of this course.)
- 7th - 11th June 2015 Prague, 3rd Congress of European ORL-HNS (The president of the congress became Prof. Jan Betka, MD., the vice president was Prof. Jan Klozar, MD, Ph.D.. and the scientific secretary Prof. Jan Plzák, MD, Ph.D.). The congress was attended by more than 3,700 experts from 104 countries. The following events were held within this largest European ENT congress: 77th Congress of the Czech Society of Otorhinolaryngology and Head and Neck Surgery of the Czech Medical Association of J. E. Purkyně, 6th Czech and Slovak Congress of Otorhinolaryngology and Head and Neck Surgery, the 62nd Congress of the Slovak Society for Otolaryngology and Head and Neck Surgery and 14th Czech-German ENT Day.
- The Congress will go down in history as one of the biggest and most important congresses in Europe, both in number of participants and the scope and quality of the scientific program.
- 16th – 17th September 2015 Prague, the course of the Institute for Postgraduate Medical Education: Current Trends in Otosurgery
- 9th October 2015 Usti nad Labem, 22nd specialised supra-regional international conference with international participation Sláma's Day "New in FESS"
- 10th – 13th November 2015 Prague, 28th International Course of Endoscopic Endonasal Surgery (EES, FES, FESS)
- The price of Czech Neuroscience Society of the Czech Medical Association of J. E. Purkyně for outstanding scientific work of young neuroscientists published in 2013 and 2014
- Oliver Profant, MD, Ph.D. received the Kutvirt price of the Czech Society of Otorhinolaryngology and Head and Neck Surgery of the Czech Medical Association of J. E. Purkyně for the best publication in the category under 35 years
- Lukeš P., Zábrodsky, M., Lukesova E., et al. The Role of NBI HDTV Magnifying Endoscopy in the Prehistologic Diagnosis of Laryngeal Papillomatosis and Spinocellular Cancer BioMed Research International, Volume 2014, Article ID 285486, 7 pages, IF 2.71
- Kutvirt price of the Czech Society of Otorhinolaryngology and Head and Neck Surgery of the Czech Medical Association of J. E. Purkyně for the best publication in the category over 35 years
- Bouček J., Zábrodský, M., Kuchař, M., et al.: A New Strategy for the Surgical Management of RLN Infiltrated by Well-Differentiated Thyroid Carcinoma. BioMed Research International 2014, Article ID 616521, 6 pages, IF 2.706
- 3rd prize for the best scientific work of students of the 1st Medical Faculty of Charles

University in Prague published in 2014 in the category for postgraduate students
- Eva Lukešová, MD, Ph.D.

- Živicová, MD - a postgraduate student - diploma for the best presentation at the Czech Academy of ENT in Olomouc, 2nd – 3rd October 2015
- Alžběta Mifková, MD, 3rd Congress of European ORL-HNS, Prague, poster
- Barbora Řepová, MD, AAO-HNS (American Academy of Otorhinolaryngology and Head and Neck Surgery), Dallas, USA
- Michal Zábrodský, MD, Medical Expert Training on Clinical Benefits of NBI, Prague

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

Head physician: Ass. Prof. Petr Vlček, Ph.D.

Senior consultant: Kateřina Táborská, MD

Head nurse: Jana Richterová

Basic characteristics:

This interdisciplinary clinic for nuclear medicine and endocrinology is occupied besides standard diagnostics by means of radioisotope methods, also focused on diagnostics, treatment and dispensary care of patients with differentiated carcinoma of the thyroid gland and severe forms of thyroid orbitopathy and on therapy of ¹³¹I-MIBG from the whole Czech Republic. The department also serves as an educational centre, it is accredited in specialisation of endocrinology and nuclear medicine. **In the last year, the department provided care for 20,000 patients, of which 1,000 were hospitalised. The nuclear medicine outpatient facility provided more than 4,000 examinations** and therapeutic applications of radioactive pharmaceuticals.

The workplace is a centre for the treatment using TAO inhibitors of growth hormone, for the diagnosis and therapy of advanced forms of differentiated thyroid cancer by human recombinant TSH (Thyrogen) and for the treatment of neuroendocrine tumours by ¹³¹I-MIBG radiopharmaceutical (the only workplace in the Czech Republic).

Specialized outpatient facilities for:

- Endocrinology focused on differentiated thyroid carcinoma (DTC), the dispensary has over 14,600 patients (this is one of the biggest ensembles in the world)
- Advisory centre for thyroid gland microcarcinoma
- Advisory centre for medullary thyroid carcinoma (MTC)
- Thyroid autoimmune orbitopathy (TAO)
- Nuclear medicine

New methods and procedures:

- Diagnostics and treatment of differentiated carcinoma of the thyroid gland using human recombinant thyreostimulation hormone (rhTSH);
- Diagnostics using a hybrid method of combination of X-ray (CT) scanning and isotope (SPECT) imaging;
- Introduction of radiopharmaceutical ^{99m}Tc-Tectrotyd into action;
- In cooperation with the Department of Oncology, 2nd Faculty of Medicine, Charles University and Motol University Hospital, the department provides targeted bio-

- logical treatment of radioiodine-refractory thyroid gland carcinomas;
- Providing of genetic testing in patients with familial forms of medullary thyroid gland carcinoma and testing of patients with papillary thyroid gland carcinoma.

Unique technological equipment:

- SPECT / CT camera Symbio Inteva Excel for nuclear medicine outpatient facility and the two-headed camera with crystal 5/8 "Symbio S at the inpatient ward

Important event in 2015:

- Modernisation of radiopharmaceutical laboratory with the C level of cleanness;
- Organization of the 8th Workshop of Nuclear Endocrinology for the Czech and Slovak inpatient departments of nuclear medicine in Montenegro;
- As a co-researcher, the department successfully defended the project of the Internal Grant Agency, Ministry of Health of the Czech Republic: The study of genetic changes in thyroid gland tumours;
- A total of 10 scientific articles were published in domestic and foreign journals.

Department of Long-term treatment - Aftercare Centre

Senior consultant: Martina Nováková, MD

Head nurse: BA Lucie Kubová

Basic characteristics:

LTT-Aftercare Centre has 381 inpatient beds at 13 inpatient wards. It is specialized in the one hand in geriatric issues, and on the other hand in care of patients after trauma, surgery, chronic internal diseases, cerebrovascular accidents, etc., without age restrictions.

In 2015, the total number of admitted patients was 1,401, in geriatric outpatient centre was performed 225 operations.

The 10th-inpatient ward has 24 beds and it is specialized in hospitalized patients requiring intensive care, respectively care which is required by acute internal department.

The 14th-inpatient ward, which has 29 beds is focused on aftercare in patients in chronic hemodialysis program and it closely cooperates with Fresenius hemodialysis centre. This part of the department has been recently renovated and is the only one of the Aftercare Centre wards which is equipped with central oxygen distribution.

LTT- Aftercare Centre is specialized in wound healing, nutrition, physiotherapy and ergotherapy. Clinical psychologist, speech therapist and 4 social workers are available here for patients.

The physiotherapy is carried out individually or in groups using the most modern methods such as electrotherapy, magnetic therapy, ultrasound, biolamp, vacuum compressive therapy on the healing of chronic defects etc. The cooperation with the Volunteer Centre continues, it organizes entertainment and educational programs, trainings of memory or dog therapy for the patients. For patients, there is also a library within the Aftercare Centre. The department obtained an accreditation of the first degree for teaching of geriatrics and it is involved in postgraduate medical education in the field of geriatrics, internal medicine and bachelor's degree education for nurses.

The centre hosts training courses.

Specialized outpatient facilities:

- Geriatric and admittance

New methods and procedures:

- On 19th November 2015 the department joined the project **Nutrition Day**, an international project aimed at nutrition of hospitalized patients in acute beds and aftercare beds.
- The department continues in the international study MIDFRAIL

Unique technological equipment:

- Extremiter 2010-better future - + CO2 therapy - a device for vacuum-compression therapy in wound healing
- Two fitness machines for strengthening of the muscles of the lower extremities (project MIDFRAIL)
- Electrotherapy device

Important event in 2015:

- On 20th October 2015 the Aftercare Centre organized a health-social conference with the topic: *The fragility, loneliness, vulnerability - phenomenon of modern times*. It was held in the MUH cinema.
- Senior consultant Nováková, MD was elected a member of the Committee of the Czech Gerontologic and Geriatric Society.
- Within the MUH conference, the physicians and nurses gave 5 lectures (October 2015).
- Horázná L.: Incontinence dermatitis or decubitus – do we know how to distinguish it? (lecture at the congress Way to Modern Nursing XVII., September 2015)

Postgraduate education:

Graur, MD, Molčanová, MD – gained Internal medical basis in post-graduate specialization of geriatrics

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

Head physician: Ass. Prof. Petr Marusič, MD, Ph.D.

Senior consultant: Aleš Tomek, MD, Ph.D., FESO

Head nurse: Hana Chvátalová

Basic characteristics:

The department provides comprehensive diagnostic and therapeutic care of patients with diseases of the nervous system. The main programs developed on the highest possible level in the Czech Republic are cognitive, epileptological, neuro-otological, neuromuscular, neuro-immunological and neurovascular programs. In addition to care for patients from the surrounding area, a superconsiliary care is here selectively provided for patients from all over the country.

In 2015, the department provided outpatient examination for 40,863 patients. A total of 2,117 patients were hospitalised, out of which 681 patients were hospitalised at the ICU.

Specialised centres:

- Highly specialized centre for cerebrovascular care accredited by the Ministry of Health of the Czech Republic
- Highly specialized centre for pharmaco-resistant epilepsy accredited by the Ministry of Health of the Czech Republic
- Centre for diagnostics and treatment of demyelination diseases;
- Cognitive centre
- Neuromuscular centre
- Centre for Parkinson's disease and other extrapyramidal disorders;
- Centre for hereditary ataxia
- Neuro-otological centre

Specialised outpatient facilities:

- Advisory centre for neuroAIDS
- Advisory centre for headaches
- Advisory centre for neurocutaneous diseases
- Vertebrogenous and myoskeletal advisory centre

New methods and procedures:

- The cognitive centre innovated the tests for preclinical examinations and prodromal Alzheimer's disease, including new investigative battery for spatial cognition testing in virtual reality.
- The CSF laboratory in collaboration with the Department of Immunology, 2nd Faculty of Medicine and Motol University Hospital implemented new immunoassay methodology for determining the intrathecal synthesis of anti-GAD antibodies. The existing diagnostic panel of autoimmune encephalitis is examination of antibodies against well-characterized onconeural antigens (Hu, Yo, Ri, MA2 (Ta), CV2, (CRMP5), amphiphysin) conducted with the method of Western blot with a subsequent automated semiquantitative evaluation. The detection of antibodies against membrane and synaptic antigens (NMDAR, AMPA1R, AMPA2R, GABABR, Caspro-2 LGI-1) through indirect immunofluorescence on cells transfected by genes for the relevant antigens was extended by Zic4, Tr (DNER), SOX1, Ma1.
- Within the CSF diagnostics next to the analysis of tau, phospho-tau and beta-amyloid 42 was for the first time performed the analysis of beta-amyloid 42.
- Within the laboratory differential diagnosis of neurodegenerative diseases, a unique fingerprinting method electrochemical body fluids was introduced.
- A neuroimaging laboratory was established, it enables an efficient evaluation of multimodal MRI data and perform advanced MRI analyzes. In the area of MRI signal processing, we proceeded to the international project, which operates on the principle of cloud computing - Neurogrid.
- The introduction of video-EEG monitoring and cerebral perfusion using TCD at the ICU
- Extension of the programme of personalized medicine of antithrombotic agents in the secondary prevention of cerebrovascular disease by measuring of the effectiveness of new oral anticoagulants
- Endovascular treatment of acute ischemic stroke as a routine medical procedure and implementing of a special MR protocol for patients with multiple sclerosis

(both procedures in cooperation with the Department of Imaging Methods, 2nd Faculty of Medicine and Motol University Hospital).

- In cooperation with the Laboratory of Molecular Diagnostics, Hospital Na Homolce - examination of gene TOMM40 polymorphisms in patients with Alzheimer's disease; The introduction of the indicator model of protein levels MXA in routine practice for patients with multiple sclerosis treated with interferon.
- A method for rehabilitation of patients with chronic of dizziness and balance disorders which is unique in the Czech Republic was launched in the hospital. The method uses a visual biofeedback using force platform and tablet. Our department contributed to the development of the system. Creating of programs for rehabilitation of strabismus, amblyopia and functional version of program of HessScreen was under way in cooperation with the Department of Cybernetics, FEE CTU and common inpatient Department of Ophthalmology for paediatric and adult patients, 2nd Faculty of Medicine and Motol University Hospital.
- Examination of otolith system using cervical myogenic evoked potential method, introduction of the pupilometry method - extension of possibilities for testing the existing equipment for video-oculography (VOG). A new methodology of examination of the vestibulo-ocular reflex functions was introduced with the help of the device ICS Impulse firm Otometrics.
- Testing of thin fibers of peripheral nerves via method of determining the thermal threshold using the Peltier element.
- Introduction of a unique neurophysiological diagnostics of disorders of thin nerve fibers (A delta, C fiber) in patients with peripheral and autonomic neuropathy. Introduction of neurophysiological tests (spectral analysis - frequency and time) in cardiac autonomic neuropathy in diabetic patients.
- The new methodology of quantitative electromyography in the diagnostics of myopathy (computer processing of EMG signal - power spectrum analysis, peak ratio, number of small segments). The methodology enhances the sensitivity from the original percentage of 64% to the new result 91%.

Unique technological equipment:

- 256-channel high-density EEG
- device ICS Impulse from the company Otometrics
- Telemetry with the central monitor Philips IntelliVue M3150 for 9 patients
- Ultrasonographic device RIMED Intraview with a helmet for long-term monitoring
- Ultrasonographic device Toshiba Aplio 500 for examination of transcranial and extracranial arteries and peripheral nerves with a 3D imaging together with MR / CT data
- 128-channel EEG system NicoletOne video-EEG monitoring
- Rotating armchair NYDIAK for electronystagmography - ENG examination
- FAN Study system for a complete evaluation of the autonomous nervous system function including the test on an inclined plain.
- Termotester Somedic, Sweden - electrodiagnostic device for evaluation of the function of thin fibers Adelta + C fiber.
- Digital algeziometr Somedic, 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 Institute of Physiology CAS

Important event in 2015:

- Ass. Prof. Martin Bojar, MD was appointed professor, habilitation of Jana Laczo, MD, Ph.D.
- Price of the Czech Neurological Society for excellent monograph or textbook article for the year 2014: Tomek A et al. Neurointensive care - second, revised edition. Mlada fronta a.s.; 2014.
- Price of the Czech Neuroscience Society for outstanding scientific work of young neuroscientists published in 2013 or 2014: Laczo J et al. APOE and spatial navigation in amnestic mci: Results from a computer-based test. Neuropsychology. 2014; 28(5), 676-84.
- Hennerova price of the Czech Neurological Society for young authors under 35 years for outstanding unique work of the year 2014: Nedelska Z et al. Pattern of brain atrophy rates in autopsy-confirmed dementia with Lewy bodies. Neurobiol Aging; 2014; 14; 1-10.
- Participation in an organization of the 29th Slovak and Czech Neurological Congress and 43th Slovak and Czech Cerebrovascular Congress in Koice;
- Organization of international training days in neuro-otology and regular annual courses of neuro-otology;
- A unique database Redcap for data collection within the Czech Brain Ageing Study was put in operation on the MUH server. The database allows to record for individual subjects more than 1,000 variables and it allows to do it repeatedly. Its quality is comparable with the databases of the best medical workplaces abroad.
- A total of 26 scientific publications in international journals, 2 publications in peer-reviewed international journals, 7 articles in domestic journals with IF, 10 articles in peer-reviewed Czech journals and 6 chapters in domestic monographs.

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

Head physician: Prof. Ivan Landor, MD, Ph.D..

Senior consultant: Prof. Stanislav Popelka, MD, Ph.D..

Head nurse: Mgr. Jana Sladkova

Basic characteristics:

The department provides both conservative and surgical care for adult patients in the full spectrum of orthopaedic interventions and traumatology of the locomotor apparatus with the exception of the spine and paediatric orthopaedics.

The department has 129 beds of which 14 at the ICU for non-septic patients and 2 beds for ICU septic orthopaedics, 30 beds for traumatology and 20 beds for septic patients. A total of 4,554 patients were hospitalised in 2015 and the outpatient care was provided for 44,917 patients. The total number of performed surgeries was 4,351.

Specialised outpatient facilities:

- Joint replacement
- Surgery of major joints

- Surgery of hand and leg
- Arthroscopy of shoulder, wrist, knee and ankle joint
- Sport traumatology
- Septic orthopaedics
- Rheumatosurgery
- Oncology
- General traumatology

New methods and procedures:

- Research and development of new joints implants in cooperation not only with domestic but also foreign partners;
- New techniques in wrist surgery;
- Implementing of omega splint for a broken pelvis;
- Introduction of minimally invasive surgical techniques for Hallux valgus solution;
- Arthroscopic stabilization - AC luxation - Dogbone button Arthrex;
- Reconstruction of inveterate AC luxation by the tendon graft;
- Introduction of laboratory determination of alpha defensin into the diagnostics of joint implant infection;
- Introduction of rapid determination of alpha defensin Synovasure (lateral flow test) to intraoperative; diagnostics of joint implant infection;
- Introduction of leukocyte esterase test in the diagnostics of joint implant infection;
- Introduction of endoscopic method of Meduloskopia in the treatment of chronic osteomyelitis;
- Introduction of Masquelette technique in the treatment of infected nonunions;
- Introduction of vacuum therapy for the treatment of infected defective wounds;
- Introduction of our own method of coating nails with the help of bone cement in the treatment of infected nonunions.

Important event in 2015:

Publishing activity:

In 2015, a total of 5 scientific theses were published in journals with IF.

Department of Spondylosurgery of Motol University Hospital

Senior consultant: Prof. Jan Štulík, MD

Head nurse: Bc. Dagmar Šeborová

Basic characteristics:

This specialized department has been treating injuries and diseases of spine, including the consequences. **In 2015, a total of 1,383 patients were operated, 1,469 patients were hospitalised and outpatient care was provided for 12,991 patients.**

Specialised outpatient facilities:

- Treatment of injuries and diseases of spine
- Scoliosis in children

New methods and procedures:

- New technique of resection - en bloc - of subaxial cervical vertebra;
- En bloc resection of sacrum;
- En bloc resection of thoracolumbar vertebrae;
- Correction of deformities of scoliosis;
- Correction of deformities of kyphosis;
- Spinal osteotomy PSO;
- Axial transsacral fixation;
- Cultivation of osteoblasts from stem cells.

Unique technological equipment:

- O – ARM – device for 3D imaging of spine in the course of surgical intervention and navigation spinal system
- NIM – ECLIPSE – device for peroperative monitoring of neurological functions
- Surgical microscope Carl Zeiss
- Source of light + mobile stand

Important event in 2015:

- KLÉZL, Z., SWAMY, G., N., STULIK, J.: *The injury of subaxial cervical spine*. In: BENTLEY, G.: *EFORT instructional lectures book*. Volume 13, Dordrecht, Heidelberg, London, New York, Springer, 2015.
- Chlumsky prize of the Czech Society for Orthopaedics and Traumatology (for chapter) P. Dungal et al.: *Orthopedics*, Praha, Grada 2015
- The Centre for Treatment of Primary Tumours of Spine was founded.
- The department organized the annual congress of the Czech Society for Orthopaedics and Traumatology, 2015.

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

Head physician: prof. Miloslav Marel, MD, Ph.D..

Senior consultant: František Petřík, MD

Head nurse: Mgr. Jana Zelenková

Basic characteristics:

The Department of Pneumology is concerned with the diagnostics, treatment, evaluation and research of diseases of the lower respiratory tract with orientation to intensive pneumological care, interventional bronchology, comprehensive care for patients with chronic obstructive pulmonary disease, treatment of patients with cystic fibrosis, oncology including biological therapy, sleep medicine, examination of patients prior to lung transplantation and the treatment of tobacco addiction.

In 2015, a total of 1,660 patients were hospitalized, outpatient treatment was provided for 12,852 patients, bronchoscopy was performed 1,521 times and 1,414 times was given chemotherapy. At the intensive respiratory care unit, a total of 266 patients were hospitalised in 2015, out of which 48 patients (18%) were treated by non-invasive mechanical ventilation and 31 patients (12%) by invasive mechanical ventilation.

Specialised outpatient facilities for:

- Diseases with bronchial obstruction
- Cystic fibrosis
- Interstitial pulmonary disease
- Oncology
- Transplantations
- Treatment of tobacco addiction
- Patients with sleep breathing disorders

New methods and procedures:

- Biological treatment of bronchogenic carcinoma in patients with ALK gene translocation using the crizotinib medication;
- Biological treatment of patients with cystic fibrosis via Kalydeco medication;
- Endobronchial ultrasonography (EBUS) allowing puncture of mediastinal lymph nodes under ultrasonographic control in real time with immediate cytological evaluation of findings via ROSE (Rapid On Site Evaluation);
- Introduction of bronchoscopic lung cryobiopsy, what is a method that prevents open lung biopsy in some cases;
- Treatment of tracheal stenosis via implementation of biodegradable stents.

Unique technological equipment:

- Ultrasound bronchovideoscope Olympus BF-UC 160F-OL8
- ICU equipped with modern non-invasive ventilator Philips V60, which can be used also as a portable device
- Measurement of carbon monoxide in exhaled air with the help of Smokerlyzer device to verify non-smoking
- An audio-video conference interconnection of the auditorium hall with the bronchoscopical operating theatre was launched in 2015 for the purpose of pre- and post-graduate teaching.

Important event in 2015:

- The Department of Pneumology together with The Cystic Fibrosis Centre of MUH has become the first institute in the world in which an innovative treatment therapy of patients with cystic fibrosis with via mRNA editor was launched. Our departments participated in the study of PQ-010-001 (NCT02532764) of clinical evaluation of medicaments of the Ib Phase. The evaluated medicine QR-010 is designed for patients with cystic fibrosis, homozygotes F508del.
- In cooperation with the 3rd Department of Surgery, 1st Faculty of Medicine, Charles University and MUH and the Department of Paediatrics, 2nd Faculty of Medicine, Charles University and MUH, on the waiting list for lung transplantation were written 52 patients in 2015 and the record number of 34 patients underwent the transplantation.
- Fila, MD and prof. Marel, MD won the 1st and 2nd place in the competition of best and original work of the scientific journal *Studia pneumologica et phthiseologica* in 2015.
- Prof. Marel became the national delegate of the Czech Republic within the European Respiratory Society.
- Libor Fila participated as a lecturer in the course of the European Respiratory

Society „Cystic fibrosis“ organized in Prague in November 2015.

- Fila, MD and Valentová-Bartáková, MD are co-authors of the Recommended Procedure for Lung Transplantation.
- Prof. Marel was for the third time in a row named the best teacher of the 2nd Faculty of Medicine, Charles University and MUH.

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

Head physician: Ass. Prof. Jana Prausová, MD, Ph.D., MBA

Senior consultant: Zdeněk Linke, MD

Head nurse: Gabriela Žáková

Senior radiology assistant: Alena Čuprová

Basic characteristics:

The department provides a complete care for oncological patients in the field of anti-tumourigenic pharmacotherapy and radiation therapy. It belongs to Complex oncological centres in the Czech Republic that provide a highly specialised care, in 2014 the department successfully passed the audit. The department is accredited for specialised education in clinical oncology and radiation oncology.

In 2015, a total of 227,446 patients were treated on the outpatient basis, 2,722 patients were newly admitted (of which 1,163 to chemotherapy and 1,559 to radiotherapy), 2,825 patients were hospitalised. The number of irradiated fields was 152,408, the number of brachytherapy applications was 907 and the number of applied cycles of chemotherapy was 11,285.

Specialised outpatient facilities for:

- Dispensary care for patients after the anti-tumourigenic treatment
- Monitoring of patients during chemotherapy
- Monitoring of patients during teletherapy
- Chemotherapy application
- Monitoring of patients during brachytherapy

New methods and procedures:

- Periodic adjustment of standard protocols of the treatment of malignancies with the introduction of new molecules of cytostatics, new combinations of cytostatics and biological therapy. Improving of symptomatic therapy, improvement of pain treatment, monitoring of nutrition in patients, use of growth factors for the treatment and prevention of decrease in the number of blood elements during treatment of cancer.
- Introduction of central venous access (ports) and peripheral PICC in all patients with chemotherapy applications.
- Cooperation in multicentric international clinical studies and grants with an international participation in the field of treatment of solid tumours and hemoblastomas.
- Cooperation with genetic oriented departments in the search for families with a genetic risk of malignancies.
- Cooperation with the Institute of Immunology and the Department of Urology,

Motol University Hospital in the application of medication SNP01 - Centre for the treatment of prostate cancer.

- Improvements and full use of IMRT method (intensity modulated radiotherapy) which allows higher amount of radiation in the target spot within the investigation of healthy tissues.
- Implementation of IGRT techniques (image guided radiotherapy), based on the control of current position of patient in radiotherapy and the possibility of its correction according to the reference position for the simulation of radiation plan. The use of dynamic wedges on linear accelerators allows better 3D (three dimensional) planning. Option fusion of images from MRI and CT examinations with the planning CT images in order to create better radiation plan.
- Improvement and full use of fractionated stereotactic radiotherapy. The department implements prostate brachytherapy.

Unique technological equipment:

- Two linear accelerators Clinac 2100 C/D, Varian medical Systems (photon beams 6MV, 18MV, electron beams 6, 9, 12, 20 MeV) with a multilamellar colimator (MLC) Millenium MLC-120 and with an electronic imaging system (EPID – electronic portal imaging device) for the control of correct position of the patient during therapy. One of these accelerators is equipped with an additional kV source for an exact imaging of the patient's positioning during therapy (OBI -on-boarding imaging).
- Linear accelerator Clinac 600 C/D, Varian Medical Systems (photon beams 4MV) with a multilamellar colimator (MLC) Millenium MLC-120 and an electronic imaging system (EPID). This accelerator is equipped with a micromultilamellar colimator (m3 micro-MLC) and equipment for stereotactic radiation.
- Radio therapeutic simulator Acuity EX, Varian Medical Systems for preparation of radiation therapy.
- CT device Brilliance Big Bore, Philips for the therapy planning.
- Verification System Aria, which integrates linear accelerators, simulator, planning systems for external beam radiotherapy (Eclipse), stereotactic radiation therapy (iPlan) and brachytherapy (Brachyvision).
- Brachytherapeutic device for HDR brachytherapy with an automatic after-loading Gammamed Plus iX. Ultrasonograph ProFocus 2202, B-K Medical and pacing device EXII Tracked Stepper for prostatic brachytherapy. Mobile X-ray machine with C arm BV Pulsera, Philips for localisation of applicators in brachytherapy.

Important event in 2015:

- Since 2013, the department became the Oncological centre as part of the 2nd Faculty of Medicine, Charles University and Motol University Hospital.
- The department participated in organization and lecturing at the 6th PragueOnco colloquium. It actively participated in the organization of Uro-oncologic Symposium and other Czech symposia.
- The department annually organizes Symposium of Radiotherapists, oncologists, medical physicists and laboratory technicians – Days of Motol. In 2015, the XVII. year of this event was organized in collaboration with the Department of Oncology in Thomayerova Hospital, the Department of Surgery 1st Faculty of Medicine, Charles University and the MUH, paediatric surgery, spinal surgery and the Department

- of Urology, 2nd Faculty of Medicine, Charles University and the MUH.
- Physicians actively participated in international events ASCO, ESMO with their abstracts and posters.
 - Head physician of the department became the president of the Czech Oncological Society of the Czech Medical Chamber of J.E. Purkyně.
 - The department significantly contributes to the therapeutic results of medication registries of the Czech Republic in the field of biological medicine treatment of cancer therapy.
 - The department is an active member of the Sarcoma Group EORTC - participation in academic clinical studies.
 - Kubáčková, MD et al.: two publications - Rare diseases in brief and Rare tumours in oncology.
 - The department is involved in the grant of the Czech Science Foundation (GACR): Nanofiber systems for local drug release in the treatment of cancer, in cooperation with the Institute of Macromolecular Chemistry of the Academy of Science, the Czech Republic.
 - The department participates in the 3rd EU Health Programme: Joint Action on Rare Cancers
 - The pilot study of the influence of genetic factors on the effect of treatment and survival of patients with pancreatic cancer (along with The National Institute of Public Health and the departments of surgery 1st and 2nd Faculty of Medicine, Charles University and the MUH).
 - Study: Survival Outcomes in Adolescent and Young Adults with Colorectal and Pancreatic Cancer – Jewish General Hospital, Montreal, QC, Canada, Institut Paoli-Calmettes, Marseille, France, Department of Oncology, 2nd Faculty of Medicine and the MUH.

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

Head physician: Prof. Marek Babjuk, MD, Ph.D.

Senior consultant: Marek Schmidt, MD

Head nurse: Mgr. Jana Boháčová

Basic characteristics:

The department of Urology provides therapeutic and preventive care in the full range in the field of adult urology. It is specialised in surgical treatment of cancer of the urogenital tract including the subsequent oncological treatment. It belongs to top workplaces in the treatment of lithiasis and laparoscopy. It is the only workplace for surgical conversion of sex in the Czech Republic.

In 2015, the department performed 25,229 outpatient examinations, 1,957 hospitalisations and 1,729 surgeries.

Specialised outpatient facilities for:

- Oncology
- Treatment of metafylax of lithiasis and chronic infection
- Andrology

- Dysfunction of the lower urinary tract
- Centre for research and treatment of prostate cancer (in collaboration with the Department of Radiotherapy-Oncology and Institute of Immunology)
- Centre for the surgical treatment of transsexualism

New methods and procedures:

- Laparoscopic radical cystectomy;
- Enhancement of nephrectomy technique performed by using the single-port approach (LESS nephrectomy);
- Enhancement of laparoscopic technique of radical prostatectomy;
- Laparoscopic resection of the kidney tumour;
- Improvement in endoscopic treatment of lithiasis - a technique of percutaneous mini-nephrolithotomy, percutaneous nephrolithotomy in the supine position, flexible ureteroscopy etc.;
- Enhancement of shunt surgeries after cystectomy;
- Use of new imaging methods for diagnostics of the urinary bladder tumours (NBI = „narrow band imaging“) in common use;
- Neurostimulation in the treatment of urge urinary bladder symptoms;
- Introduction of microsurgical techniques in andrologic surgeries (varicocele surgeries, vaso-vasoanastomosis etc.);
- Use of Ho:YAG laser in surgical interventions;
- Transurethral enucleation of prostate using morcellator.

Unique technological equipment:

- Ho:YAG laser
- devices for NBI (“narrow band paging”), fluorescence cystoscopy
- devices for LESS
- devices for miniPNL
- 3D laparoscopic System Einstein Vision
- Endoscopic morcellator Piranha

Important event in 2015:

- Co-organization of the 12th Winter Urology Symposium 11th - 15th January 2015;
- Working Workshop - Medical Expert Training in Endoscopic Treatment of Urolithiasis 13th -14th April 2015.

COMMON EXAMINATION AND THERAPEUTIC UNITS

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

Head physician: Prof. Miloslav Roček, MD, FCIRSE, EBIR

Senior consultant: Radek Pádr, MD

Head of RA: Mgr. Tomáš Schilla

Basic characteristics:

In 2015, the Department of Imaging Methods performed more than 250,000 examinations and it experienced an increase in that number compared to 2014. This number includes all the examinations performed by the Department of Imaging Methods, including conventional examinations, examinations of the gastrointestinal tract, examination in the child radiology, all kinds of ultrasound examinations, CT and MR examinations, vascular and non-vascular interventional radiology. The number of CT and MR examinations remained stable, it is related to the change in devices for both modalities, during which the service was interrupted or significantly reduced. There is an increasing demand at the Department of angiography and interventional radiology.

Unique technological equipment:

- Magnetic resonance imaging - 4 devices: examination in its whole range, including spectroscopy
- CT - 3 devices with 64 rows of detectors, CT Toshiba Aquillion One with 320 rows
- Modern angiography Toshiba Infinix
- Mammography, breast sonography, stereotaxy, vacuum bioptom
- Sonography in children and adults, Doppler sonography
- 6 fully digitized skiagraphy
- Mobile X-ray unit DR Fuji Go - 2 pieces

New methods and procedures – unique technological equipment:

- CT angiography, 3D VR visualization, CT cardio - heart imaging, CT coronary angiography;
- CT imaging of VOL data for neuronavigation, ENT navigation and stomatology.
- MR - new opportunities for examination of blood vessels, heart function tests, tractography, T2 relaxometry, examination of uncooperative patients, spectroscopy.
- Prenatal ultrasound and MR diagnostics.
- MAMO SONO centre - ductography, cyst puncture and core cut biopsy under ultrasound control, puncture by Vacora device, preoperative localization of ultrasound and stereotactic navigation
- Radio-frequency ablation and chemo-embolisation of metastases in the liver and lungs.
- Implantation of aortal stentgrafts (also fenestrated), cerebral thrombectomy, subintimal recanalisation of peripheral arteries in the lower extremities, treatment of acute and chronic deep venous thrombosis, treatment of vascular accesses to haemodialysis, implementation of translumbar catheters.

- Treatment of cerebral malformations in both children and adults.
- Interventions on the bile ducts (including absorbable stent implantation), spondyloplasty and vertebroplasty.
- Interventions under CT skiascopy.
- Ultrasound equipment Toshiba Aplio with software enabling the use of diagnostics with the help of contrast agents, especially for dynamic diagnostics of focal lesions mainly in liver. This examination plays an important role in children, it avoids radiation load on CT.
- Extended use of dictation systems.
- Using the Polycom device, the department performs conferences and consultations with other departments within the Czech Republic and other European countries.
- Research in prenatal detection and postnatal monitoring of patients with cystic pulmonary adenomatoid malformation was introduced.
- Establishment of Arterial spin labelling as a recent method for visualizing of cerebral perfusion in the form of colour maps as well as for its quantification expressed in exact terms.
- New Software for Toshiba APLI 500. Displaying via SMI (Super Microvascular Imaging) allows us to efficiently and accurately detect microvascular architecture of the examined tissue - eg. focal changes. The software will be fully utilized within the project „Dispensarisation of patients after lung transplantation - non-ionizing imaging methods“, but also in other our projects.

Important event in 2015:

- The department organized an international school of radiology – 4th Prague European Tutorial of Radiology which lasted for two weeks.
- The V. Motol Day of Paediatric Radiology with large multidisciplinary participation was organized in the MUH .
- Organization of two multidisciplinary seminars Lung Transplant Program in the USA (prof. Thomas Mahrer, LA), Manchester Triage System (prof. Susanne Rienmüller, Graz) in June.
- Within the International Day of Radiology was organized the open door day for children and parents at the paediatric section of the Department of Imaging Methods on 8th November.

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

Head physician: Prof. Milan Macek, MD, Ph.D.

Senior consultant: Marie Havlovicová, MD

Senior laboratory technician: Hana Stouhalová

Basic characteristics:

This department provides a wide range of preventive and diagnostic medical care in the field of medical and molecular genetics. It determines the diagnostics of selected congenital developmental disorders, hereditary tumours, neurodegenerative diseases in children and adults, including disorders of mental development in both prenatal and postnatal periods. At the same time the DBMG cooperates with other departments of

the Motol University Hospital in solving of the subsequent genetic issues (Department of Obstetrics and Gynaecology, Department of Paediatrics and other). The department solves projects in the field of biomedicine research, it participates in the undergraduate, postgraduate and specialising education of physicians and health care professionals and it cooperates with a number of foreign departments and international research consortia of the EU. It also solves a number of projects of the 7th Framework Program of the European Commission, the Operational Programme Prague - Competitiveness and Norway Grants (NG), Horizon 2020 in the field of medical genetics and genomics.

Within the DBMG was established the National Coordinating Centre for Rare Diseases in the MUH - Ministry of Health of the Czech Republic Bulletin no. 4/2012 from 28th May 2012 (NKCVO) and confirmed for another term in July 2015. Also, the Centre for Cystic Fibrosis, MUH (diagnostics and treatment of paediatric and adult patients with CF) in cooperation with the Department of Paediatrics – Ministry of Health of the Czech Republic Bulletin no. 4/2012 from 28th May 2012. Since 2011, the department is also a part of the significant national research centre- “National Centre for Medical Genomics”.

The DBMG successfully participated in a pilot study of international quality control (CEQAS) in the field of dysmorphology and monogenic diseases and we received a certificate of successful participation in international external quality control of next generation sequencing (NGS) for diagnostic purposes.

In 2015, the outpatient facilities of our department provided consultations for 10,182 to patients / 5,994 families. The laboratories of DBMG performed 328 prenatal and 5,184 postnatal molecular genetic testing, of which 41 (12.5%), respectively 632 (12%) showed positive findings. In 2015, a total of 331 (265 cultivations and 76 aCGH) prenatal cytogenetic and molecular cytogenetic examinations were conducted, of which 25 were tested positive (7.55%). A total of 1,371 postnatal short-term cultivations were conducted, of which 125 were positive. A number of other tests were carried out at the Centre of Assisted Reproduction - Centre of Reproductive Genetics (CRG).

Specialised outpatient facilities:

- Prenatal genetic consulting
- Neurogenetic consulting
- Genetic consulting for sensoric disorders and non-syndromic deafness
- Cardiogenic consulting
- Genetic consulting dealing with dysmorphology
- Genetic consulting for infertile and dysfertile couples
- Genetic consulting for mental retardation and autism
- Genetic consulting for thrombophilic conditions
- Genetic consulting for gastroenterology and hereditary pancreatitis
- Genetic consulting for cystic fibrosis – screening of CF in newborns in cooperation with the Centre for Cystic Fibrosis

New methods and procedures:

- We continue with an extension of the diagnostics of new microdeletion syndromes by the method of FISH and array CGH. A diagnostics without the need of cultivation of the cells is also being extended.
- We continuously put stress on the accuracy of the diagnostics of submicroscopic aberrations by array CGH method with the help of different types of oligonucleotide

chips eg. Illumina, Agilent, Oxford Gene Technologies, including the most accurate commercially available chips for arrayCGH - oligo 4x180K with locuses for testing of the loss of heterozygosity. We manage to reduce the time of examination in ideal case it is ready in up to two days after the removal of the material. Also a procedure for cases where the method can not reliably distinguish between benign and pathologic findings was developed.

- Since 2013, the method of oligoarray CGH is available also for prenatal diagnosis, not only out of cultivated, but also from the native (i.e. freshly collected) material.
- We extended the DNA diagnostic method of sequencing according to Sanger or by method of fragmentation analysis on more than 120 genes responsible for genetically determined syndromes with mental retardation / autistic spectrum disorders, ataxia, dystonia, muscular dystrophy, myopathy, growth disorders, osteochondrodysplasia, craniosynostosis, disorders of sex development, syndromes with tumour predisposition, organ and sensory disabilities, thrombophilia and numerous rare genetic syndromes.
- We perform testing for imprinting disorder syndromes PWS / AS and BWS / RSS.
- We investigate dozens of gene deletions / duplications or microdeletion syndromes using the method of MLPA.
- We have introduced and arranged the application of the NGS methods for diagnostics of the syndrome of hereditary breast and ovarian cancer, Lynch syndrome, cystic fibrosis, neurofibromatosis, RASopathies, Duchenne muscular dystrophy (all certified by CE IVD).
- We have successfully met the requirements of the external international interlaboratory quality control of molecular genetics laboratories for 14 different diagnoses, Sanger sequencing and next generation sequencing.
- New approaches for more accurate interpretation of the a priori mutation of unknown significance were introduced.
- In collaboration with the Vinohrady University Hospital and the General University Hospital in Prague a newborn screening for cystic fibrosis is conducted for the whole country.
- In the field of assisted reproduction is introduced in collaboration with the Department of Obstetrics and Gynaecology a cryopreservation of ovarian tissue for oncological patients prior to the treatment.
- The methods of Comet assay and Halosperm are stable and developed, we assume their verification for the usage in the clinical practice. The method of PCSI is being already routinely used.
- The cooperation with the Department of Urology, MUH with our department continues, the project of IVF cycles in patients after transverse spinal cord lesion, where the sperm were gained by the method of penile vibrostimulation, was successful. The results were presented at several international and national conferences.
- The cooperation with the Department of Pediatric Hematology and Oncology for the Pancare project continues.
- The verification of the latest screening method of 1T QUAD continues.
- Clinical use of NGS in cardiogenetics and dysmorfology;
- Use of 3D scanning of patients' faces for the digital phenotyping / phenotype in connection with the development of NGS methods, comparison of developmental changes in individual patients or groups of patients, assessment of pre- and

post-operative conditions in individuals and groups./ Around 1,000 patients have been scanned.

Unique technological equipment:

- Special software to evaluate fy MetaSystems karyotypes and FISH, special software for the evaluation of array CGH
- HYBEX - hybridization device not only for aCGH
- AM60000 Leica inverted microscope with a micromanipulator microscope equipped with Nikon TE2000 DIC
- Embryoscope incubators
- 2 new Nikon TE2000 inverted microscopes equipped with differential interference contrast
- InControl measuring device for accurate verification of cultivation conditions
- Maylor-Wharton Cryogenics, type K10 with a capacity of 10,000 doses
- Laminar box fy Faster, SafetyFast Classic, class II biohazard
- Increased comfort of Centre for Reproductive Genetics
- HiSeq 1500 fy Illumina for NGS
- MiSeq fy Illumina for NGS
- CBOT, Covaris S200 for NGS
- External analyzer of CO₂ concentration and temperature measurement

Important event in 2015:

- Prof. Milan Macek, MD organized in April 2015 in the Pyramida hotel a four-day international course of diagnostic next-generation sequencing „International Workshop NGS Course: next-generation sequencing in a diagnostic setting“ in collaboration with the EU project (3Gb-test.eu) from Leiden University (Netherlands) and with the support of the European project RD-Connect.eu.
- The Czech Society of Medical Genetics of the Czech Medical Association of J. E. Purkyně, the Department of Medical Genetics, Brno University Hospital and the Mendel Museum of Masaryk University in Brno, Mendel's reference: 150 years of genius of genetics (medical genetics from the time of Mendel's life to the present), BRNO – 24th to 26th September 2015 (NF-CZ11 -PDP-3-003-2014; the National Coordinating Centre for Rare Diseases at the MUH)
- In November 2015, Mgr. Jana Drábová, a post-graduate student at the DBMG, 2nd Faculty of Medicine, Charles University and MUH won the prize in the competition of the Society of Medical Genetics of the CzMA of J. E. Purkyně for the best publication of the year 2014. She is the main author of the publication „*A 15 Mb large paracentric chromosome 21 inversion identified in Czech population through a pair of flanking duplications*“.
- On 19th October 2015 visited the MUH the delegation led by Secretary of the Norwegian Government for the European Union and followed by the representatives of the Norwegian Embassy. The delegation appreciated all the activities of the DBMG that are implemented in cooperation with the Norwegian partners.

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

Head physician: Prof. Richard Průša, MD

Senior consultant: Jana Čepová, MD, MBA

Senior laboratory technician: Mgr. Martina Bunešová

Basic characteristics:

The department's laboratory provides over 220 different laboratory examinations. A daily average is about 2,000 biological samples, i. e. 616,723 examinations per month in a 24 hour three shift operation. A number of examinations (MTX, cyclosporine A, tacrolimus, sirolimus, lead, platinum, antimycotics, busulfan, IGF-1 etc.) is performed also for other health institutions. **A total number of performances in 2015 reached 7,400,674, which is, by 1% less than in 2014.** Other sections of the department are specialised in outpatients facilities focused on hyperlipoproteinemia, disorders of bone metabolism, nutrition disorders in terms of obesity and malnutrition. **In 2015, a total of 4,000 patients were treated at outpatient basis.**

Specialised outpatient facilities:

- Treatment of hyperlipoproteinemia
- Dealing with bone metabolism
- Nutrition issues

New methods and procedures:

- 2013 - Introduction of levetiracetam determination
- 2014 - Introduction of a highly sensitive determination of thyroglobulin TGL hs
- 2014 – Change in determination of IGF-1 and IGFBP3 (immunoradiometric method (IRMA) has been replaced by automated chemiluminescent (CLIA)
- 2014 – At the OUPD department, two new methods beta-hCG and D-dimer were added to the immunochemical analyzer AQT90
- 2015 - Introduction of eGFR (estimated glomerular filtration rate) calculation according to the CKD-EPI formula
- 2015 - Introduction of EAG (estimated average glucose) calculation
- 2015 - Transfer of MTX from TDx / FLx to Integra 400
- 2015 - Installation of Versa Cell feeder for automatic analyzers Advia 1800 – 2x
- 2015 - Examination of hemoglobin in faeces via sensitive quantitative immunochemical determination
- 2015 - Examination of 1,25-dihydroxyvitamin D (calcitriol) in serum using the chemiluminescent immunoassay
- 2015 - A new highly sensitive method for the determination of estradiol
- 2015 - Abolition of TPA examinations and replacement by CYFRA 21-1
- 2015 - A new highly sensitive method for the determination of troponin (hs-cTnI)

Unique technological equipment:

- Gas chromatograph
- Analyzer for measurement of chloride in sweat
- New blood gas analyzer Rapidlab 1245

- ABL 837 Flex Radiometer (1x neonatal intensive care unit - a reduction in blood volume necessary for the determination of neonatal bilirubin of 35 ul)
- ABL 825 Flex Radiometer (2x ARKD2 - Replacement Nova SP CCX)
- Liquid chromatograph Agilent 1260
- Exchange automated ADVIA 1800 new
- IQ 200 ELITE analyzer and iChem VELOCITY analyzer for analyzing urine
- ELISA microplate washer
- Reverse osmosis system
- Nicolet FTIR spectrometer IS 10 (cost of equipment with accessories 1 087 790,00 CZK)
- LIAISON XL analyzer, company DiaSorin
- Biochemical analyzer: Cobas Integra 400 Plus (Roche) - replacement for the old instruments of the same type of analyzer
- 2 devices ABL 800 Radiometer from company Radiometer for new Department of Anesthesiology and Resuscitation
- 2015 – automatic analyzer ADVIA 1800 – 2x
- 2015 - Analyzer OC Sensor IC for quantitative determination of hemoglobin in faeces
- 2015 - Semi-automatic analyzer Hydrasys for electrophoresis
- 2015 - A2O Advance Osmometer
- 2015 - SP pHox Ultra 3x
- 2015 - Immunochemical analyzer AQT90 FLEX for the Emergency Department
- 2015 - Installation of 67 professional hospital portable glucose meters StatStrip with full connectivity

Important event in 2015:

- Successful completion of conditions of the Audit II for registered expertise of 801 – The department of Clinical Biochemistry at the registry of clinical laboratories of The National Authorisation Body for clinical laboratories (NASKL);
- Specialised conference POCT and innovations in clinical laboratory in cooperation with the Czech Nurses Association, 23rd April 2015, Prague;
- Conference of the Department of Medical Chemistry and Clinical Biochemistry: 1,25 (OH) 2 vitamin D - calcitriol, 27th January 2015, Prague;
- Conference of the Department of Medical Chemistry and Clinical Biochemistry: Pathobiochemistry of metabolic pathways and laboratory diagnosis, 5th November 2015, Olomouc;
- Publications: 4 articles in a foreign magazine with IF Awards: 1st Prize of the Czech Society for Experimental and Clinical Pharmacology CzMA of J.E. Purkyně to the collective of authors for an article published in the Annals of Transplantation

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

Head physician: Prof. Jiřina Bartůňková, MD, MBA

Senior consultant: Prof. Anna Šedivá, MD

Senior laboratory technician: Bc. Anna Skalická

Basic characteristics:

The department of immunology provides full care for both paediatric and adult patients with immunopathological conditions including clinical and laboratory examinations as well as dispensary care. Besides the outpatient examination and treatment in the full extent of allergology and clinical immunology, the Department of Immunology provides also a regular therapy and infusion application of the indicated pharmaceuticals in serious immune disorders at the ward for both paediatric and adult patients. Since 2012, the department includes the Department of Immunology, the Vaccine Centre and the CSF laboratory. It serves as a basis for pre- and postgraduate education in immunology and is also concerned with research in the same discipline.

The outpatient facilities in 2015 examined 15,828 patients and the laboratories carried out 231,700 examinations of 33,008 patients, in the CSF laboratory other 18,378 examinations in 5,546 patients.

Specialised outpatient facilities for:

- Immunodeficiencies
- Allergies, autoinflammatory and autoimmune diseases
- Therapy of immunopathological conditions
- Specialized premises for the production of antitumourigenic vaccines and specialized outpatient clinic for their application in clinical studies
- Vaccination centre

Centres

- Centre for treatment of hardly treatable asthma (Omalizumab, a monoclonal antibody anti IgE)
- Centre for the treatment of hereditary angioedema (C1inhibitoru substitution, inhibition of bradykinin)

Specialized laboratory:

- CSF laboratory (in collaboration with the Clinical Department of Neurology)

New methods and procedures:

- Growth of diagnostic methods for severe immune disorders mainly in the testing methods of cellular immunity;
- Functional testing of parameters of innate immunity
- Intracellular examination of pro-inflammatory cytokines IL-1, IL-6
- Expansion of equipment in supervision of home application of subcutaneous immunoglobulin;
- Clinical studies of immune globulin preparations;

Unique technological equipment:

- Completely equipped laboratory for flow cytometry including the sorter
- Microscopic workplace including confocal microscope and scanning cytometer

Important event in 2015:

- Audit II. of The National Autorisation Body for clinical laboratories (NASKL) within the expertise of 813, the laboratory of allergy and immunology;
- Continuous development of an individual application of unregistered product DCVAC within the hospital exceptions for medicines of modern therapy §49b) and §49c) of the Act on Pharmaceuticals;
- Management of Immunodeficiency Centre within the global network of Centres of Jeffrey Modell Foundation, USA;
- Organisation of international summer school ESID (European Society for Immunodeficiencies) Eastern Spring School in Primary Immunodeficiencies in May 2015;
- Continuous development of FOCIS Centre (Federation of Clinical Immunology Societies);
- Solutions of the project Institutional Support in Motol University Hospital
- Solutions of the project “T cell therapy for prostate cancer” in the modern therapy scheme;
- Solution and in the end of the year 2015 also completion of 2 IGA grants;
- A total of 10 foreign publication with IF, 12 publications in Czech language, 2 chapters in a book;
- The prize of Josef Liška for the best original thesis in 2014, awarded by the Czech Society of Allergy and Clinical Immunology of the CzMA J. E. Purkyně.

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

Head physician: Ass. Prof. Pavel Dřevínek, MD, Ph.D..

Senior Consultant: Otakar Nyč, MD, Ph.D..

Senior laboratory technician: Bc. Vilma Klemensová

Basic characteristics:

The department carries out laboratory diagnostics of bacterial, viral, fungal and parasitic infections. It also provides consulting services in the ATB therapy, differential diagnosis of infections and infectious complications. It cooperates in monitoring of the incidence of nosocomial infection and monitors the abnormal profiles of ATB resistance. It is connected to the European system of surveillance of antibiotic resistance and European studies for monitoring of the incidence of infections caused by *Clostridium difficile*. Through representatives of the Central Coordination Group of the National Antibiotic Programme and the Subcommittee for Antibiotic Policy of the Czech Medical Chamber of J. E. Purkyně, the department is actively involved in the implementation of antibiotic policies in the country. **In 2015, the department reported a total of 92,143,043 points.**

New methods and procedures:

- Diagnostics (i) based on PCR: panel 16 respiratory viruses, panfungal PCR, micromycetes and candidates, pan-bacterial PCR, pertussis, originators of gastroenteritis in-

- cluding enterohaemorrhagic *E. coli* (ii) using immunochromatography: astroviruses
- Detection of virulence factors and resistance genes: (i) PCR: MRSA and PVL in *S. aureus*, (ii) MALDI-TOF: carbapenemase
- Molecular typing: *C. difficile* (for the needs of the Czech Republic), *P. aeruginosa* and complex *B. cepacia* (chronic infections in patients with cystic fibrosis)
- Demonstration of neutralizing of antibodies against pharmaceuticals of type beta-interferon for RS centres of the Czech Republic;
- Cooperation with the Department of Internal Medicine Motol University Hospital in introducing fecal transplantation in patients with recurrent colitis induced by *C.difficile*.

Unique technological equipment:

- Insulator of nucleic Acids for PCR Qiacube diagnostics
- Anaerobic boxes JOUAN and BENTLEY
- MALDI-TOF: mass spectrometry equipment for quick and highly reliable identification of bacteria and fungi.
- PCR cycler with high resolution melting analysis
- System for the extraction of bacterial and fungal DNA (NA Select)
- BD MAX fully automated system designed to molecular diagnosis of a broad spectrum of infectious originators

Important event in 2015:

- Active participation of employees of the Department of Medical Microbiology in international conferences in 2015: ECCMID Copenhagen; TIMM Lisboa; EHA Lisboa, Annual Meeting of the European Society for Blood and Marrow Transplantation, Istanbul; 15th International CMV/Betaherpesvirus Workshop, Brisbane; 18th Annual Meeting ESCV, Edinburg; 9th Annual HHV-6 & 7 Conference, Boston; ECFC Brusel, NACFC Phoenix
- Co-organization of interdisciplinary conference „Clostridial Day“ in the National Institute of Public Health, Prague
- Publication activity: 21 international scientific articles, 3 home impacted publications, 3 articles in Czech peer-reviewed journals, 2 chapters in Czech memoir.
- Organization of the 4th national meeting about the issues of cystic fibrosis RECYF
- Ass. Prof. Pavel Dřevínek, MD, Ph.D: lecturer in international schools European Cystic Fibrosis Society School (ECFS) in Brussels, CF School in St. Petersburg, CF School at the European Respiratory Society in Prague.

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

Head physician: Prof. Roman Kodet, MD

Senior consultant: Daniela Kodetová, MD

Senior laboratory technician: Vladimíra Kratinová

Basic characteristics:

The department is concerned with the diagnostics of various types of diseases. It uses methods of classical histology and cytology with other subsequent special laboratory methods. **In 2015, the department examined 28,284 patients, including 466,508 histological and cytological preparations. In the laboratory of molecular pathology, a total of 26,501 examinations in 2,565 patients were conducted by flow cytometry, PCR, FISH and predictive IHC.** The department is both undergraduate and postgraduate teaching workplace. The autopsy section of the department has educational and supervisory functions in the frame of the whole hospital.

Specialised laboratories for:

- Electrone microscopy
- Immunohistochemistry
- Diagnostics of neuromuscular diseases
- Flow cytometry
- In situ hybridisation
- DNA and RNA analysis
- Cytology
- Biopsy
- Necropsy
- Pulmonary cytology

New methods and procedures:

- We introduced diagnostics of lung carcinomas via the method of PCR mutations in the EGFR gene and breaks in the ALK gene, ROS1 and c-MET. The newly introduced liquid biopsies for an examination of peripheral blood on the presence of mutations in the EGFR gene (circulating tumour DNA, circulating tumour cells).
- During the year, we have continuously implemented new immunohistochemical methods for tumour diagnostics.
- Implementation of new coloring techniques within the biopsy lab;
- Implementation of the methodology for next generation sequencing (NGS).

Unique technological equipment:

- Cyclery for real-time PCR
- MiSeq device for methodology for "Next Generation Sequencing" panel TruSight Tumour - detecting changes in 26 genes
- Eight capillary genetic analyzer

Important event in 2015:

- Project of institutional support for the Ministry of Health of the Czech Republic

continues in 2015 at a good level, the total IF for year 2015 was 57.

- *Publication:* Kalinová M., a spolupracovníci: The use of formalin-fixed paraffin embedded lymph node samples for detection of minimal residual disease in mantle cell lymphoma. Br. J. Haematol. 2015 Oct 14. doi: 10.1111/bjh.13182, IF 4,959.

Department of Clinical Haematology of Motol University Hospital

Senior consultant: Ivana Hochová, MD

Senior laboratory technician: Blanka Hájková

Basic characteristics:

The department provides enhanced hemato-oncological care according to the criteria Czech Society of Haematology of the Czech Medical Chamber of J. E. Purkyně. The department is divided into two parts, laboratory and clinical part.

The laboratory performs routine and special haematologic examinations for the Motol University Hospital with supra-regional powers.

In 2015, the laboratory conducted 666,300 performances. The laboratory is the reference laboratory for the diagnostics of acute paediatric myeloid leukaemia and myeloproliferative conditions in children. In adult haematology, the attention is focused on its morphological diagnosis of myelodysplastic syndrome.

The clinical part of the department includes an outpatient section for paediatric and adult part. A part of the adult outpatient centre is a day care centre serving for the application of blood preparations and chemotherapy. **A total of 11,697 patients were examined in 2015 at the outpatient basis.**

New methods and procedures:

- Procedures for functional analysis of platelets
- Introduction to the methodology of the evaluation of new antithrombotic pharmaceuticals
- More accurate and faster diagnostics of Willebrand's disease
- Morphological laboratory of the department participates in the International Study of the treatment of paediatric acute lymphoid leukemias Protocol – Interim ALL- BFM 2000
- The department of OKH participates in the project of the European register of patients with myelodysplastic syndrome (EUMDS), which is organized by European LeukemiaNet in cooperation with the European Association of Hematology.
- The department is actively involved in activities of CZECH MDS GROUP and twice a year it organizes nationwide morphology seminars.
- An international study is under way at the department - Open-label, randomized, parallel-group, active controlled, multi-centre, non-inferiority study of dabigatran etexilate versus standard of care for treatment versus thromboembolism in children from birth to less than 18 years of age: The DIVERSITY study Clinical Phase IIb / III.

Unique technological equipment:

- Coagulometer (ACL) for the examination of special coagulation tests
- Device for platelet function analysis (Innovance PFA 200)
- Hematologic line Sysmex XE-Alpha N, Sysmex XE - 1000

- Microscope (Olympus, Leica) with camera equipment

Important event in 2015

- The department further develops Internet application of morphological atlas - "Atlas of myelodysplastic syndrome" on the MDS CZECH GROUP web page.

Department of Clinical Psychology of Motol University Hospital

Head physician: Mgr. Zuzana Kocábová

Basic characteristics:

The department employs 30 clinical psychologists who work in the paediatric as well as adult section and provide preventive, diagnostic, psychotherapeutic and rehabilitation care for in- and outpatient patients and their families. In 2015, the department treated 3,659 patients (that is a 5 % increase compared to the year 2014). The department is accredited by the Czech Ministry of Health and it provides theoretic-practical as well as practical issues of pre-attestation stage in the field of Clinical Psychology and Paediatric Clinical Psychology.

New methods and procedures:

- The reorganisation of work time of employees let to an increase in the availability of psychological care for patients from Cystic fibrosis Centre, Spinal Unit and Department of Paediatrics and also counselling and psychological care for employees of Motol University Hospital.
- Long-term research project of the quality of life of patients with chronic malignant and non-malignant pain in cooperation with the Department of Pain Research and Treatment and other workplaces continues.
- Ongoing research on the psychological problems of epilepsy in cooperation with the Centre for epilepsy and psychological problems of research on neurodegenerative diseases in collaboration with Cognitive Neurology Clinic Centre.
- Ongoing research on early markers of bipolar disorder supported by the IGA in cooperation with the Department of Paediatric Psychology.
- In cooperation with the Centre for Comprehensive Care in Children with Congenital Defect, we are involved in a project focused on multidisciplinary care for premature infants supported by the Norwegian funds.

Important event in 2015:

- The department organized 10 specialised seminars with the participation of Czech as well as foreign lecturers.
- Employees actively participated in lectures at national and international congresses, they published in scientific journals and contributed to the authorship of scholarly books.

Blood Bank Department of Motol University Hospital

Senior consultant: Eva Linhartová, MD

Senior laboratory technician: Mgr. Martin Matějček

Basic characteristics:

The Blood Bank Department is one of the CITD at the Motol University Hospital. It provides purchasing, storing and expedition of all types of transfusion preparations for patients of MUH. **In 2015 there was dispatched a total of 36,233 T.U. of all types of transfusion preparations**, of which 21,046 T.U. were erythrocytic preparations, 11,759 T.U. plasma, 3,428 T.U. thrombocytic preparations and 91 T.U. granulocytic TP. The consumption of blood preparations remained the same for all types of preparations, except for plasma, which fell against dispensing in 2014.

The Blood Bank Department carries out basic and special immunohaematological examinations according to the requirements of clinics and departments, prenatal examinations for pregnancy counselling for the Department of Obstetrics and Gynaecology and if needed, it procures transfusion preparations for the intrauterine and replaceable transfusion. **In 2015 were carried out following numbers basic pretransfusion examinations: 9,533 blood group tests, 20,471 antibody screenings and 40,896 compatibility tests.** The number of specialized immunohematological examinations raised compared to 2014 to 1,254. There are no major changes in prenatal examinations. The number of irradiations of blood transfusion preparations was almost the same as in the year 2014 - 9,532 irradiations. In the field of autologous donations, the donations of autologous whole blood are performed mainly for orthopaedic patients of Motol University Hospital, Department of Urology, Charles University, 2nd Faculty of Medicine and Motol University Hospital, but also for patients of Hospital Na Homolce. In 2015, a total of 369 autologous donations and 17 leukapheresis were carried out.

The department provides teaching within the 2nd Faculty of Medicine including pre-and post-graduate education in the field of transfusiology for physicians and other employees.

Department specifics:

- Laboratory section
- Stretch apheresis and autologous donations
- Irradiator for the irradiation of blood preparations

New methods and procedures:

- Examination via automatic analyzer is being routinely used

Unique technological equipment:

- Automatic analyzer Erytra

Important event in 2015:

- Separation (leukocytapheresis) in patients involved in clinical studies
- Launching of preparations for the separation of peripheral blood stem cells

Department of Rheumatology of Motol University Hospital

Head physician: Rudolf Horváth, MD, Ph.D..

Ward nurse: Indira Jankovičová

Basic characteristics:

The Department of Rheumatology provides complex diagnostics, treatment and dispensarisation of paediatric and adult patients with inflammatory rheumatic diseases with a focus on juvenile idiopathic arthritis, rheumatoid arthritis, ankylosing spondylitis and other seronegative spondyloarthritis, further it is psoriatic arthritis, systemic connective tissue diseases and primary vasculitis. The department is actively involved in consulting activity within the MUH and it provides also advisory for other Prague hospitals and workplace outside Prague. During the year 2015, a merger of all rheumatological clinics within the MUH took place and this one centralized department is the result, followed by an increase in the number of personnel and space capacity of the department. **In 2015, a total of 3,504 outpatient examinations were performed, 1,199 minimal contacts, 1,189 telephone consultations. A total of 130 consulting examinations were performed at the inpatient clinics of the MUH.**

Specialised outpatient facilities for:

- Adult rheumatology
- Paediatric rheumatology
- Musculoskeletal ultrasonography
- Centre of biologic therapies in rheumatologic indications for children and adults

New methods and procedures:

- Extension of portfolio of biological medication by biosimilar infliximab in patients with rheumatoid arthritis.
- Introduction of the „bedside“ diagnostics and dynamic monitoring of the activity of inflammatory rheumatic diseases using a musculoskeletal ultrasonography. Newly, there are performed the ultrasound-guided punctures of joints and soft tissues of the locomotor apparatus.
- Currently, the department is involved in a long-term project - study P10-26 with the goal of verifying the safety and efficiency of adalimumab medication in patients with active juvenile idiopathic arthritis of polyarticular type. The clinical evaluation of BASE - treatment of patients with systemic lupus erythematosus belimumab – continues at the department. The clinical evaluation of M12-963 was launched with a study of bispecific monoclonal antibody ABT-122 in patients with rheumatoid arthritis.

Unique technological equipment:

- Two ultrasonic devices (Esaote Mylab Class C, Esaote Mylab Seven) equipped with high-frequency probes
- Capillaroscope for investigation of pathology in patients with SSc, SLE, MCTD and systemic autoimmune diseases.

Important event in 2015:

- The data of the first and then following lines of treatment of TNF α blockers in the Czech Republic were actively presented at Třeboň Rheumatology Days and Czech-Slovak Rheumatological Congress.
- The department actively participates in the presentation of the ATTRA registry in the Czech Republic at the EULAR and ACR international congresses.

Department of Central Operating Theatres for Children of Motol University Hospital

Head nurse: Drahomíra Fryčová

The physician responsible for the supervision: Vladimír Mixa, MD, Ph.D., KARIM

Basic characteristics:

In addition to the cardiac surgery, the Department of Central Operating Theatres for Paediatric Patients concentrates all surgical interventions of all surgical as well as non-surgical disciplines from the paediatric departments of the hospital in the field of ophthalmology, stomatosurgery, orthopedics and ENT, it ensures also surgeries of adult patients. **A total number of performed surgeries in 2015 was 7,332.**

New methods and procedures:

- In conformity with the Act. 123/2000 Coll, the department continues to perform detailed documentation of all devices used in the operations of medical records of patients, including documentation of sterile material and tools. Orders for sterilization of containers and other material are sent from all workplaces surgeries only in electronic form.
- In the field of neurosurgery, the process of implementation of in-depth electrodes into the brain for invasive monitoring of stereoencefalography and intraoperative neuromonitoring continue.
- In the field of paediatric surgery, a total of 2,189 interventions were performed. Laparoscopic examinations of achalasia in children are performed in the cooperation with the 3rd Department of Surgery, 1st Faculty of Medicine, Charles University and MUH. Within the surgical programs, a total of 2,189 surgeries were performed within the field of plastic surgery.
- In the field of orthopaedics and traumatology, an application of V.A.C. (Vacuum Assisted Closure) was introduced. A total of 1,165 surgeries in children and 164 surgeries in adults were conducted within the field of plastic surgery.
- In the paediatric ENT field are since 2014 conducted following procedures: bilateral cochlear implantations, treatment of Choan atresia via BD stent and continues the program of early clefts surgeries in newborns.
- In the field of ophthalmology, a method of platinum eye-cap implant is being applied.

Unique technological equipment:

- Neuronavigation, devices for mini-invasive laparoscopic, arthroscopic and endoscopic techniques, ultrasonic crusher and tumour masses extractor, harmonic scalpel, surgical microscopes, special ultrasonic crusher and extractor of lens materials for

ophthalmology.

Important event in 2015:

- Organization of a training event in the form of live transmission of surgery to the lecture hall including the audio signal from a camera placed in the operating lamp – Dr. Mushtaq (United Kingdom) - bladder augmentation via intestine.

Department of Central Operating Theatres for Adults of Motol University Hospital

Head nurse: Mgr. Vladana Roušalová

The physician responsible for the supervision: Petr Příklad, MD, KARIM

Basic characteristics:

The department provides a background for 9 of 11 surgical departments of the adult part of Motol University Hospital; it ensures about two thirds of the surgical performances. **In 2015, a total of 18,786 surgeries were performed.** The department also organizes further study of nurses in the specialisation of perioperative care. Since 2013, the COS-adult head nurse leads the department. As the supervising institution regarding the operation of COS-adult from the medical point of view was entrusted the Department of Anesthesiology and Intensive Care Medicine (KARIM).

New methods and procedures:

- Negotiations about the introduction of a computerized management system in the operating rooms continue.

Important event in 2015:

- 5 other operating rooms received new lights.
- Mgr. J. Wichsová defended her dissertation thesis entitled “Ethical problems in peri-operative care and their impact on patient’s safety” and received a title of Ph.D..
- Mgr. J. Wichsová was appointed the vice-president of EORNA (European Operating Room Nurses Association) as a result of negotiations of the EORNA Congress in Rome
- Bc. Kamila Štěrbová received a master’s degree
- 5 operating room nurses completed their post-high school education
- We participated in organization of the conference section for perioperative nurses of the Czech Association of Nurses “Safe operating room” which took place at the MUH on 23rd October 2015.

Department of Transplantation and Tissue Bank of Motol University Hospital

Head physician: Jan Burkert, MD, Ph.D.

Basic characteristics:

The Department of Transplantation and Tissue Bank (OTTB) as the only workplace in the Czech Republic ensures at the same time the program of organ procurement and transplantation (TC) as well as donations and tissue transplantations (TZ).

Department specifics:

The OTTB - TC creates the organizational prerequisites for individual workplaces so that removals of organs and tissues, kidney transplantations in children, heart transplantations in children and lung transplantations can be performed at the Motol University Hospital. The department runs specialized tissue bank (STB 85) with a nationwide operation. **In 2015, one multi-organ collection, but which was not transplantable, was realised.** At the department were performed **a total of 9 kidney transplantations in children, 34 lung transplantations (of which 30 transplantation were within ECMO) and 1 heart transplantation in a child.** Into the cardiovascular tissue bank, **a total of 48 hearts were brought and a total of 94 grafts for transplantation of heart valves were given out.**

Important event in 2015:

- The transplant team led by prof. Lischke further developed the experimental method of “ex-vivo lung perfusion” (EVPP).
- We managed to significantly reduce the number of children on the waiting list for kidney transplantation.

OUTPATIENT SECTION

Emergency Department and First Aid for Children of Motol University Hospital

Head physician: Marie Mikulecká, MD

Head nurse: Zdena Čechová

Basic characteristics:

The department provides basic examination and treatment of acute conditions of children from birth until 19th year of life. The department treats patients who are sent to a general practitioner or for specialised examination or patients who seek medical help because of sudden deterioration of their health condition. The Emergency Department for Children runs paediatric, surgical, ENT, orthopaedic, stomatosurgical, neurological and ophthalmological outpatient facilities. These outpatient centres are open during emergency hours, within the morning shift are open paediatric outpatient centre and urgent reception for children that are brought in by ambulance. During the morning shift, also a centre for foreigners is in service.

At the Emergency Department for Children, a total of 18,153 paediatric examinations were performed in 2015 within the first aid services and a total of 22,001 examinations were performed by the other medical fields at the urgent reception. The paediatric examinations and receptions during the morning shift and foreign outpatient centre reached together 15,214 examinations. The department performed together in 2015 a total of 55,368 examinations.

Department of Dermatovenerology of Motol University Hospital

Head physician: Alena Machovcová, MD, MBA

Head nurse: Bc. Helena Janoušková

Basic characteristics:

This is an outpatient department with no connection to the inpatient department of Motol University Hospital. The department provides basic and specialised outpatient and consulting care in the field of dermatovenerology focused on dermato-allergology and profession-related skin diseases, prevention and treatment of skin cancer and treatment of psoriasis. **In the year 2015, a total of 7,690 patients were treated on an outpatient basis and 22,466 treatments were performed.**

Specialised outpatient facilities for:

- Venereology
- Pigmentary nevi and skin tumours
- Dermatoallergology and professional dermatoses
- Corrective dermatology
- Lymphology
- Acne advisory centre
- Care after organ transplantation
- Lamphology
- Phototherapy
- Nail advisory centre
- Diagnostics and treatment of nail disorders
- Centre for biological treatment of psoriasis

New methods and procedures:

- Examination of pigmented lesions by digital dermoscope;
- Examination of skin perfusion apparatus;
- Laser procedures in aesthetic and corrective dermatology;
- The operating procedures on the nails (eg. Ingrown nails, deformation of discs).

Unique technological equipment:

- Digital dermatoscope I MoleMax plus
- Digital video capillaroscopy PeriScan PIM II
- High power laser Fotona XS Erb: YAG and Nd: YAG.

Department of Dermatology for Children of Motol University Hospital

Head physician: Štěpánka Čapková, MD

Head nurse: Alena Kurešová

Basic characteristics:

The department treats patients in the field of paediatric dermatology and it provides consulting services to all paediatric inpatient sections of the hospital as well as superconsiliary services for the whole Czech Republic. The physicians perform specialized consultancy for extremely serious patients with atopic dermatitis, pigmented moles, genodermatosis and hemangiomas. **In 2015, a total of 8,018 patients aged 0-19 years were treated at the department and 397 consultations within the inpatient sections and paediatric departments of children's hospital were performed.** The department

provides pregraduate and postgraduate teaching in the field of paediatric dermatology.

Important event in 2015:

Head physician Čapková, MD co-organised The Conference of Paediatric Dermatology with international participation in Brno, she also gave there lectures.

Head physician Čapková, MD organised a training course Paediatrics - Paediatric Dermatology for the Czech Medical Chamber. She was the coordinator of the course, the garant and also the principal lecturer (together with Čadová, MD).

Publications:

Čapková Š.: 2 chapters in the monograph: Ass. Prof. Antonín Pařízek, MD *The book about pregnancy, child birth and child care*, 5th revised edition, Galen 2015;

Čadová J: *Nail disease, which are solved by paediatrician and which by dermatologist?* Paediatrics in Practice 1/2015;

Lectures:

Head physician Čapková, MD gave lectures as an “invited speaker” at the 1st National Congress of Rare Skin Diseases, at the XI. Congress of Czech and Slovak Dermatovenerologists, at the Conference of Pediatric Dermatology, at the Congress Pediatrics for Practice and at the VIII. St. Nicholas Conference in Podještědí.

Jana Čadová, MD gave lectures within training courses of the Czech Medical Chamber - Paediatric Dermatology, at a seminar in Mlada Boleslav and at the Kolinsky day of drug allergies in Kutná Hora.

Emergency Department for Adults of Motol University Hospital

Head physician: Jiří Šoupal, MD

Head nurse: Bc. Renáta Všečekková

Basic characteristics:

The emergency department is focused on basic adult examination, stabilization of vital functions, treatment of acute problems and the decision of reception or release in all patients who seek this department.

The department treats about 250 patients a day, each year the total number reaches more than 90,000 treated patients. The department includes an urgent reception, equipped with 17 monitored beds, acute outpatient surgery, traumatology, neurology, urology and first-aid services.

New methods and procedures:

- The department is equipped with modern POCT laboratory devices enabling blood analysis within couple of minutes / couple of dozens of minutes.
- From summer till December of 2015, the department succeeded in reducing the average duration of treatment at the inpatient section from 200 minutes to 80 minutes.
- Since December 2015, a new trauma-team has been established. Also the established system of care has been changed so that all the care of acute trauma-patients is now conducted within the Emergency Department for Adults Department with the help of the Department of Anesthesiology and Intensive Care Medicine

(KARIM), surgery, traumatology and emergency physicians.

Unique technological equipment:

- New CT, ultrasound device and new beds and monitors, ventilators along two beds

Important event in 2015:

- In the spring of 2015, a new bigger Emergency Department for Adults was the opened and it enabled to almost double the number of treated patients.

Department of Primary Care of Motol University Hospital

Head physician: Jaroslava Kulhánková, MD

Head nurse: Mgr. Alena Kašajová

Basic characteristics:

The department provides both acute and long-term preventive care for the employees, patients registered under capitation from other hospitals, foreigners insured as well without health insurance with the Czech insurance companies and over-standard care for with Czech insurance. The department is an undergraduate and postgraduate educational workplace; it is accredited in the field of General medicine.

In 2015, a total of 25,384 patients were treated at the Department of Primary Care.

Department of Hygiene and Epidemiology of Motol University Hospital

Head physician – epidemiologist: Vilma Benešová, MD

Senior hygiene technician: Mgr. Jana Hrončková

Basic characteristics:

A priority activity of the department in the year 2015 was control and prevention of infections associated with healthcare, implementation of measures to reduce their occurrence and their dissemination, monitoring their performance and efficiency, monitoring of infection in the local surveillance, supervision of treating community infections and Compliance protection of public health in the process of health care delivery.

Specifics of the department:

The results of monitoring of infections associated with health care (HealthCare Associated Infections - HAI) shows 2.33% of incidence of reported infections. The monitoring of the incidence of infections associated with health care is the simplest way of surveillance in hospital conditions, but not the most accurate one. In 2015, also a method of prevalence, which makes the data from the process of monitoring comparable at European level was used. The study Point Prevalence Survey of Healthcare-Associated Infections (PPS of HAI), a version suitable for the Czech Republic was conducted, it took place in November and December 2015. This study will be subsequently followed by PPS of HAI in European Acute Care Hospitals in 2017. The prevalence of HAI is, after preliminary processing of the results, about 10% and that corresponds to the published data on the prevalence of HAI in the world.

In 2015, a total of 216 MRSA seizures were recorded, of both colonizations and clinical infections what corresponds to 2.56 cases per 1 000 patients. A total of 308 internal hygienic

audits of the hospital's departments and 262 inspections of sterilization techniques were conducted. The institutions of public health authorities conducted inspections on an ongoing basis at selected sites with the help of employees of the hospital. A total of 701 monitoring handprints for microbiological examinations and a total of 3,586 cultivations in order to control bacterial cleanliness of the environment were performed. Special attention was paid not only to important epidemiologically inclining workplaces, but also to so called clean spaces, where was the environment monitored regularly by aeroscopic methods in terms of the requirements for levels of cleanliness – a total of 101 comprehensive measurements (microorganisms and micro-particles in the air of the clean spaces) and a total of 335 individual aeroscopic measurements (monitoring of the occurrence of microorganisms in the air of clean spaces) were performed. As a part of the usual hygienic supervision, inspections of warm drinking and non-drinking water (252 samples), modified water for dialysis, pool water and water for rehabilitation purposes was investigated and also tested via the detection of Legionella. A total of 1,042 examinations of diagnosed infections in hospitalized patients were performed. The institutions of public health authorities were reported 857 community infections and given 181 extracts from the documentation for the subsequent investigation of the infections. A total of 424 disinfection of the hospital space were performed by the state disinfector.

New methods and procedures:

- Participation in the study OMV PIVEC Griffith University focused on peripheral venous access;
- Implementing of the Observer application in order to monitor the compliances of hand hygiene;
- Developing and implementation of software for internal administration and data storage;
- Hygiene supervisors became a part of inspections of the hospital's departments;
- Launching of regular monitoring of water from the systems for heating and cooling in the operating room of the Paediatric Cardiology.

Important events in 2015:

Lecture activity conducted regularly during the whole year for 4th year students of the 2nd Faculty of Medicine, Charles University, Aesculap Academy, internal seminars for individual departments, the events of the Czech Medical Chamber and the WHO program for an improvement in compliance of the hand hygiene, including the organization of the World Day of Hand Hygiene.

Pharmacy of Motol University Hospital

Head pharmacist: PharmDr. Petr Horák

Deputy: Mgr. Milan Vegerbauer a PharmDr. Adéla Nováková

Head pharmaceutical assistant: Jaromíra Mariašová

Basic characteristics:

The main task of the Pharmacy of Motol University Hospital is to provide effective and safe drugs for in- and out-patient clients and the general set-up and control of all steps in dealing with drugs that have an impact on the safety of patients and the results of their

treatment. The hospital pharmacy provides next to dispensation of the pharmaceuticals also individual and collective preparation of medicines, and sterile (from cytotoxic agents, parenteral medicinal products without antimicrobial agents and others) and nonsterile (individual preparations, especially for paediatric patients) acquisition of unregistered medicines and providing medicines for clinical evaluations.

The pharmacy provides consulting services to patients and healthcare professionals, and educational activities incl. securing internships for undergraduate and postgraduate students.

The hospital pharmacy is involved in formulating of the medication policy of Motol University Hospital - establishment of a positive list of medicines, ensuring the most cost-effective medicines etc. It also forms the internal regulations of Motol University Hospital in handling the pharmaceuticals.

In 2015 was prepared in the hospital Pharmacy - at the Department of Central Preparation of Cytostatics a total of 31,000 ready-to-use doses of cytotoxic pharmaceuticals, of which about a third was prepared for paediatric patients. The Department of Individual Preparation of the Pharmaceuticals prepared among others nearly 300,000 capsules. The pharmacy prepares and distributes parenteral nutrition for 30 outpatient (home cared) patients, including individual dietary nutrition that was prepared by the Department of Sterile Pharmaceuticals for eleven patients. At the Department of Sterile Pharmaceuticals were performed 9,181 individual preparations (hydration bags, 13.2%, cardioplegia solutions 9.8% and parenteral nutrition 77%). In addition, it prepares a range of products unavailable in the form of mass produced pharmaceuticals in inventories (antidotes etc.). The hospital received a total of 950,734 packs of mass produced pharmaceuticals prescribed to 47,631 request forms (vehicula and large-scale infusion medications are not included). A total of 6,628 orders for laboratory diagnostics were handled. A total of 551,803 packs of pharmaceuticals prescribed by physicians on 222,975 prescriptions were distributed to public. A total of 386,710 units of medication without a prescription was issued within 177,112 orders. Overall, the hospital Pharmacy issued in 2015 a total of 3,332,062 units of medicines and 6,903 pieces of medical supplements and diagnostic drugs.

In accordance with the principles of good clinical practice and correct laboratory practices, the pharmacy participates in all clinical evaluation of pharmaceuticals conducted within the Motol University Hospital.

New methods and procedures:

- The reconstructed Department of Sterile Pharmaceuticals enables preparations of the medication, especially the preparation of sterile parenterals and other sterile medication without antimicrobial ingredients in modern conditions
- The Department of Clinical Pharmacy - gradually expanding clinical-pharmaceutical service at selected departments of the MUH.
- New forms of selected pharmaceuticals, for example Omeprazole

Important events in 2015:

- Development of new stable oral solutions with sotalol and their publication in a journal with IF;
- PharmDr. Horák was elected the chairman of the Section of Hospital Pharmacists of the Czech Pharmaceutical Society of the Czech Medical Chamber and his re-election for the position of Director of Finances and the European Survey Chairman

within the committee of the European Association of Hospital Pharmacists (EAHP). PharmDr. Horák is also a member of management of the committee for the project Common Training Framework aiming at improvement of the conditions to pave the way for a “European” specialization in hospital pharmacy.

- Active participation of employees of the Pharmacy in national and international events, such as EAHP Academy Seminar, Congress of Hospital Pharmacists and others.



NURSING CARE

In 2015 nursing care was deployed alongside with the healthcare development. When providing nursing care we focused on improving quality and safety of our patients. The integral part was also the support of a team cooperation of all our non-medical professionals through training in communication and management.

During April and May, Motol University Hospital took part in the global prevalence study called One Million Global /OMG/ as the only hospital in the Czech Republic. The objective of the study was to map the deployment and usage of peripheral venous cannulas and evaluate their management internationally. (The study involved more than 50 countries worldwide) The results of care for venous cannula and the position of our hospital on a worldwide scale in this field will have been disclosed at the 4th World Congress WoCoVa 2016. Part of our services that we are dealing with continuously is the issue of the treatment of vascular inputs. In 2015 we continuously developed the activity of the Peripherally Inserted Central Catheter Team/PICC Team/ on behalf of our Department of Internal Medicine. PICC nursing team provides implementation and maintenance of PICC and midline catheters for hospitalized and ambulatory patients throughout the University hospital. The amount of inputs is increasing every year.

Monitoring of indicators of nursing care/bedsores and falls/ is already a commonplace. Emphasis is placed on preventive measures. Occurrence of bedsores and falls was in downward trend during the years 2012 – 2015. Motol University Hospital for the second time has joined the international day of “Stop Bedsores” which was announced on 19th November 2015. The aim of organizing this event was to bring near the issues of prevention and treatment of bedsores to the general public through leaflets, video and educational posters at the area of the Hospital.

In 2015 we continued to improve organizational culture and increasing the professionalism of paramedical staff. In educational area of communication and management we went on using the method of neural networks. Based on the sociometric measurements the interactive seminars were organized.

Social Care

The number of patients who needed our social care has increased in comparison with the year 2014. Social workers provided care for 3,161 patients at acute care beds. At the Department of Subsequent Intensive Care, a total of 1,387 patients were treated. Social Department participated in a multidisciplinary conference for paramedical staff focusing on caring for geriatric patients, which was held 20th November, 2015.

Spiritual Care

Both patients with their relatives and hospital staff are more interested in spiritual care. In 2015, 4,820 hospital clients were provided with spiritual care via hospital chaplains. Fulfilling of spiritual needs is a natural part of a holistic view of a man in nursing care and contributes to its improvement.

Volunteer Center

In 2015 there were 340 hospital volunteers, out of whom 66 who attended on a weekly basis and 274 who helped irregularly. Volunteers make the stay in the hospital more pleasant for adult and pediatric patients. The courses that are very popular are lead by our volunteers such as: beadwork, music and drama, animal assisted therapy, art, drama, memory training and many others.

Central Sterilization

Central Sterilization is our specialized enclosed department that provides pre-preparation and sterilization of medical devices for the entire hospital. This department provides steam sterilization, plasma and chemical sterilization. During the year 2015 there have been sterilized 105,300 sterilization units / sterilization unit is a container / basket with dimensions of 30x30x60 cm.

Healthy Hospital

University Hospital Motol is a member of the international network of hospitals in the WHO project "Hospitals Promoting Health" since 2003. Medics in accordance with the project are using their social prestige to spread the general public health policy and provide educational services to patients. Completed projects can offer new experience to employees that they can use in their working life/hiking, running course, exercise, fitness, former smokers are unstoppable.

HOSPITAL OMBUDSMAN

Hospital ombudsman has been operating in Motol University Hospital since January 2012. A year after the department changed its name to **Department of the Hospital Ombudsman and Complaints**. The main objective of this department is to protect patient's rights, improving communication between patients, their relatives and hospital staff, improving the quality of health services and patient satisfaction. The hospital ombudsman handles requests, suggestions, and other submissions directed against the procedures of Motol University Hospital in the provision of healthcare services or for activities associated with the provision of healthcare services.

For the period of 2015 the department was solving a total of **390 submissions**. Furthermore **406 non-written submissions** were examined and solved. From the total amount of **390 submissions** there were **344 complaints**. Compared to the year 2015, this situation represents an increase of **96 submissions**, respectively about **123 complaints**. The majority of **complaints were assessed as unjustified complaints, partly justified complaints 30**, (decrease compared to 2015 by 2 complaints), and **authorized complaints 25** (increase in **11 complaints**). In case of justified or partly justified complaints the corrective measure in the form of education employees were chosen.

The most frequent submitters were patients (**145 submissions**), a person close to the patient (**114 submissions**) and the legal guardian of a minor patient (**90 submissions**). The most frequent subject of the submissions was an inappropriate communication (**announced in 154 cases**) and the provision of health services (**111 submissions**). Against healthcare departments there were in total **330 submissions**, against non-medical department there were **50 submissions** in total. In **75 cases**, the complaints were directed against a specific person.

The legitimate submissions are always dealt by the management of the individual departments. In some cases, in order to successfully resolve the submission is the implementation of an oral hearing that is procured from the written record. In the case of justified or partly justified complaints, the corrective measures are determined. The department maintained in accordance with applicable legislative requirements detailed records of complaints and other proposals. The outputs of the department are regularly presented at the meetings of leading hospital staff, alongside with the proposals to adopt the necessary measures.

A separate department of the hospital ombudsman handles complaints and requests under the law of the free access to information. For the past period, a total of **11 requests** for information were dealt out of which **1 request** was rejected. Every year in connection with this agenda an annual report is prepared and published. A separate Department of the Hospital Ombudsman and Complaints disposes with a detailed evidence of dealt complaints and other submissions according to individual criteria in accordance with required applicable legislation.

SCIENTIFIC RESEARCH ACTIVITIES

The Motol University Hospital (MUH) has constantly and for the long time supported the research activities that permeate the entire spectrum of disciplines represented. In this activity employs close links with the 2nd Faculty of Medicine and co-operation with other research organizations in the Czech Republic and abroad. In accordance with the new trends in applying the results of scientific research supports the Motol Hospital innovation and implementation of research results into practice.

Support for science, research and innovation in the Motol University Hospital is realized by combined institutional financing and assigned funds, which are mainly implemented through grants. Since 2013, the research teams are involved in the Motol Hospital Solutions grants 7th EU Framework Program.

Scientific issues are also intertwined other aid schemes structural EU funds and Norwegian funds.

Institutional support and research grants:

- MUH is since 2012 a receiver for institutional support of the Ministry of Health of the Czech Republic. In 2014 it defended a statute “research organization” and continues to remain beneficiary of institutional support.
- Institutional support research organizations in the MUH are an organized system of internal grants solved at the individual clinics and hospital departments. The year 2015 was the fourth year of the scheme.
- In 2015, the hospital dealt with 16 projects of the Internal Grant Agency (IGA) of Ministry of Health as chief investigator and 49 projects as partner. All of these projects was ended by 2015 with the termination of the grant agencies.
- In the following scheme AZV (Agency for Healthcare Research) gained collectives of University Hospital Motol 10 grant projects as principal investigator and 16 as co-author. Within the institutional support was in 2015 solved 33 of the Internal grant projects. Hospital participated in the co-operation in solving of the projects GACR and TAČR.
- In 2015, Motol University Hospital invests its allocated founds in the field of science and research as follows (CZK):

Grantová agentura	Počet projektů	Výše dotace v Kč
IGA main investogator	16	24 916 000,00
IGA co-investigator	34	11 393 000,00
AZV main investigator	10	15 423 000,00
AZV co-investigator	16	6 567 000,00
TAČR co-investigator	2	2 062 056,00
GAČR co-investigator	1	360 000,00
Institutional support of MUH	33	59 812 000,00
FP7	2	3 573 307,01
Leonardo da Vinci	1	288 088,32
Norwegian funds	3	12 932 619,54
OPPK	1	16 762 447,69
Horizont 2020	2	505 632, 66
	Total in 2015	154 595 151,22

- Support of research activities in direct connection with the outputs of science, research and innovation, as reported in national databases Council for Research, Development and Innovation. The results of the outputs of science, research and innovation are used both for comparison within the Czech Republic, where the MUH occupies one of the leading positions, both the allocation of resources in the internal system, internal grants so that individual researchers, supported in accordance with their performance. In 2015, the rise of the global impact factor, which reached 13,749 points.
- The Motol University Hospital has gradually allocated priority PRI in hospital. As the strongest lines of research are shown pediatric fields, particularly pediatrics and its subspecialties (endocrinology, gastroenterology, pneumology, etc.), children hematooncology, cardiocentre child and adult cardiology, pediatric and adult neurology. Own research activities are mainly formed in the laboratory hinterlands of the Paediatric haematooncology, Institute of Pathology and Molecular Medicine and the Institute of Immunology.
- In recent years, we vigorously support the development of innovative therapeutic and diagnostic procedures based on modern technologies, which provide space for the development and clinical testing. Newly introduced administrative support application of research results into practice, support the patenting of results and their practical application.

Projects of Advanced therapies

In order to support innovation, transfer of research outcomes research into practice Motol University Hospital introduced the System Project „advanced therapies“. Under this scheme

were resolved 5 projects in 2015, from which is expected practical output in the form of new diagnostic and therapeutic options. In 2015, together with the Institute of Organic Chemistry and Biochemistry filed a utility model, resulting from the joint development of antimicrobial peptides for the treatment of osteomyelitis.

Combined programme of education of doctors, M.D. and Ph.D. Program

Combined programme of education of MD / Ph.D. has been working in Motol University Hospital since 2004. For 12 years over 50 students has undergone the program, 12 students have earned a Ph.D. and specialization in the field. Actively in the program enrolled 25 students, three students will graduate in the new academic year 2015/2016.

International activity

In 2015, we continue to develop international activities in the field of research, especially at the level of individual clinics and institutes. In 2015, we dealt with four EU FP7 programs and we have, as partners, participated in 4 projects of Horizon 2020. It also increased significantly publications reflecting international cooperation.

Creative initiative

The Motol University Hospital follows and appreciates the quality and successes in the field of medicine and scientific research progress. In 2015, the best creative achievement in the previous year was awarded for the eighth time, which was awarded to the team of the cardiology clinic for *Diagnostics and treatment of chronic obstructive cardiomyopathy*. **In 2015, the results were announced of the evaluation of „research organizations“.** **Motol University Hospital defended its position in assessing the outcomes and has been ranked as second among teaching hospitals, just behind General University Hospital in Prague, which is associated with a significantly larger 1st Faculty of Medicine of Charles University. The hospital was successful according to the methodology in science assessment in the 2nd pillar.**

ECONOMIC ACTIVITIES

Balance sheet (in thousands of CZK)	situation on 1 January 2015	situation on 31 December 2015
ASSETS	10 802 873,97	10 975 157,88
Permanent assets	8 747 151,62	8 934 203,36
Long-term intangible assets	21 325,35	24 730,64
Long-term tangible assets	8 716 755,23	8 900 109,94
Long-term financial assets	0,00	0,00
Long-term claims	9 071,04	9 362,77
Current assets	2 055 722,35	2 040 954,52
Reserves	107 485,41	134 790,78
Claims	1 092 528,24	1 055 514,26
Financial assets	855 708,70	850 649,47
LIABILITIES	10 802 873,97	10 975 157,88
Own resources	10 048 279,76	9 890 146,27
Property funds	8 760 013,52	8 954 515,49
Financial and monetary funds	2 721 039,17	2 365 542,09
Economic results for current acc. period	1 012,94	2 951,62
Accumulated loss from previous years	-1 433 785,87	-1 432 772,93
Economic result in licensing procedure		
Foreign sources	754 594,22	754 594,22
Reserves	1 019,49	766,80
Long-term liabilities	0,00	217 477,53
Current liabilities	753 574,73	866 767,27
Bank accommodations and loans	0,00	0,00

PROFIT AND LOSS STATEMENT (in thousands of CZK)		situation on 31 DEC '15
Material costs		3 206 154,52
Repair and service expenses		679 927,82
Wage expenses		3 079 257,44
Taxes and charges		303,74
Other costs		172 958,53
Depreciations, sold property, reserves, adjusting items		634 699,92
Financial costs		1 899,09
Cost of indisputable rights (state budget/funds, local governments)		0,00
Total costs		7 775 201,09
Revenues for medical outputs and wares		7 191 768,09
Other revenues		436 919,48
Financial income		1 984,00
Income of indisputable rights (state budget/funds, local governments)		147 481,13
Total revenues		7 778 152,71
Economic result before taxation		2 951,62
Income tax		0
Additional income tax payments		0
Economic result after taxation		2 951,62

SUMMARY OF ECONOMIC INDEXES			in thousands of CZK	
Index	2013	2014	2015	15/14 v %
Yields	7 152 775	7 488 001	7 778 152	103,87
Expenses	7 151 254	7 486 988	7 775 201	103,84
Economic result	1 521	1 013	2 951	291,31
Accumulated loss from previous years	-1 433 785	-1 432 773	-1 429 821	100,20
Tangible investment assets	8 983 881	8 716 755	8 900 109	102,10
Reserves	148 757	107 485	134 790	125,40
Claims	1 287 961	1 092 528	1 055 514	96,61
Obligations	683 078	753 575	866 767	115,02
Payroll fund	0	0	0	0
Cultural and Social Services Fund	17 674	17 619	19 033	108,02
Reserve Fund	44 242	46 475	51 220	105,05
Fund for reproduction of investment assets	2 869 168	2 656 946	2 295 197	86,38

I. Liabilities and claims

Short-term trade liabilities	473,869,355.53 CZK
Short-term trade claims	437,185,763.65 CZK
Long-term liabilities	217,477,534.00 CZK
Long-term claims	9,362,774.95 CZK
Liabilities after the due date	189,189.22 CZK
Claims after the due date	48,153,095.15 CZK
Liabilities for employees	142,097,283.37 CZK
Claims against employees	13,017,458.43 CZK

Liabilities of the Motol University Hospital are regularly refunded within 60 days after the arrival of the invoice. Payments were covered in accordance with the term of maturity and only invoices that have to be solved due to material and time discrepancies, become liabilities after the due date. At the end of the year 2015, the long-term liabilities for the Children Hospital in the amount of 225 million CZK were given in accounting and they will be gradually repaid in monthly instalments over a period of 7 years. Short-term trade liabilities are about 133 million CZK higher than in the previous year but there are no liabilities of more than 60 days after the due date. Liabilities after the due date are covered and being collected by individual departments of orders. Liabilities for employees are equal to the volume of unpaid wages and will be fully paid in January 2016.

The total amount of claims is stable and the volume of short-term claims is comparable to the previous year. At the end of the year 2015, payments from The Health Insurance of the Ministry of the Interior (ZPMV) and the Czech Industrial Health Insurance (ČPZP) were received, what slightly reduced the volume of claims. Payments from health insurance companies are regular. Claims after the due date are mostly claims after foreigners that are difficult to collect and these are therefore continuously written off during the reporting period in accordance with the decree 410/2009 Coll. In the volume of claims after the due date are included also overdue claims for regulatory fees in the amount of 7.57 million CZK which are being continuously enforced. Charging of regulatory fees for outpatient treatment and for hospitalisation was terminated on 31th December 2014, but the regulatory fee for emergency care is still being charged. The enforcement of payments owed for regulatory fees continues. Written off claims are still kept in off-balance sheet accounts unless it is factually and legally documented that the payment will not be made or they are kept until the time when the debts legally extinguished. With the validity since 1st January 2010, the accounting adjustments to claims are being created and the claims are continuously written off into expenses. During the year 2015, a total of 6.48 million CZK of claims and 2.927 million CZK of accounting adjustments were written off. Although the amount of depreciations of receivables decreased by about 1 million CZK, but these are revenues that the physicians performed but have not been paid and the possibility of payment is minimal. Their depreciation increases the volume of the costs.

The Motol University Hospital keeps the balanced payments of financial flows. Throughout the year the hospital has been continuously paying its obligations and it has no liabilities over 60 after the dues days. During the year 2015, the hospital paid for the reconstruction of the Children's Hospital from its own resources what has significantly reduced the cash flow also for the year 2016, when it will repay its supply loan. The ongoing reconstruction of the B wing throughout the year 2015 will also be financed from hospital's own resources without any subsidies from the state budget. The hospital is going to repay the Children's Hospital reconstruction via supplier credit in order to keep the balance of payments to other suppliers. The payment discipline belongs to priorities of the Motol University Hospital and the records of both liabilities and claims have been thoroughly monitored. In accordance with law 563/1991 Sb., on Accounting, as amended, the final balances of claims and liabilities were approved as well as their correctness and the process of creation of inventories was performed according to Decree No. 270/2010 Coll., on inventory of assets and liabilities.

II. Inventories

The situation on inventories of the MUH:

- material, low value tangible fixed assets 33,687,433.34 CZK
- pharmaceuticals, consumer medical material 89,731,595.63 CZK

The number of inventories of material and low value tangible fixed assets remains the same compared to the previous period. The MUH is trying to minimize the inventories.

In the area of inventories of pharmaceuticals, there was a growth of 29.58 million CZK compared to the year 2014. This increase was affected mainly by an increase of centric pharmaceuticals which in many cases require the medication to be immediately available in order to be given to the patient as soon as possible. For the consumer medical material there was experienced only a slight increase which corresponds to an increase in medical procedures and its structure. Inventories of pharmaceuticals and consumer medical material are kept to a minimum, because the distribution of supplies of these goods is very fast and the creation of high stocks is economically disadvantageous. The Motol University Hospital ensures purchases of pharmaceuticals and consumer medical material through electronic auctions so that it succeeds to buy the goods in many cases at substantially lower prices and therefore it reduces the direct costs per patient.

III. Assets

Acquisition of fixed assets:	749,180,539.67 CZK
Acquisition of low value fixed assets:	50,539,776.80 CZK
Fixed assets implementation:	482,532,720.04 CZK
Low value fixed assets implementation:	57,274,548.48 CZK
Disposal of fixed assets:	226,468,529.15 CZK
Disposal of low value fixed assets:	39,938,409.07 CZK

In 2015, because of the reconstruction of Children's Hospital, the MUH acquired by an amount of 382 million CZK more fixed assets compared to the previous period. For low value fixed assets it acquired by an amount of 10 million CZK less asset than in the

previous period. There was also a higher implementation of fixed assets by an amount of 210 million CZK and higher disposal of outdated fixed assets.

IV. Situation on accounts

Account balances on 31th December 2015

Current account	790,892,288.97 CZK
Deposit account	53,025,483.86 CZK
Account of Cultural and Social Services Fund	6,658,893.83 CZK

The balance of the current account increased by 53.74 million CZK compared to the year 2014. This increase is partially influenced by reimbursements received from some health insurance companies at the very end of the year and partially influenced by a reserve created to cover financing of the Children's Hospital reconstruction from hospital's own resources. Thanks to the creation of the reserve on deposit account, the hospital managed to keep the cash flow in balance in June 2015, when it had suddenly to pay the VAT for the transferred tax of the completed reconstruction. According to the reimbursement decree for the year 2015, there was an increase in reimbursements from health insurance companies, which helped to cover the wage growth ordered by the government.

The balance of the deposit account is mainly created from donations in the amount of 40.61 million CZK, the rest of the account are the deposits of patients of the hospital and long-term hospital patients, other deposits and guarantees for public contracts.

Account of cultural and social services fund is influenced by its income and output. For the year 2015, the collective agreement was signed and the fund was created and drawn in accordance with the current legislation and the applicable collective agreement. Due to the lower level of creation of the fund the items for using the fund were reduced and regulated.

V. Expenses and yields in 2014 and 2015

Costs connected directly with a patient

Item	2014 in thousands of CZK	2015 in thousands of CZK	growth in thousands of CZK	growth in %
Medicaments	1 444 071,66	1 529 382,36	85 310,70	1,06
Blood	93 258,71	87 676,65	-5 582,06	0,94
Consumer Medical Material	825 433,29	854 008,40	28 575,11	1,03
Foodstuffs for patients	46 466,56	47 261,22	794,66	1,02
Total	2 409 230,22	2 518 328,63	109 098,41	1,04

Expenses for electricity, water, gas

Item	2014 in thousands of CZK	2015 in thousands of CZK	growth in thousands of CZK	growth in %
Water	26 765,92	24 677,62	-2 088,30	0,92
Gas (heat energy)	66 259,60	66 600,57	340,97	1,00
Electricity	83 905,80	88 515,41	4 609,61	1,05
Total	176 931,32	179 793,60	2 862,28	1,02

Other indexes

Item	2014 in thousands of CZK	2015 in thousands of CZK	growth in thousands of CZK	growth in %
Material in general	92 165,38	93 977,81	1 812,43	1,02
Material for maintenance	4 653,12	6 772,77	2 119,65	1,50
Linen	11 276,33	11 136,99	-139,34	0,99
Repairs and maintenance	321 987,32	323 650,41	1 663,09	1,01
Services	344 307,63	343 582,39	-725,24	0,99
Total	774 389,78	779 120,37	4730,59	1,01

Costs of wages and salaries

Item	2014 in thousands of CZK	2015 in thousands of CZK	growth in thousands of CZK	growth in %
Wages and salaries	2 170 656,45	2 293 635,61	122 979,16	1,06
Health insurance	193 616,01	204 468,12	10 852,11	1,06
Social security	529 719,53	558 611,13	28 891,60	1,05
Creation of the Cultural and Social Services Fund	21 363,02	22 542,57	1 179,55	1,06
Celkem	2 915 355,03	3 079 257,43	163 902,40	1,06

Revenues for medical outputs

Item	2014 in thousands of CZK	2015 in thousands of CZK	growth in thousands of CZK	growth in %
Revenues for medical outputs - General health Insurance	6 079 850,06	6 574 866,43	495 016,37	1,08
Other medical outputs	118 864,24	115 142,82	-3 721,42	0,97
Total	6 192 714,30	6 690 009,25	491 294,95	1,08

When comparing the costs directly connected with the patient, there was an increase of 6 % in the year-to-year comparison. The highest increase occurred in pharmaceuticals - 16 %. The increase was observed also in consumer medical material - 3 %. Taking into account the comparison of years 2014 and 2013, where the year-to-year increase in pharmaceuticals was 16% and in consumer medical material 15%, it can be stated that the annual increase has been reduced. The decrease of 6% in blood shows that fewer surgeries were performed at the MUH. The costs of food for patients increased due to growth in the number of patients, and also decreased due to more favorable purchases through public procurements. The analysis of costs of the patients shows that the Motol University Hospital has steadily more demanding patients and therefore also the costs of their treatment are higher.

The costs of energy, water and heat energy increased by 2 %. This increase corresponds to the higher energy demands during the reconstruction of the Children's Hospital, where new technologies, air conditioning and security measures have been implemented and therefore growth of the overall power consumption of the whole hospital was experienced. The hospital cannot affect the prices of energy because the price of power consumption is determined by the Ministry of Health of the Czech Republic. For heat energy, the consumption is comparable to the previous year due to the implementation of regulatory control measures. The costs of water were reduced by 8%.

The other expenses increased by 1 % in year-to-year comparison. The growth of costs of general material by 2 % was influenced by the increased amount of disposable hygiene materials, consumer IT materials and forms as the number of informed consents of patients and other confirmations related to medical treatment was higher. At the laundry the turnover is comparable. For the hospital, it is important that we managed to keep the cost of repairs at the same level as the previous year. Thanks to the reconstruction of the Children's Hospital, where the equipment is new and without major repairs and the medical devices are still under warranty, we managed to perform more major repairs in the adult departments and in other buildings of the hospital. In the adult departments, the undergoing repairs take place especially in technologies and also emergency situations are being solved which require higher costs. By law, regular inspections and services of instrumentation and devices are mandatory. In services, we also managed to maintain the condition comparable with the previous year, and thanks to measures, which have been adopted, we managed to cover the increase in other expenses.

In year-to-year comparison of personnel expenses there was an increase of 6%. The MUH managed the growth of personnel expenses while the staff was required to perform their tasks with bigger effort. Since November 2014, the hospital conducted the adaptation of wages according to the government decree 224/2014 and since 1st January 2015 new adaptation of salary scales according to the government decree 303/2014 on wages of state employees was performed. The change in wage costs affected the overall personnel expenses, and although all the parts of salaries were monitored in detail, the personnel expenses experienced an increase of 6%. This increase had a big impact on the overall costs of the hospital, because personnel expenses present 40% of the overall expenses of the hospital. For the year 2016, a further increase of salaries is planned.

Within the revenues for medical outputs in patients, the number of medical procedures experienced a growth of 8 % in year-to-year comparison. This affected both an increase in care provided by departments and centres, as well as an increase in reimbursement payments from health insurance companies according to the valid reimbursement decree for the year 2015. Thanks to the growth of the number of medical procedures and outpatient examinations, the hospital maintained a balanced economic result. The other medical services were reduced, mainly by reducing of the number of self-payers.

VI. Changes in accounting

In 2015, the accounting was performed in accordance with the legislation for state-funded organizations by Act on accounting no. 563/1991 Coll., Decree no. 410/2009 Coll., which is being implemented together with some provisions of Act no. 563/1991 Coll., on accounting and the Czech accounting standards, as amended. During the year, mandatory reports of the organization were handed over to the state accounting authority and simultaneously were processed the PAP reports, which were updated quarterly as set by legislation. In 2015, the cross-checking of the statements have been already done.

All the closing accounting of the final account in 2015 were carried out according to the guidelines of the Ministry of Health of the Czech Republic and in compliance with applicable legislation, related decrees, accounting standards and regulations.

In accordance with Act no. 218/2000 Coll., on budgetary rules, as amended, pursuant to § 58 of the Act, a re-accounting of the Fund for asset reproduction, repairs and maintenance in the amount of 269.23 million CZK was carried out.

The fund for asset reproduction is a financial fund used to cover the acquisition of investments, financing of repairs and maintenance and for payments of loans. Therefore, the fund balance was put to the budget for the coming years with regard to investments acquired in 2015 and with a prospect to the future. The balance of the Fund for asset reproduction was 2,295.19 million CZK on 31th December 2015. This balance has been budgeted for: co-investment in construction for the years 2015 and 2016, an investment plan and investment covering from hospital's own resources and financing of repairs and maintenance. Therefore the accounting of financially uncovered Fund for asset reproduction according to § 66 paragraph 8 of Decree 410/2009 Coll. which is being implemented together with some provisions of Act no. 563/1991 Coll., on accounting was conducted in the amount of 37.31 million CZK. Creation of the Fund for asset reproduction for the year 2016 will be secured by asset depreciations.

In 2015, heritage procedures were settled, sales in the amount of 3.97 million CZK were realized and lands in the amount of 8.92 million CZK were integrated in the MUH.

The Motol University Hospital received subsidies from the EU, these projects appeared in accounting separately and the accounting was conducted according to the rules of individual projects. In accordance with the guideline from 17th December 2008 - Creation and use of the reserve fund of state-funded organizations, the unspent EU subsidies were according to the Act no. 26/2008 Coll., reallocated to account 414/60. Every EU subsidy is written as an item and their expenses are recognized on a separate NS. The Motol

University Hospital funded the programme of MEDEVAC project in an amount of 12.529 million CZK and refinancing from the Ministry of Health of the Czech Republic has not been done so far.

At the end of the year 2015, reserves for maintaining the sustainability of the EU projects were created in accordance with contracts on EU subsidies. These reserves are created regularly and their purpose is to pay for repairs and services on medical devices.

During the year were regularly carried out: electronic monthly VAT returns, summary reports, statements for tax purposes (payments of the tax reverse charge, waste). At the end of the year a coefficient for 2016 was settled simultaneously with the preparation of legislative changes - amendment to Act no. 235/2004 Coll., on VAT valid since 1st January 2016, when an obligation of inspection reports will be announced. This change in the legislation caused the adjustment of economic accounting software so that it can process data and simultaneously it can perform a control of the tax identification numbers of all suppliers and customers. Throughout the year 2015, the published accounts of our suppliers and insolvent companies were continuously monitored at the portal of the Ministry of Finance of the Czech Republic. The tax advisor processed income tax return statement for the year 2014 and additional tax return statements for the years of 2013 and 2012 were submitted.

The estimated items were created within the framework of § 7 and § 8 of Act no. 563/1991 Coll., on accounting, as amended. The estimated items which are related to the time and place of the accounting period at MUH were accounted.

During the processing of financial reports for the year 2015 to the central system of state accounting information was simultaneously created the cash-flow statement, the statement of changes in equity and PAP reports, which have been continuously updated and reporting was adjusted in accordance with the changes in legislation. At the same time, all the attachments of the annual final account were processed in accordance with Decree no. 410/2009 Coll., which is being implemented together with some provisions of Act no. 563/1991 Coll. and with Decree no. 383/2009, on accounting records in the technical form of selected accounting entities and their transmission to the central system of state accounting information and on requirements of the technical and mixed forms of accounting records (technical regulation on accounting records), as amended. Since 2016, the Motol University Hospital will become a part of the sub-consolidation group and it will therefore be obliged to submit the extended PAP statement, mainly parts XIV to XVII into the Central system of state accounting information. The processing of these reports will require an adjustment of the economic accounting software.

VII. Conclusion

The economy of the Motol University Hospital to 31st December 2015 was balanced and the accounting period ended up with a profit - the economic result after taxation reached 2.95 million CZK., out of which the main activity of the hospital ended with a loss of -44.65 million CZK and the economic activity reached a profit of 47.60 million CZK.

The hospital managed to reach the economic profit in 2015 thanks to efficiency of the whole management, strict adherence to set limits and introduction of a system of control regulatory measures throughout the year 2015.

The year 2015 was very difficult for the Motol University Hospital in terms of financing because of a decrease in cash-flow due to investments financed from its own resources. Nevertheless, the hospital managed to increase the number of performed medical procedures which also required higher material costs. The depreciations of assets (for investing in buildings it is higher than for investing in instrumentation and devices) have been decreased compared to the previous year and simultaneously, measures leading to reduction in costs for repairs and services were adopted.

The VAT payments have permanently a negative impact on the economy of the hospital because the hospital pays VAT - it can exercise deduction of 8 % in economic activity, an negligible amount considering the hospital's turnover. The MUH paid a tax in the amount of 102.90 million CZK in 2015.

The most important fact is that the Motol University Hospital has a balanced economy, has no tax arrears and it is economically stable organization.

The management of the Motol University Hospital puts stress mainly on the provisions to keep the balanced economy while maintaining the same level of quality and comprehensiveness of provided health care for patients from the whole Czech Republic. The maintaining of the quality of provided health care for patients with the limited amount of funds is a natural fact in accordance with the statute of an accredited hospital.

PERSONNEL ACTIVITIES

In 2015, Motol University Hospital employed:

In revised numbers (RN): 5,160 employees, of which 4,130 medical professionals
In natural persons (NP): 5,780 employees, of which 4,713 medical professionals

Profession structure

	2013	2014	2015	2013	2014	2015	INDEX 15/14	
	NP	NP	NP	RN	RN	RN	NP	RN
Total	5 647	5 709	5 780	5 065	5 127	5 160	1,01	1,01
Physicians	1 152	1 197	1 215	842	888	888	1,02	1,00
Pharmaceuts	31	32	33	25	26	27	1,03	1,04
Nurses	2 100	2 060	2 009	1 948	1 916	1 890	0,98	0,99
MP with prof. qualification	361	375	378	346	355	359	1,01	1,01
MP with spec. skills	208	234	235	175	190	196	1,00	1,03
MP under supervision	694	707	758	683	697	725	1,07	1,04
JOP with prof. qualif.	64	55	71	44	41	45	1,29	1,10
TOS (technical/office staff)	693	699	717	655	663	680	1,03	1,03
Workers	344	350	364	347	351	350	1,04	1,00

(NP) average number of natural person (RN) average revised number

Qualification Structure, situation on 31st December, 2015

Education achieved by nurses and midwives	Total	%	of which specialized	%
Secondary health care	1 414	70,38	607	42,92
Higher health care	169	8,41	98	57,99
University - Bachelor's degree	304	15,14	220	72,36
University - Master degree	122	6,07	101	82,78
Total	2 009	100,00	1 026	51,07

Employees according to education - situation on 31st December, 2015

Reached education	Men	Women	Total	%
Elementary	110	127	237	4,10
Trained	96	112	208	3,60
Secondary vocational	228	173	401	9,94

Full secondary	308	2075	2383	41,23
Vocational	61	223	284	4,91
University	786	1481	2267	39,22
of which Bachelor	46	390	436	
of which Master	740	1091	1831	
Total	1589	4191	5780	100

Employees according to age and sex - situation on 31st December, 2015

Age	Men	Women	Total	%
to 20 years	9	34	43	0,74
21 - 30 years	349	869	1218	21,07
31 - 40 years	429	976	1425	24,65
41 - 50 years	316	1047	1363	23,59
51 - 60 years	273	955	1228	21,25
61 years and older	213	290	503	8,70
total	1 589	4 191	5780	100
%	27,49	72,51	100	

- **Health care professionals according to Law 95/2004. Coll.** = physicians and pharmacist: total of 1,248 physicians. Of the 1.215 physicians, 22 medical graduates prior to enrolment, and 327 already included in the field of specialization, i.e. that 28.7% of doctors are only of professional competence. Specialist qualification (i.e. 2nd degree attestation, medical Licensing, Examination, License CLK, and the Ministry of Health Certificate) has 866 (71.3%) physicians.
- **Health care professionals according to Law 96/2004 Coll.** = paramedical professions: Total of 3,421 of whom 2,009 nurses and midwives.

Wages area

On the payroll was spent a total of 2,248,056,510 CZK (without other personnel costs-remuneration for work performed outside employment). Compared to the year 2014 note an increase of **117,057,069 CZK**, i.e. **5.5 %**.

The increase of wages was due to the salary adjustments since November 1, 2014 according to Government Decree no. 224/2014 Coll. and wage modifying since January 1, 2015 pursuant to Government Decree no. 303/2014 Coll. Furthermore the expended funds also contributed to an increase in the number of employees by 1 %.

The average gross salary in the hospital on December 31, 2015 was 36,302 CZK. Compared to the year 2014 there is an increase of 4 %.

Development of the average salary in last 10 years

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Celkem	24 625	26 835	27 711	29 925	30 824	33 356	35 016	34 364	34 893	36 302
Doctors	44 972	48 906	49 199	50 565	51 373	61 510	67 464	65 564	66 474	68 962
Nurse	22 946	24 860	26 724	29 171	30 206	31 307	32 853	32 079	32 035	33 425



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