

Annual report  
2014 Motol  
University Hospital





# Contents

**Introductory Word**

**Management of Motol University Hospital**

**Scientific Board**

**Basic Organisational Structure**

**Basic Data**

**List of Medical Departments**

**Medical Preventive Care**

**Nursing Care**

**Quality Management**

**Hospital Ombudsman**

**Science Research Activities**

**Economic Activities**

**Personnel Activities**

**Donors & Foundations**

## Introductory word

Dear Friends,

It is my yearly duty and privilege to introduce the annual report with summary of the past year 2014 from the point of view of the hospital management. This is the fourteenth annual report, which I introduce as the director of the hospital. My term as the director can be divided into two parts. The former one covers the years when the hospital has been influenced by the inner factors (such as reconstruction of bone marrow transplantation unit, the long reconstruction of the children's hospital, creation of new workplaces, etc.). The latter part can be described as times when the hospital has been more affected by external factors.

The year 2014 would rather fit to the latter group, since, in my opinion the most important event in our state health care system was an abolition of the regulatory fees and significant post-election changes. Both changes influenced our hospital. Firstly, we faced the positive outcome, as we welcomed back ex-minister Holcát, MD to the office of the Deputy for Treatment and Preventive Care. We will not be able to conclusively evaluate the abolition of the regulatory fees before the end of 2015.

From the economic point of view, the Motol University Hospital works in the same regime as in the past 14 years. We have managed to achieve an economic surplus that can be expressed in accounting terms as a large black zero. From the surplus, i.e. without the help of state budget, the hospital finishes the reconstruction of the children complex, specifically the inpatient part B.

If we would consider the greatest challenges of the hospital in 2014, on the first place we would have to mention the starting shortage of nurses and general dependence of our investment policies on the EU donations. The hospital management will most probably have to face those issues in future years.

In the field of preventive medical care, we are happy to note that the hospital saw further development in reaching the top European level. As an example we can mention the new method of lung transplantation „ex vivo“ which allows to process more transplantations and reduce the mortality of people on waiting list. Last year, we implemented for the first time more than 30 lung transplantations (32).

The hospital has continued in the effort of keeping the level of excellence in the leading scientific research which has introduced successful development in the field of vaccines based on dendritic cells in patients with breast, prostate and ovary carcinoma. The hospital has intensified the international cooperation. Our doctors operated in Kenya and Jordan where they performed surgeries as a part of international aid. There was also a dramatic increase in amount of medical-scientific collaboration with China.

Dear friends, I hope that you will enjoy reading the annual report and it will affirm you that the Motol University Hospital belongs to the absolute top among the medical institutions not only in the Czech Republic.



A handwritten signature in black ink, appearing to read 'Miloslav Ludvík'. The signature is stylized and fluid.

Miloslav Ludvík, LLD, MBA  
Director

# Management of the Motol University Hospital

Director of the Hospital	<b>Miloslav Ludvík, LLD, MBA</b>
Deputy Manager for Medical Preventive Care	<b>Martin Holcát, MD, MBA</b>
Deputy Manager for Nursing Care	<b>Jana Nováková, MBA</b>
Deputy Manager for Economy	<b>Jiří Čihař</b>
Personnel Deputy Manager	<b>Jindřiška Feldmanová</b>
Deputy Manager for Engineering and Technology	<b>Pavel Budinský, MD, MBA</b>
Deputy Manager for Science and Research	<b>prof. Anna Šedivá, MD</b>
Deputy Business Manager	<b>Luděk Navara</b>

## SCIENTIFIC BOARD

**prof. Marek Babjuk, MD**

*Head of Department of Urology, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**assoc. prof. Jiří Bronský, MD, Ph.D**

*Department of Paediatrics, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**assoc. prof. Ondřej Cinek, MD, Ph.D.**

*Department of Paediatrics, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

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

*Head of Department of Microbiology, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**prof. Tomáš Eckschlager, MD**

*Department of Paediatric Haematology and Oncology, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**Markéta Havlovicová, MD**

*Senior consultant of Department of Biology and Medical Genetics, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**prof. Jiří Hoch, MD**

*Head of Department of Surgery, 2<sup>nd</sup> 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, 2<sup>nd</sup> 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, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**prof. Josef Koutecký, MD**

*Department of Paediatric Haematology and Oncology, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**assoc. prof. Pavel Kršek, MD, Ph.D.**

*Department of Paediatric Neurology, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**prof. Milan Kvapil, MD, MBA**

*Head of Department of Internal Medicine, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**prof. Robert Lischke, MD, Ph.D.**

*Head of Department of Surgery, 1<sup>st</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**prof. Jan Plzák, MD, Ph.D**

*Department of ENT, Head and Neck Surgery, 1<sup>st</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**prof. Lukáš Rob, MD**

*Head of Department of Obstetrics and Gynaecology, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**prof. Miloslav Roček, MD**

*Head of Department of Radiology, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**prof. Anna Šedivá, MD**

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

**assoc. prof. Radek Špišek, MD, Ph.D.**

*Department of Immunology, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

**prof. Zdeněk Šumník, MD, Ph.D.**

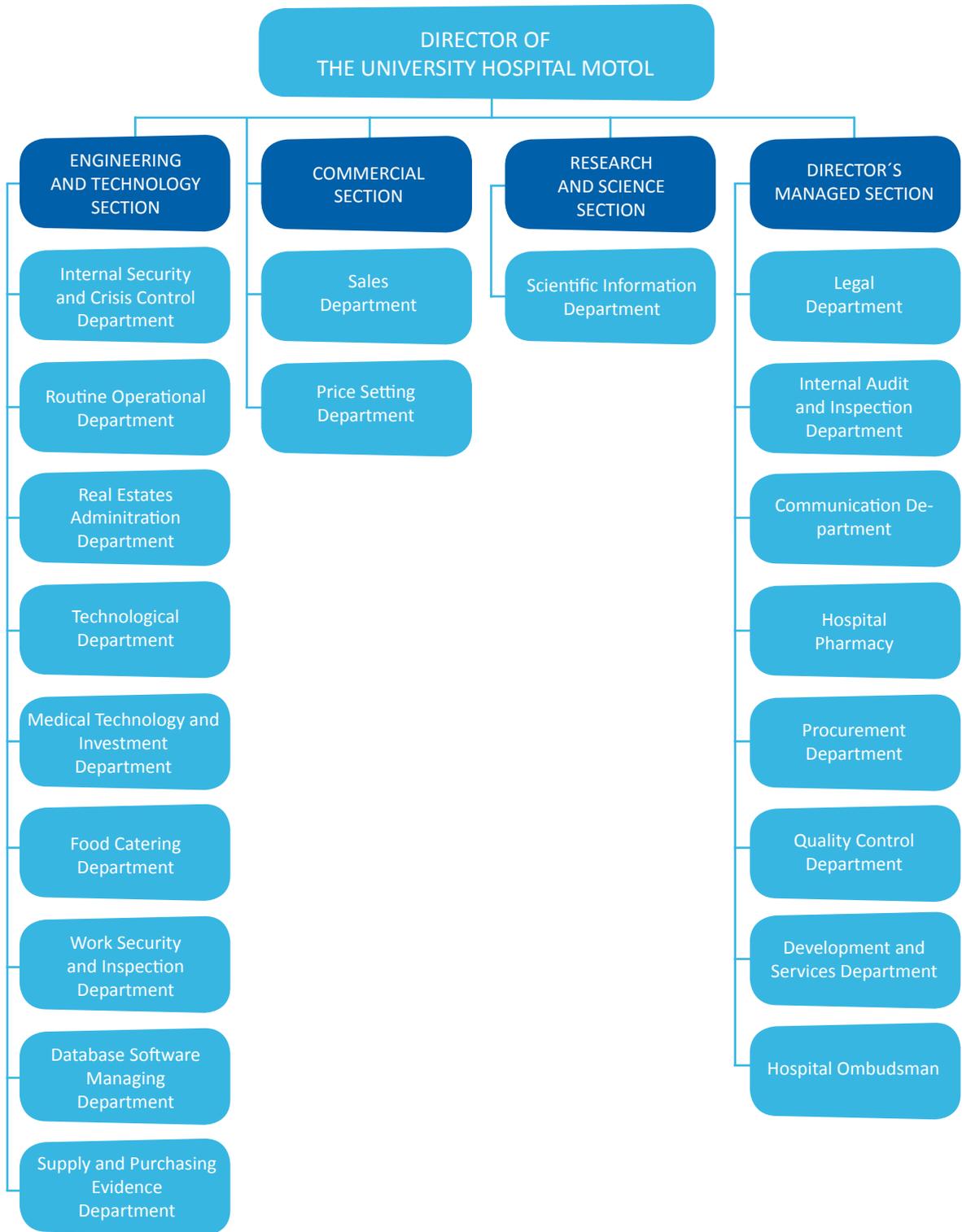
*Department of Paediatrics, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

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

*Department of Pathology and Molecular Medicine, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital*

# Basic organizational structure





## BASIC DATA TO 31. 12. 2014

Hospital Estate Area /m2	348 000
Assets /in thousand CZK/	10 802 874
Total turnover /in thousand CZK/	7 488 002
Employees /natural persons/	5 709
Employees /employment/	5 127

### Beds

- Of which:	Child	Adults	Total
Standard	421	1007	1428
ICU	154	226	380
Acute in total	575	1233	1808
Longterm Residential	-	381	381
Total	575	1614	2189

Number of Hospitalisations	78 760
Number of Outpatient Treatments	751 269
Number of Treatment Days /without Longterm/	476 501
Number of Anaesthesia Treatments	38 729
Number of Childbirths	3 328
Death Rate	1,38

# List of Medical Departments

## Paediatric Inpatient Part

Department of Paediatrics \*)

*Head: prof. Jan Lebl, MD*

Children's Heart Centre, Motol University Hospital

*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 Vymlátilová, 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 ENT, Head and Neck surgery \*\*)

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

*Department of Nuclear Medicine and Endocrinology \*)*

*Head: prof. Petr Vlček, MD*

Centre of Postacute Care, Motol University Hospital

*Head: Martina Nováková, MD*

Department of Neurology \*)

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

Centre for Spinal Surgery, Motol University Hospital

*Head: prof. Jan Štulík, MD*

1st Department of Orthopaedics \*\*)

*Head: prof. Ivan Landor, MD*

Department of Pneumology \*)

*Head: prof. Miloslav Marel, 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 Chronic Resuscitation and Intensive Care

*Head: Jiří Procházka, 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: Jaroslava Raudenská Dr., Ph.D.*

Department of Rheumatology, Motol University Hospital  
*Head: Rudolf Horváth, MD, Ph.D.*

Department of Therapeutic Nutrition, Motol University Hospital  
*Head: Marieta Balíková*

Transplantation Centre, 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 and Venerology, Motol University Hospital

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

Emergency Department for Children, Motol University Hospital

*Head: Marie Mikulecká, MD, MBA*

Emergency Department for Adults, Motol University Hospital

*Head: Jiří Zika, 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, 2<sup>nd</sup> 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 whole Czech Republic in almost all branches of internal medicine. **In the course of 2014, a total of 4,834 patients were hospitalised at the department (about 8 % more than in 2013) and the outpatient treatment was provided for 30,726 clients (more than in 2013).** Eleven patients underwent kidney transplantation, other seven were prepared for the liver transplantation in the IKEM (Institute for Clinical and Experimental Medicine) and other four children needed lung TX which was successfully performed in MUH.

**At the endoscopic operating theatres, 754 interventions were performed and at the department of elimination methods, 1,040 performances were achieved.**

### **Specialised outpatient centres:**

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 group successfully continued with a unique elimination method – immunoabsorption in children.
- Pneumology team developed a method of investigation of exhaled gases (LCI) for testing of lung function and it continued in diagnostics of patients with primary and secondary movement disorders of ciliary epithelium.
- Working group for the treatment of patients with Cystic Fibrosis introduced a new methodology for the investigation of chloride in sweat (Macroduct).
- Gastroenterology team successfully continued in the treatment of patients with esophageal stricture by balloon dilation. It provides comprehensive care for patients before and after liver TX.
- Diabetology and endocrinology working group continued in the programme of diagnosis of musculoskeletal disorders (combination of methods of peripheral qualitative CT sensitometry and mechanography) in different groups of chronically ill children.
- Infant department introduced a scheme of examination and treatment of hemangiomas in children. The department provides care for patients with renal failure (weight around 3 kg) who require long-term home peritoneal dialysis.

**Unique technological equipment:**

exhaled gas analyzer (LCI) for testing of lung function

**Important event in 2014:**

Pneumology group organized the certified Course for introduction of a new methodology for sweat test investigating, it also organized the Course of flexible bronchoscopy in children.

Gastroenterological working team successfully organized the Course of investigative techniques in paediatric gastroenterology.

Diabetology-endocrinology team was the organizer of Children Diabetes Days and Children Endocrinological Days.

Each of the working groups significantly contributed to publication activity in the Czech Republic and abroad.

## Paediatric Cardiocentre of Motol University Hospital

*Head physician: Prof. 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 characteristics:**

Paediatric Cardiocentre is the only cardiological and cardiosurgical complex centre for children with a nationwide competence. It is concerned mainly with diagnostics and treatment of congenital cardiac defects in children and it also collaborates with other departments in the treatment of adult patients with congenital cardiac disease. Preference of non-invasive diagnostic procedures (ECHO, MRI, Ct) and primary corrections of defects at an early age are characteristic features of this workplace. **In the year 2014 the Paediatric Cardiocentre performed 417 surgeries (+ 11 open arterial duct ligation in low birth weight newborns at other workplaces), 323 catheterisations (including 221 interventional catheterisations), 815 patients (+ 528 people to escort them) were hospitalized and outpatient treatment was provided for 5,122 patients.** These numbers represent an increase in the amount of surgeries and catheter interventions compared to previous years, reflecting the relocation of the department to a new room with sufficient capacity. In 2014, as well as in the previous year, the department provided medical care for foreign patients within the Medevac Humanitarian Programme (through charity / humanitarian mission to Amman, Jordan and the following treatment of these patients at the Paediatric Cardiocentre). The agreement on cooperation in the surgical treatment of paediatric patients with heart disease with the University Hospital in Ljubljana was signed and implemented, it means regular trips of cardiac surgeons from Paediatric Cardiocentre to Slovenia and performance of complicated surgeries in MUH.

**Specialised outpatient facilities:**

Clinical cardiology

Electrophysiology and cardiostimulation

Prenatal cardiology

Connective tissue disease

**New methods and procedures:**

- Programme of long-term implantable heart assist device - the first patient was successfully treated for 7 months within the year 2014 and subsequently transplanted
- Programme of heart transplantation in children - successfully performed in 4 patients in 2014

**Unique technological equipment:**

Toshiba bipolar sciascopic device

3D transesophageal echocardiography Philips

three-dimensional electroanatomic mapping system of arrhythmias CARTO

Medtronic CryoCath Cryoablation system

**Important event in 2014:**

*Published books*

Šamánek M. : Guide for heart disease in children. Jesenius, ed. Dialog, Praha, 2014

Janousek J. : ECG and dysrhythmia in childhood. Grada, Praha, 2014

*Publications in international journals (5 with the highest impact factor as the first author):*

Kubuš P., Materna O., Tax P., Tomek V., Janoušek J.: Successful permanent resynchronization for failing right ventricle after repair of Tetralogy of Fallot. *Circulation* 130: e186-e190, 2014 IF 14.948

Kubuš P., Vít P., Gebauer R.A., Materna O., Janoušek J.: Electrophysiologic profile and results of invasive risk stratification in asymptomatic children and adolescents with the Wolff-Parkinson-White electrocardiographic pattern. *Circulation: Arrhythmia and Electrophysiology* 7: 218-223, 2014 IF 5.417

Materna O., Kubuš P., Janoušek J.: Right ventricular resynchronization in a child with hypoplastic left heart syndrome. *Heart Rhythm* 14 (e-pub ahead print), 2014 IF 4.918

Kubuš P., Vít P., Gebauer R.A., Zaoral L., Peichl P., Fiala M., Janoušek J.: Long-term results of paediatric radiofrequency ablation: a population-based study. *Europace* (e-pub ahead print), 2014 IF 3.051

Janoušek J., Kubuš P.: What's new in cardiac pacing in children? *Curr Opin* 29 (1): 76-82, 2014 IF 2.564

## Department of Paediatric Psychiatry, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital

*Head physician: Prof. Michal Hrdlička, MD,*

*Senior consultant: Jiří Koutek, MD*

*Head nurse: Hana Palkovská*

### **Basic characteristics:**

This department is the only independent clinical department in this field in the CR. It is concerned with diagnostics, treatment and prevention of mental disorders in paediatric and adolescent patients, it is focused mainly on autism in children, food intake disorders, hyperkinetic syndrome, psychotic conditions and suicidal tendencies in children and adolescents. Another part of the department is the Family Centre, specialising in family therapy. The department is also both pre-graduate and post-graduate teaching facility. Specialisation in paediatric and adolescent psychiatry and adult psychiatry are accredited as postgraduate educational workplaces.

**In 2014, a total of 6,600 interventions on the outpatient basis and 1,777 consultancies were performed and 459 patients were hospitalised at the department.**

### **Specialised outpatient facilities:**

Family Centre, specialising in family therapy in paedopsychiatric 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. Recently, a new diagnostic method for autism spectrum disorders - Autism Diagnostic Observation Schedule (ADOS) was put into operation. Since 2012, the ADOS has been already routinely used at the clinic and a total of 212 patients were tested till the end of 2014.
- In the area of screening of autism, the workers of the department are further involved in the translation, standardization and publication of the CAST screening test for school children (Dudová, I., Beranová, Š., Hrdlička, M., Urbánek, T.: CAST - Screening Test for Autism Spectrum Disorders. 1<sup>st</sup> edition, Prague, National Institute of Education, 2013, 54 pages.). They also translated and published the M - CHAT Screening Test for children aged 2 years (Dudová, I., Beranová, Š., Hrdlička, M.: Screening and Diagnosis of Childhood Autism in Early Childhood. Pediatrics in practice, 14, 2013, No. 3, p. 153-156.). Both methods are already commonly used at the department.
- A research on early markers of bipolar disorder in children at high risk is under way at the department, unique programme within the Czech Republic, it is supported by the grant IGA MZ NT 13337 (principal investigator, Michal Goetz, MD, Ph.D.). In this field, the department cooperates with the National Institute of Mental Health.
- The comprehensive therapy of eating disorders, in which the department has a nationwide significance, is further developed. In 2014, the research on suicidal behaviour and self-harm in patients with eating disorders (49 patients were examined) took place at the clinic, subsidized by The Ministry of Health of the Czech Republic.

- 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 2014:**

The staff of the department participated in development of the publication Recommended Practices in Psychiatric Care IV, published by the Czech Psychiatric Society of the Czech Medical Society.

**Department of Paediatric Haematology and Oncology, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital**

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

*Senior consultant: Vladimír Komrška, MD*

*Senior consultant: Vratislav Šmelhaus, MD*

**Basic characteristics:**

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 leukemias, surgeries of selected solid tumors, congenital disorders of the immune system or metabolic defects.

**In 2014, a total of 15,723 examinations and treatments were performed at the specialised outpatient facilities, 2,882 patients with oncological diseases and 1,406 patients with benign diseases were treated. Newly were diagnosed: 188 children with malignant solid tumours, 52 children with leucaemia, 4 patients with acquired bone marrow failure, 184 patients with benign tumours, 520 children with non-oncological disease.**

**The total number of hospitalised patients was 2,828 plus 1,710 relatives who accompanied them.**

**Totally, 27 autologous surgeries of bone marrow were performed - 20 from donors not related to the patient, 7 bone marrow were offered from relatives and 8 operations were autologous.**

**Specialised outpatient facilities:**

Oncology

Centre of late consequences

Hemangiomas

Tumors of the central nervous system

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**

- The department gained accreditation for its laboratories from the Laboratory Centre: Certificate No.: 623/2014 on 1<sup>st</sup> October 2014 valid till 20<sup>th</sup> September 2016 “Laboratory diagnostics in haematology by using flow cytometry and molecular genetics including shared examination”.

### **Important event in 2014:**

Publishing activity of the employees of the department in 2014: 54 printed publications (including 3 chapters in books) with the overall IF = 277.313 were published.

In June, an all-day meeting of former transplant patients took place at our transplantation unit on the 25<sup>th</sup> anniversary of transplantations in children in the Czech Republic with the presence of national media, attended by over 200 patients and their families. An annual memorial tablet was published as a reminder of this event.

Prof. Starý was awarded the Prize of Minister of Education, Youth and Sport for research. Lucie Slámová, MD, Ph.D. was awarded the Albert Schweitzer Prize in Medicine (formerly called Prize for Medicine), awarded by the French Embassy together with Pierre Fabre Médicament company. It is an award for the best research work carried out by Czech students in master or doctoral studies or young Czech physicians. Markéta Kubričanová Žaliová, MD, Ph.D received the Vlasta Adams Award for outstanding work in the field of oncology and haematology for the year 2014.

An international conference “Biennial Leukemia Symposium” devoted to leukemia in children was organised in April in Prague by the staff of the department, around 500 expats from more than 50 countries attended the conference.

## **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, oncosurgery, proctology, urology, surgery of the liver, portal hypertension, biliary tract, extrophy of the urinary bladder and polytraumas in children – the department provides care for paediatric patients from the whole country and super-counselling also for foreign patients.

In 2014, 3,021 patients were hospitalised there in total, of which 2,214 were operated. The total number of outpatient children was 25,094 (including 8,264 children in constitutional emergency service).

### **Specialised outpatient facilities:**

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:**

- Extension in surgical treatment of hypospadias by using tunica dartos flap within tube plastic of urethra and foam bandage in postoperative care. This technique will be used for such malformed children.
- Introduction of surgical exstrophy of the bladder (according to Mr. Kelly) and of hypospadias by using a foam cover.
- Laparoscopy – the methods of pyeloplasty and splenectomy using laparoscopic technique were further elaborated.
- Introduction of a new technique in solving the inverted chest by mini-invasive method according to Prof. Nuss. By using the new scheme of antibiotic therapy, the mini-invasive method achieved a reduction of 70% in consumption of antibiotics after surgery of Pectus excavatum.
- Extension of the range of surgeries using mini-invasive surgery - the first surgery of Morgagni diaphragmatic hernia in a child and the first laparoscopic surgery of mediastinal neuroblastoma using thoracoscopic surgery in children.
- The introduction of early enteral nutrition after intestinal anastomoses, according to world trends.

**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 2014:**

**Publications:**

*Chapters in specialised books:*

Šnajdauf J., Rygl M.- Possibilities of current surgery in comprehensive treatment of tumors of chest, abdomen and retroperitoneum in children., p. 809-835 - chapter in the book Surgical Oncology, Krška Z. et al., exp. Grada Publishing, Inc., 2014;

Škába R. - Intestinal malrotation, p. 325-328 and Škába R. - Intersex, p. 533-535 - chapters in the book Pediatric Surgery (1<sup>st</sup> edition) Horn František (Editor), exp. SAP, 2014;

*International publications:*

Rygl M, Vyhnánek M, Kučera A, Mixa V, Kynčl M, Šnajdauf J: Technical innovation in minimally invasive repair of pectus excavatum, *Pediatr Surg Int.* 2014, 30: 113-117

Significant participation of physicians from the Department of Paediatric Surgery in the 60<sup>th</sup> Congress of Czech and Slovak Paediatric Surgeons with high international participation held in Rajecké Teplice in Slovakia on 22 - 24. 5. 2014.

Active participation in the international congress of paediatric surgeons 15<sup>th</sup> European Congress of Paediatric Surgery, 18<sup>th</sup> - 21<sup>st</sup> June, 2014, Dublin, Ireland.

Active participation of Mrs. Kocmichová, MD in the 24<sup>th</sup> Conference of the European Wound Management Association (EWMA-GNEAUP, 14. - 16. 5. 2014 Madrid - Spain).

The first direct broadcasting of surgery from surgical rooms of the department to the

lecture room was realised through the digital network of MUH.

Petra Rounová, MD successfully defended her Ph.D. thesis entitled “Influence of size of the defect and using surgical technique on long-term morbidity in children with congenital diaphragmatic hernia” and she received her Ph.D degree.

## Department of Paediatric Neurology of 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital

*Head physician: Prof. Vladimír Komárek, MD*

*Senior consultant : Věra Sebroňová, MD*

*Head nurse: Zlatica Pitoňáková*

### **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 pregraduate and postgraduate teaching workplace. A part of the department are standard beds, ICU beds of a lower type, outpatient clinics, laboratories for electrophysiology and specialized centres. In 2014, a total of 1,265 children were hospitalized there out of 1,658 admissions. At the outpatient facilities 16,702 clinical investigations were provided, 1,209 patients with diagnosed epilepsy treated. In electrophysiology laboratory, 6,017 examinations were performed out of which 3,593 EEG examinations, 357 long-term video-EEGs + polysomnography examinations, 11,351 EP examinations and 716 EMG examinations.

### **Specialised outpatient facilities:**

Comprehensive centre for epilepsy and epilepsy surgery

Centre for hereditary neuropathy

Center 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:**

- Within the epileptologic programme, we have standardized the detector for interictal epileptiform discharge (IED), which has higher sensitivity and specificity compared to evaluations of EEG by experts as well as other previous published detectors.
- With the help of group of 250 children with spasm aged 8 to 15 years, we have standardized Czech version of the questionnaire of quality of life CHEQOL-25 and gained a powerful tool to monitor this variable in clinical practice.
- In frame of the Neurocutaneous programme, the DNA analysis of the SPRED1 gene in patients with NF1 was implemented and the medical treatment of patients with TSC was extended by use of rapamycin.
- Priority method (Haloplex) contributed to the expansion panel on 78 genes for the detection of hereditary neuropathy. The examination HINT1 gene was introduced, its mutations were newly discovered as the cause of hereditary neuropathy with axonal neuromyotonia.
- In 2014, we have further expanded the range of DNA examinations with investigation

of HMSN type Russe (HMSN-R respectively. CMT 4G) typical for the Romani ethnicity via examination of founder mutation in the gene HK1 g.9712 G> C.

- We have proved the new procedure of brain imaging and completely processed tractography (DTI data) in a group of 38 children with developmental language disorders and the results were compared with findings in 39 inspections. Firstly, we have demonstrated the importance of the so-called ventral tracts for pathogenesis of speech disorders.

#### **Unique technological equipment:**

Together with the Department of Neurology: High Density EEG (256-channel EEG for resource mapping including a module for fMRI enabling a 128-channel EEG screening in magnetic resonance)

Video-EEG system for the pre-operation monitoring of 128 channels in children with refractory epilepsy, polysomnography system with on-line esophageal pH measurement;

#### **Important event in 2014:**

Zuzana Libá, MD, Ph.D. succeeded with the project “Cytokines in Autoimmune Diseases of the Nervous System” and she has become one out of five young scientists who have received support from the Neuron Foundation.

### **Department of E.N.T., 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital**

*Head physician: Assist. Prof. Jiří Skřivan, MD*

*Senior consultant: Michal Jurovčík, MD*

*Head nurse: Adriana Roškaňuková*

#### **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 newborns with cleft face defects within multidisciplinary cooperation as one out of two departments in the Czech Republic.

**In 2014, 1,986 surgeries were performed here, 2,235 patients were hospitalised and outpatient treatment was provided for 18,906 patients.**

*The Phoniatic section and rehabilitation centre for cochlear implants in children is another part of the E.N.T. department. This workplace is focused mainly on selection of candidates for cochlear implants in children and on pre-operative and longterm postoperative care for patients with cochlear implants for who it provides full phoniatic, logopedic and psychological care including programming of speech processors. Further it actively ensures supplementary logopedic rehabilitation in the place of their residence throughout the whole Czech Republic. The head of this removed workplace is Eva Vymlátilová, Ph.D.*

**Specialised outpatient facilities:**

Kophsurgery – in the Centre for Cochlear Implants

Audiology

Comprehensive Care for Hearing Impaired Patients including rehabilitation after Cochlear Implantation in Mrazovka centre

Solution of developmental defects of the neck and the head

Monitoring of glandular swelling

Phoniatic outpatient clinic

Thyreology

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 esophageal 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 /;
- Introduction of Custom Sound Suite 1.0 - a new type of processor tuning and recording of the implant functions- was introduced. A new version of Custom Sound Suite 1.3 with extended functions was used.
- 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 newborns. The early detection and treatment of secretory otitis symptoms in children with cleft defects.
- Introduction of wireless module for automatic pre-operative measurement of STR and NTR (neural response telemetry) for Cochlear Implantations.
- Extension of the spectrum of patients in the study of intranasal application of Lactobacillus acidophilus – inclusion of patients with cleft defects.

**Unique technological equipment:**

PH Impedancemetry device

Polysomnograph

Maico MI 34, a high frequency tympanometer

CO2 Laser with a mikromanipulator

The newest type of Bienair drill

CochleaScann on the DPOAE basis – a new technology of objective audiometry

BioMarker device – possibility of objective measurement of cognitive abilities in

paediatric patients

NRT/Neural Response Telemetry/ module in pre-operative measurement of the C1 function

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

Wireless module for automatic intraoperative measurement of STR and NRT in Cochlear Implantation.

3-channel intraoperative monitor of peripheral nerves

**Important event in 2014:**

In March 2014 the head of the department Ass. Prof. Zdeněk Kabelka, MD, Ph.D. suddenly died, the new head physician since July 2014 is Jiří Skřivan, MD.

Organization of seminars for paediatricians and otolaryngologists in the Institute for Postgraduate Education in Medicine “Audiological Problems in Childhood” in November 2014;

15 publications, including 4 in a journal with IF and, more than 30 lectures at national and international congresses and events;

The first bilateral cochlear implantation.



# COMMON INPATIENT DEPARTMENTS OF PAEDIATRIC AND ADULT PARTS

Department of Anaesthesiology and ICM, 2<sup>nd</sup> 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 reached 120, other nursing staff as well as the range of its activities it is the biggest workplace in the CR. 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 2014 a total of 1,327 patients were hospitalised at the department, of which 727 patients were adults, 566 children and 32 patients needed chronic intensive care.** The slight decrease in hospitalisation is caused by closing of half of the adult bed capacity due to ongoing reconstruction of the department from January to June 2014. If there was a full operation throughout the whole year, the number of adults hospitalized in the Department of Anaesthesiology and ICM would be significantly higher. **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 38,729, of which 11,451 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;
- Wide-range use of echocardiography in patients undergoing cardiosurgical or different surgery, including lung transplantation, the project "Ex-vivo lung perfusion before Tx" was run in cooperation with surgeons;
- In 2014, the highest number of patients after lung transplantation in the history of the lung Tx project in Motol was hospitalised at the Department of Anaesthesiology and ICM (32 patients);
- Routine use of technology of targeted cooling in patients after circulatory 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;
- Implementation of modern pharmaceuticals in daily anaesthesiological care;
- Modernization of medical devices with regard to latest ventilation techniques using transpulmonary pressure measurements;
- Modernization of medical devices in anaesthesiological rooms;
- Routine use of sonographic techniques in nerve block anaesthesia and safe vascular

- inputs ensuring in adults and children;
- Use of sonography in early diagnosis of bleeding into cavities in traumatized patients;
  - Use of the latest videolaryngoscope method in case of difficult intubation, including one-use intubation instruments and subserviences;
  - Use of combined neuroaxial blockades in replacements of the major joints (hip, knee), including an education for employees in specialized workplaces;
  - Use of peripheral nerve blocks in pediatric and adult patients;
  - Routine use of neuromuscular blockade reversal after anesthesia;
  - Use of non-invasive ventilation techniques for the treatment of breathing insufficiency both in children and adults;
  - Routine monitoring of cerebral oxymetry during surgeries in extracorporeal circulation and using of deep hypothermia;
  - Pre-operative preventive administration of Levosimendan to manage the perioperative heart failure;
  - Comprehensive therapeutic protocol to manage the diastolic heart failure;

**Important event in 2014:**

Opening of reconstructed rooms with acute intensive care beds for adults - a total of 22 beds fully equipped with the latest technology;  
Organisation of the European Congress of Paediatric Intensive Care Medicine in Prague;  
A number of scientific publications in peer-reviewed and impacted journals;  
Elaboration of 2 textbooks of anesthesiology and intensive care.

A part of the Department of Anaestology and ICM, 2<sup>nd</sup> faculty of Medicine, Charles University and Motol University Hospital is:

**Department of Chronic Resuscitation and Intensive Care**

*Senior consultant: Jiří Procházka, MD*

*Head nurse: Blanka Eliášová*

**Basic characteristics:**

Intensive care for patients with longterm ventilation, disconnecting from the ventilator, stabilisation of haemodynamics, restoring of the internal environment, neurorehabilitation, physio- and ergotherapy, recondition with mobilisation; artificial nutrition, basal stimulation.

**Specific features:**

Consulting services for patients and their families in crisis, training of alternative communication, development of a programme for domestic artificial lung ventilation (DALV) and dispensary supervision in patients with DALV;  
Training for domestic enteral nutrition – PEG, training of patients for the care of chronic tracheostoma and tracheostomal cannula;  
Acute consulting service for emergencies in the building 21; training of physiotherapists in the Bachelor's course specialised in patients who need chronic resuscitation and intensive care.

**Unique technological equipment:**

Miniature capnometer for monitoring of the training of spontaneous breathing and outpatient monitoring of patients with DALV;

Electrolarynx for the training of alternative voice in tracheostomy.

## Department of Rehabilitation and Sport Medicine, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital

*Head physician: Prof. Pavel Kolář, Ph.D*

*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 Kövარი, 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 2014, 634 patients were hospitalised at the inpatient section of the department, its outpatient part examined 4,350 patients and rehabilitation was also provided to 13,445 patients of other departments of the MUH.

#### **Specific features of the workplace:**

Some physicians and physiotherapists participate in interdisciplinary super-consulting programmes for patients with Cystic Fibrosis, DMO (poliomyelitis), 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. Some physiotherapists participate in the multidisciplinary team of the Neurotology, specialized in patients with dizziness and disorders of stability.

#### **New methods and procedures:**

- New examination of standing and walking on the dynamic sidewalk with integrated pressure sensors and virtual reality.
- Second year of measurement of changes of the activity of the oesophagus with consequent changes of afferentia in the locomotor system.
- Standard extension of biofeedback in patients with faecal incontinence.
- Common rehabilitational-neurological seminars with the application of botulinum toxin and subsequent specific rehabilitation techniques conducted within the Centre for Spasticity.
- Rehabilitation programme of swallowing disorders created in collaboration with the Department of ENT has been successfully developed.
- Ongoing programme of so called NORA (neuro-orthopaedic-rehabilitational) seminars with a focus on paediatric patients with cerebral palsy, a unique programme within the Czech Republic.

#### **Unique technological equipment:**

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

**Important event in 2014:**

Habilitation of Alena Kobesová, MD, Ph.D. in the field of kinanthropology;  
Habilitation of Jiří Kozák, MD, Ph.D. in the field of neurology;  
Completion of doctoral studies of Mgr. Ondřej Čakrt, Ph.D. reaching the title Ph.D.r.  
Co-organization of International Conference of Developmental Kinesiology, held in Olomouc in October 2014;  
Participation in writing of chapters in international textbooks e.g. Oxford Handbook of Myoskeletal Medicine, Functional Training Handbook, Philadelphia and others.

## 2. Spinal unit

*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 2014, a total of 89 patients with acute spinal lesion and 35 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](http://www.spinalcord.cz)
- Continuing 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.
- Preparation of the project “Possibilities of the clinical use of returning of reflexes and ability to move during spinal shock” for the years 2015-2017
- Preparation of the project “Hyponatremia in patients in post-acute stage after spinal cord injury” for the years 2015-2017.

**Unique technological equipment:**

Ferticare Multicept device for vibrostimulation in cooperation with the Department of Urology (gift from foundation “Movement without Help”)

Misonic SonicOne device for the removal of necrotic material and devitalized tissue from skin defects (gift from foundation Pohyb bez pomoci)

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)

**Important event in 2014:**

10<sup>th</sup> anniversary of the opening of the Spinal unit of MUH, 16<sup>th</sup> October 2014, club Biograph;

Significant publications in international journals.

### 3. Department of Sport Medicine

*Head physician: Ass. Prof. Jiří Radvanský, MD*

*Head nurse: Bc. 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 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 counseling 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 2014, a total of 2,000 outpatient and consiliary examinations, 1,300 sport examinations and 2,500 hours of controlled physical activity of patients were performed.

**New methods and procedures:**

- Diagnosis of safe load intensity in individualized physical activity and determination of energetic strain of motion for motor-disabled persons
- Analysis of body composition by the bioimpedance method
- Determining of the risk of postoperative complications and elective surgeries by spiroergometry with the help of a winch

**Unique technological equipment:**

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

**Important event in 2014:**

Publication activity in impact journals

## 4. Centre for Pain Treatment and Research

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

*Head nurse: Lenka Gavendová*

### **Specific features of the workplace, specialised outpatient facilities:**

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:**

- The long-term project of neuromodulation methods in the treatment of pain is under way in the Centre for Pain Treatment and Research. The workplace is the reference center for these techniques. The neurostimulation offers an alternative in the treatment of the painful conditions where less invasive therapies are not effective or burdened by unmanageable side effects and causal therapy is not possible. The department prepares further improvement of invasive techniques in algesiology for the detection of neural structures under ultrasound control and it is devoted mostly to peripheral nerve stimulation.

### **Important event in 2014:**

Active participation in the Czech – Slovak dialogues on pain – Martin - Slovakia

Organization of the „Prague neuromodulation day“ in the MUH

Publications – Treatment of Pain - Current Approaches to the Treatment of Pain and Pain Syndromes, 2<sup>nd</sup> updated edition - awarded by the Czech Medical Association of J.E. Purkyne as the best publication in the year 2013

Scientific articles published in medical journals, seven articles in Czech and one in foreign journals

## Department of Ophthalmology, 2<sup>nd</sup> 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 2014, a total of 1,250 surgeries in both children and adults and 540 examinations in hospitalised children were performed. The outpatient treatment was provided for 5,000 paediatric and 5,000 adult patients.**

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:**

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

Orthopedic outpatient centre

**New methods and procedures:**

- Further development of the method of confocal corneal microscopy for observations of structures of cornea including corneal nerve endings;
- New shape of eyelid implants to deal with lagophthalmus in children;
- Innovation of the methodology in congenital ptosis surgery – the so called gradual fortification of facial grafts.

**Unique technological equipment:**

Stellaris – a surgical unit for microsurgery of the anterior and posterior segment of the eye

RetCam 3 – a device for digital imaging of the retina in children

Confoscan - confocal microscope, which allows monitoring and studying of corneal endothelial cells “in vivo”

**Important event in 2014:**

Award of the Czech medical Chamber for monograph “Neonatology”, in which participated physicians of the department and which was ranked as the second most successful publication in the year 2014.

Cooperation with Paediatric oncology and Paediatric eye clinic in Brno resulted in organization of a videoconference about the care of patients with retinoblastoma. The first objective is to create a common patient database.

Prof. Dagmar Dotřelová, MD, FEBO was elected the vice chairman of the Specialized Advisory Board for Ophthalmology with a mandate of three years.

Within the International Multicenter Study monitoring the side effects of latanoprost antiglaucoma in 14 countries in Europe and America, the department was the first to finish the study A6111143 in accordance with the Protocol and it was included among subjects to follow the study A6111144 to run the long-term monitoring of hyperpigmentation of ocular tissues. (Principal Investigator: Ass. Prof. Aleš Filouš, MD).

## Department of Orthopaedics, 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 2014, a total of 1,361 paediatric and 2,352 adult patients (together 3,713 patients) were hospitalised at the department. A total of 1,199 interventions in paediatric patients and 2,260 interventions in adults were performed here, in total the department of Orthopaedics performed 3,459 surgeries. The treatment on an outpatient basis in the paediatric part was provided for 23,044 children and in the adult part for 14,402, together a total of 37,446 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:**

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

Arm surgery (specialized for subsequent care)

### **New methods and procedures:**

- Transplantation of cartilages using cultured chondrocytes;
- Use of mesenchymal stem cells in the treatment of diseases of articular cartilages, combination of the ASK intervention of microfractures and application of a joint blockade;
- 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 enthesopathies;
- 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 of the MUH is being presented at national congresses;
- 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;
- Development of restorative surgery of the hip joint - modified Dunn osteotomy, standard osteotomy of the femoral neck and finally reduction osteotomy of hip joint head during the controlled hip luxation – all of it is unique within the Czech Republic;
  - 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 – currently CAM treatment of lesions in the femoral neck via osteochondroplastica;
  - 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;
  - Rational solutions of lesions of the anterior cruciate ligament in growing patients.

#### **Unique technological equipment:**

Footplate – a device for diagnosis of foot arch injury

Modern surgical instrumentation for navigated surgery of large joints

The latest type of arthroscopic device

Songraph for diagnostics of congenital hip dysplasia and other bone diseases

Centrifugation system of blood plasma in order to obtain the PRGF

#### **Important event in 2014:**

Organization of international event “IV. Spring Orthopaedic Symposium” from 20<sup>th</sup> to 21<sup>st</sup> March 2014 in Prague, incl. professional guarantee.

Organization of XVII. Christmas Orthopaedic Symposium from 18<sup>th</sup> to 19<sup>st</sup> December 2014 in Teplice, incl. professional guarantee.

The first evaluation of patients database of save use of human stem cells within the unique world clinical study approved by the State Institute of Drug Control - arthroscopic repair of the rotator cuff of the shoulder joint with using cultured stem cells to improve the biological healing of tendon.

## **Department of Neurosurgery, 2<sup>nd</sup> 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 2014, a total of 1,206 patients were hospitalised in both paediatric and adult parts, 1,053 patients were operated and the outpatient treatment was provided for 5,306 patients.**

#### **Specialised outpatient facilities:**

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 centers in young children;
- Continuing of programmes in solution of age-limited tumors 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;
- 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 craniectomy 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.
- Securing of the live broadcast of the surgery including connections with the operating microscope and a possibility to organize videoconferences.

### **Unique technological equipment:**

Mediatric electromagnetic neuronavigation without fixation of the head is provided in new central operating rooms for children (including frameless stereotaxy)  
Cerebral neuronavigation BrainLab, integrated with the Pentero microscope (Zeiss)

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 2014:**

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

**Department of Paediatric Stomatology, 2<sup>nd</sup> 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 tumors, 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 the Neurosurgery, the Department of Paediatric Stomatology provided treatment of inborn and additional defects of splanchno-neurocranium. A development of a method of microscopic craniomaxillofacial surgery is under way.

**In 2014, a total of 32,790 outpatient examinations and 910 one-day surgical interventions / 557 dental rehabilitations under total anaesthesia and 353 surgical procedures/ were performed at the department. A total of 781 patients were hospitalised at the inpatient section and 782 surgeries were performed there, including 307 dental rehabilitations in handicapped patients under total anaesthesia.**

**Specialised outpatient facilities:**

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

**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 (TEP TMK)
- 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 2014:**

Nomination for the Prize of the Ministry of Interior for scientific co-research in the year 2014.



## ADULT INPATIENT PART

Department of Obstetrics and Gynaecology, 2<sup>nd</sup> Faculty of Medicine,  
Charles University and Motol University Hospital

*Head physician: Prof. Lukáš Rob, MD*

*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, including complete care for extremely immature neonates with a regional and nationwide competence. The Oncogynecological department is according to decree of the Ministry of Health one out of two centres in the Czech Republic with the accreditation of the European Institute of Oncology (ESGO and EBCOG accreditation).

**In 2014, a total of 10,138 patients were hospitalised there, a total number of surgeries was 6,165 and a total number of outpatient examinations were 102,808. At the department, 3,385 infants were born from 3,328 deliveries.**

### **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 is the preoperative detection and extirpation of the sentinel lymphatic node (an alternative to a complete inguinal lymphadenectomy) included in the standard therapeutic procedure, which reduces significantly postoperative morbidity in patients (mainly lymphoedema of the lower limbs).
- In the treatment of carcinoma of the cervix are introduced less radical procedures based on detection of the sentinel node, reducing the extent of the surgery and thus also postoperative morbidity for specific groups of women (mainly lymphoedema of the lower limbs, disorders of continence and evacuation of the bladder).
- 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, allowing women with invasive cancers to preserve fertility in these indicated cases.

### **Unique technological equipment:**

LigaSure- coagulation

**Important event in 2014:**

In 2014, the Oncogynecological department received the statute Oncological and Perinatological Centre according to decree of the Ministry of Health.

**Department of Neonatology with ICRU (intensive care and resuscitation unit) is a part of the department of Gynaecology and Obstetrics.**

## 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 249 children with a severe congenital defect with the need for urgent or early intervention were treated here (65.8% with residence outside Prague). 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 2014, a total of 3,392 infants were born there, of which 296 with low birth weight (less than 2,500 g), thereof 67 infants with extremely low birth weight (below 1500 g). At the ICRU/ICU/IMP, a total of 364 neonates were treated during the last year** (54.6% with residence outside Prague). For several past years, the department belongs to medical centres with the nearest specific mortality of neonates below 1000 g in the Czech Republic.

**Specialized outpatient facilities:**

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

**New methods and procedures:**

- Programme of an early correction of cleft lip and palate in neonates (up to 8<sup>th</sup> day postpartum) continues in cooperation with the Department of ENT of the MUH and a plastic surgeon. In 2014, a total of 21 corrections in neonates were performed.
- Continuing of the programme of a non-invasive support of breathing in neonates, with reduction of the length of mechanical pulmonary ventilation to a minimum (INSURE).
- Continuing of the study NEuroSIS – Neonatal European Study of Inhaled Steroids.
- Implementation of CGM method (continuous measurement of glycemia) in high-risk groups of premature infants in clinical practice.

**Unique technological equipment:**

aEEG monitor for continuous monitoring of electrophysiological activity of the CNS  
Therapeutic unit for comprehensive controlled treatment of whole-body hypothermia in neonates after asphyxia  
“Bed-side” ABL 800 Flex Radiometer with wide spectrum for analysing of biochemical parameter.

**Important event in 2014:**

Colaboration on an unique Czech monograph: ŠTECHOVÁ, Kateřina et al. *A child of a diabetic mother: A comprehensive view of diabetes and pregnancy*. 1<sup>st</sup> edition. Semily: GEUM, 2014, 228 p. ISBN 978-80-97969-06-9;

26 publications, posters and presentations in national and international journals with the impact factor of 43.5.

Project of the internal grant: "Adaptation of glucose homeostasis in a baby of diabetic mother and polarization of its immune response " (M. Černý, MD)

Nationwide data collection of late morbidity in children at perinatal risk (Ass. Prof. P. Zoban, MD)

Activity of the working group of the Czech Neonatology Society for a data collection in the field of neonatal infections from perinatal centres of intensive care in the Czech Republic (P. Švihovec, MD)

Evaluation of schooling and voluntary neonatology classes by students of the 2<sup>nd</sup> Faculty Medicine, Charles University was very positive;

Organization of the 7<sup>th</sup> meeting with former ICU patients, the so-called " Immature picnic";

Launching of activity "N Foundation", <http://www.nadacnifondn.cz/>.



## Department of Internal Medicine, 2<sup>nd</sup> Faculty Medicine, Charles University and Motol University Hospital

*Head physician: Prof. Milan Kvapil, MD, MBA*

*Senior consultant: Vladimír Srnský, MD*

*Head nurse: Jarmila Schmittová*

### **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.

The department is a training centre for physicians before attestation in internal medicine, gastroenterology, diabetology/endocrinology, neurology, intensive metabolic care and parenteral and enteral nutrition and educational centre for abdominal sonography courses organized by the Postgraduate Medical Education, including licensing guaranteed by the Czech Medical Chamber. The department offers postgraduate education in frame of its specialisation.

**In 2014, the department provided outpatient treatment for 58,208 patients, 4,996 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

Rheumatology

Endocrinology

### **New methods and procedures:**

- Advisory centre for pelvic floor disorders which carries out the examinations of patients with anal sphincter incontinence continues in its activity. In cooperation with the Department of Rehabilitation and surgical clinics it provides comprehensive diagnostics and treatment in this field.
- Method of pH impedance testing of esophagus and electrogastrography allowing an accurate diagnosis of functional disorders of the esophagus and stomach is under way.
- The dialysis department introduced a new method for hemopurification in hemodynamically unstable patients: sustained low-efficiency dialysis - SLED.
- The PICC team of nurses (for implementation of central venous catheters by peripheral route under the supervision of a physician) continues in its activity at the Metabolic Unit, also taking care for all types of long-term vascular entry. It is the fist team in this field of study in the Czech Republic, the results of its work was presented in June 2014 at the International Congress WOCOVA, nowadays it is ready for publication activity in British Journal of Nursing.
- Working group for “Diabetes connected with Cystic Fibrosis” develops its activity - a

system of dispensary care of adult patients with CFRD, in cooperation with internists, paediatricians and pulmonologists.

**Unique technological equipment:**

V.A.C. therapy (Vacuum Assisted Closure) in patients with diabetic foot syndrome  
Small infusion dispensers (pumps) for patients at “home” parenteral nutrition, what improves patients’ quality of life.

New device Toshiba Xario 200 to Doppler examination of blood vessels

**Important event in 2014:**

Ass. Prof. Jiří Charvát, MD was appointed professor of internal medicine and elected as a chairman of the scientific society for ports and permanent catheters.

Thesis A „lingering“ mystery of postdialysis serum bicarbonate concentration by authors Havlín, MD, prof. Matoušovic, MD and prof. Schüch, MD (IF 5,756) was published in the journal Am J Kid Dis.

Within the grant NT11081 in cooperation with the Institute of Medical Immunology Palacky University Olomouc, Prof. Matoušovic, MD is occupied by researching the possibilities of causal treatment of IgA nephropathy by the antigen blockade (notwithstanding glycosylated IgA1) or autoantibodies (IgG or other IgA1) monovalent recombinant proteins with synthetic peptides comprising the hinge region of human IgA1.

Ass. Prof. Horáčková is a co-author of thesis Cluster of patients with Familial Mediterranean Fever and heterozygous carriers of mutations in MEFV gene in the Czech Republic, Published in Clin. Genet. (IF 3,65)

The endoscopy department succeeded performances using a sewing Apollo system, as the first in the Czech republic. At the same time it organized a workshop about the use of this system.

The endoscopy department implemented as the first in the Czech Republic a method of examination via wireless motility capsule “smart pill” replacing a number of other examinations in patients with motility disorders of the digestive system.

Šťovíček, MD et al. published a thesis Crohn’s disease: Is there a place for neurological screening? in Scandinavian Journal of Gastroenterology (IF 2.329)

Four two-day symposiums for diabetologists, internists and cardiologists called “Hlavolamy (Brain teasers)” were organized.

Prof. Perušičová published book “Injectable diabetes treatment”

Organization of the 10<sup>th</sup> Symposium „Cardiabetes or what is new on the way from obesity through diabetes up to cardiabetes“ in Prague.

Organization of the traditional three-day seminar: the 20<sup>th</sup> Graduate seminar „News in diabetology.“ in Poděbrady

Organization of the 10<sup>th</sup> traditional symposium “Individual treatment of type 2 Diabetes Mellitus - Strategy 2014” in Prague and in Brno.

## 6<sup>th</sup> Department of Infectious Diseases is part of the Department of internal Medicine

*Head physician: Jan Dvořák, MD*

### **Basic characteristics:**

The department of Infectious Diseases provides outpatient and inpatient care for patients with infectious diseases or suspicion on them. It performs diagnostics and therapy of fever, infections of respiratory tract, blood stream, soft tissue, neurological infections, acute infections of the digestive tract including acute and chronic infectious inflammation of the liver as well as imported infections etc. It provides care for adults and children since the age of three years. The department has 24 beds including one insulating box.

**The number of hospitalizations in 2014: 605, medical performances - lumbar puncture: 16**

### **Specialised outpatient facilities for:**

Liver infections

Centre for Travel Medicine

Infectious Centre for Drug Addicts

### **New methods and procedures:**

Since 2012, the therapy of chronic virus hepatitis type C treated with new drugs (Boceprevir and Telaprevir) in triple combination with Ribavirin and Pegylated interferon  $\alpha$  is under way.

## Department of Surgery, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital

*Head physician: Prof. Jiří Hoch, MD*

*Senior consultant: Zbyněk Jech, MD*

*Head nurse: Jitka Kabrnová*

### **Basic characteristics:**

In 2014, the Department of Surgery, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital provided a complete surgical, outpatient, consulting and hospital care for its patients in the whole range of its specialisation – i.e. general and abdominal surgery, abdominal and thoracic traumatology. Plastic surgery in the whole range of the discipline including microsurgery significantly expanded. The number of surgeries including reconstruction of breasts increased. Also surgery and treatment of spastic hand was successfully developed. Within the interdisciplinary collaboration a comprehensive surgical care for plegic patients was introduced.

The department participated in the pre-graduate and post-graduate education, and in the solution of research projects and the leading workplace within IGA multidisciplinary grant.

**In 2014, the outpatient treatment was provided for 24,030 patients, 3,236 patients were hospitalised and 2,796 patients underwent a surgery.**

**Specialised consulting centres 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:**

- Comprehensive care for patients with breast cancer, including the plastic reconstruction of the breast.
- The other laparoscopic system was purchased for operating rooms and the department experienced an expansion of laparoscopic surgeries.

**Unique technological equipment:**

The latest dissection and electrocoagulation techniques including a harmonic scalpel and LigaSure are used during surgeries.

The scintillation detector for the identification of the sentinel lymph node during breast and malignant melanoma surgeries.

An ultrasonic dissector is available for liver surgeries.

Transanal surgery is performed conventionally using microsurgical methods TAMIS.

For the treatment of haemorrhoidal disease is available a number of methods including DG HAL method.

The scope of consulting services including endoscopic examination following the national screening program for colorectal cancer expanded.

Examinations on an outpatient basis include functional anorectal examination.

**Important event in 2014:**

Organisation of the Working Day of the Coloproctological section of the Czech Surgical Society of the Czech Medical Association of J.E. Purkyně with foreign participants;

Course „Comprehensive care for patients with breast cancer“

ConvaTec Academy – certified educational course for nurses working with patients with stoma;

Certified course of endosutures;

Leadership of the IGA multicentric grant in the Czech Republic in frame of the “NT13726 Parametric TME quality monitoring as a tool to reduce local recurrences after surgeries of rectal cancer.”

Continuing grant of the MUH “Modern Technology” – nanofiber technology;

Leadership of the multicentric study of stoma care aids;

The department enabled the intern for 19 physicians and 7 foreign students;

“Textbook of Surgery”, an English textbook was awarded by the 2<sup>nd</sup> Faculty of Medicine, Charles University

Three physicians work as chairmans of specialized sections, the other two are members of various international societies, one physician became in 2014 a member of the Czech Medical Academy.

## 3<sup>rd</sup> Department of Surgery, 1<sup>st</sup> Faculty of Medicine, Charles University and Motol University Hospital

*Head physician: Ass. prof. Robert Lischke, MD, Ph.D.*

*Senior consultant: Jiří Tvrdoň, MD*

*Head nurse: Mgr. Ida Lecnarová*

### **Basic characteristics:**

The department is the biggest workplace of abdominal surgery in the Czech Republic - the center 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 esophageal reflux disease, diaphragmatic hernia, esophageal 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 endocrinology).

**In 2014, 3,084 surgeries were performed here, 3,390 patients were hospitalized and outpatient treatment was provided for 20,534 patients.**

### **Specialised outpatient centres for:**

Lung transplantation

One-day surgery

Diseases of intestines and rectum

Endocrinology

Diseases of veins and lower extremities

Diseases of livers, biliary tract and pancreas

Surgery of sarcomas of soft tissues of thorax, abdomen and extremities

Diseases of oesophagus and stomach

Diseases of lungs, mediastinum and chest wall

Diseases of mammary gland

Internal clinic

### **New methods and procedures:**

- Launching of transplant programme of the block of heart and lungs in cooperation with IKEM;
- Preparation and implementation of the programme Ex vivo lung perfusion and reconditioning, a method to increase the number of suitable grafts for lung transplantation;
- Centralization and surgical treatment of patients with soft tissue sarcomas;
- Introduction of a surgical rectoscope for the mini-invasive surgery in the rectal region;
- Introduction of an endoscopic application of absorbable stents in diseases of oesophagus, stomach and respiratory tract;
- Introduction of the use of radio-frequency ablation Habib in hepatic surgery and

- surgery of parenchymatous organs;
- Introduction of surgery of varixes with the help of radio-frequency ablation (RFA).

**Unique technological equipment:**

Cardiohelp- centrifugal pump for extracorporeal membrane oxygenation

Videobronchoscopy, gastroscopy

Surgical rectoscope for mini-invasive interventions in the rectal region;

Hemron – a device for the outpatient treatment of hemorrhoids;

Device for radio-frequency ablation Habib, together with the department of imaging methods

Harmonic scalpel, electrocoagulation and dissection unit LigaSure

**Important event in 2014:**

3<sup>rd</sup> April 2014 – Symposium of the 3<sup>rd</sup> Department of Surgery, 1<sup>st</sup> Faculty of Medicine, Charles University and Motol University Hospital “Soft tissue sarcomas - what is the present situation and what to do further?!” under the auspices of the director of the MUH and the dean of the 1<sup>st</sup> Faculty of Medicine, Charles University;

21<sup>st</sup> November 2014 – Organization of the Meeting of thoracic surgeons of the Czech Republic. Prof. Dirk Van Remdonck, Leuven, Belgium, the president of the European Society of Thoracic Surgeons was invited to the meeting and he presented a lecture “Thoracic Surgery in Belgium and tracheoesophageal fistula.”

Launching of transplant programme of the block of heart and lungs in cooperation with IKEM;

Creative year (a prize awarded by the Scientific Council of the Motol University Hospital) for “New use and draft of the biodegradable stent, a method of its application in the airways.”

**Department of Cardiology 2<sup>nd</sup> 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 2014, an outpatient treatment was provided for approximately 24,000 patients, almost 4,000 patients were hospitalised. At the department, 2,870 diagnostic catheterization, 1,003 percutaneous coronal interventions, 480 peripheral arterial angioplasties, 7,700 echocardiographic examinations, 120 radiofrequency ablation of arrhythmias, 126 ICD implantations and 2,400 duplex ultrasound examinations of the peripheral vessels were performed.**

**Specialised outpatient facilities for:**

Congenital and acquired cardiac defects,

Cardiac failure

Hypertrophic cardiomyopathy

Electrophysiology and cardiac pacing  
Angiology

**New methods and procedures:**

- Implantation of fully biodegradable stents in coronary arteries- the first performance of this type in the Czech Republic
- Extension of using the fractional flow reserve technique in patients with a stable AP and angiographic findings at the borderline level
- Intravascular spectroscopy - significant use of a new invasive method for evaluating the qualitative composition of the atherosclerotic plaque;
- Catheterisation implantation of biological valve in the aortic position
- Direct transarterial aortic valve implantation – the first performance of this type in the Czech Republic
- Valvuloplasties of all cardiac valves
- Alcohol septal ablation - the largest set in the Czech Republic
- Radiofrequency ablation of the interventricular septum in patients with hypertrophic cardiomyopathy - the second intervention of this type in the world
- Carotid stenting - the largest set 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
- 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
- Renal denervation programme for the treatment of resistant hypertension
- Programme for cardiological examination of marathon runners

**Unique technological equipment:**

CARTO - a device for a three-dimensional electroanatomic mapping  
Echocardiographical device with a 3D transesophageal echocardiography  
Echocardiographical device including an intracardiac echocardiography  
Lucas Compression System – a device for external cardiac compressions

**Important event in 2014:**

Publications: 34 articles, of which 21 in journals with impact factor.

Monograph - Internet Textbook: Cardiovascular Medicine in Collaboration with Cardiac Surgeons and Anesthetists

Monograph: J. Veselka (editor) - Hypertrophic cardiomyopathy: from the basic research to clinical management, InTech, Rijeka, 2012 (nearly 100,000 downloads via Internet so far) was honored as book of the year by the rector of 2<sup>nd</sup> Faculty of Medicine, Charles University

Organization of the annual interdisciplinary symposium Prague Intervention VIII with international participation.

TCT Asia and Pacific 2014, Seoul, South Korea - award for the best thesis for Jakub Hoňka, MD shoots, award for the best case report for Cyril Štěchovský, MD.

Angiological days in Prague - award for best lecture in the competition of young physicians Miloslav Spacek, MD.

The day of youthful cardiologists, Prague - award for the best thesis for Jakub Hoňka, MD.

Award of Mr. and Mrs. Adams to young physicians under 35 at the 2<sup>nd</sup> Faculty of Medicine, Charles University for best publication was awarded to Jakub Hoňka, MD.

## Department of Cardiosurgery, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital

*Head physician: Ass. Prof. Vilém Rohn, MD*

*Senior consultant: Milan Horn, MD*

*Head nurse: Drahomíra Vrbová*

### **Basic characteristics:**

The Department of Cardiosurgery provides comprehensive care in the whole range of its specialisation: cardiosurgery and vascular surgery. It ensures a 24 hour surgical service for all emergencies of the cardiovascular system including traumas.

**In 2014, the outpatient care was provided for 4,202 patients and 951 major surgeries were performed, of which 420 were cardiac (an increase of 30% compared to 2013) and 531 vascular interventions (an increase of 9% compared to 2013).**

A team of our department performed a total of 40 extracorporeal membrane oxygenation (ECMO) in patients from the department, the 3rd Department of Surgery and Department of Anaesthesiology and ICM.

Within the transplantation programs, 31 lung transplantations were performed via extracorporeal circulation.

Physicians of the department collaborated on four heart transplantation in patients with congenital heart disease at the Paediatric Cardiocentre.

### **Specialised outpatient facilities for:**

Cardiology

Cardiosurgery

Vascular diseases

Congenital heart defects in adults

Arrhythmology – after surgical treatment of atrial fibrillation

Treatment of ischaemic defects of lower extremities

Clinic for patients after surgical treatment of infective endocarditis

### **New methods and procedures:**

- Video-assisted mini-invasive surgery of mitral valve;
- Miniinvasive surgery of aortic valve, using valve prosthesis without stitches;
- Video-assisted mini-invasive surgery of some congenital cardiac defects (e.g. defect of the atrial septum)
- Comprehensive care for adult patients with congenital heart disease
- Surgical treatment of infectious endocarditis, including the treatment of drug addicts in cooperation with the Department of Infectious Diseases of the MUH
- Hybrid mini-invasive solution of polymorbid patients with ICHS (PCI – stent + MIDCAB – bypass from the minithoracotomy without the extracorporeal circulation)
- Mechanical cardiac and lung supports – EMCO;
- Reconstructive (sparing) surgeries of the aortic valve
- Revascularisation of the myocardium without using the extracorporeal circulation

**Important event in 2014:**

Active participation of physicians from the department on many medical events in the Czech Republic as well as abroad. Annual congress of the Czech Society of Cardiology; VI. Congress of the Czech Society of Cardiovascular Surgery; Days of cardioanesthesiology with an international participation; Annual conference of the working group for acute cardiology of the Czech Society of Cardiology;

Ass. Prof. Rohn presented "Mitral valve repair simulation skills lab" for Czech and Slovak cardiac surgeons in Prague and Brno, he continually leads a tutorial "Anastomotic skills lab" for the Czech and Slovak cardiac surgeons.

Tanta Faculty of Medicine, Egypt - workshop on off-pump cardiac surgery, ie. lectures and practical demonstrations of surgeries for the CHD without cardiopulmonary bypass - led by Ass. Prof. Rohn.

One ex-vivo lung recondition with the usage of extracorporeal circulation was performed in cooperation with the 3<sup>rd</sup> Department of Surgery, 1st Faculty of Medicine, Charles University and MUH.

## Department of ENT, Head and Neck Surgery, 1<sup>st</sup> Faculty of Medicine, Charles University and Motol University Hospital

*Head physician: Prof. Jan Betka, MD*

*Senior consultant: Pavol Jablonický, MD*

*Head nurse: Jana Jandová*

**Basic characteristics:**

The clinical 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, in most cases for the whole Czech Republic.

**In the year 2014, 3,402 patients were hospitalised (+ 4% compared to 2013), of which 1,477 at the ICU (+ 9% compared to 2013). Average casemix index of patients was 1,65. In our operating rooms, 3,322 surgeries were performed and next 223 patients of Motol University Hospital underwent the surgery outside the clinic. The department performed 44,524 outpatient medical services for 17,441 patients.**

In 2,773 patients there were performed further specialised audiometric examinations, and a total of 8,497 operations were undertaken. Objective audiometry was performed in 309 patients and otoacoustic emissions in 450 patients. The examination of the statoacoustic apparatus was performed in 820 cases and the ENG examination in 143 patients. Department performed examination for indication of hearing aid in 342 patients.

**Specialised outpatient facilities for:**

Oncology

Kophsurgery

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 disorder  
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

**New methods and procedures:**

- Plastic reconstructive procedures after oncologic resection of tumors of the head and neck by means of remote transmission vascular muscle and bone lobes
- Radio navigation in surgery of the thyroid and parathyroid glands
- Mini-invasive endoscopic surgery of the thyroid gland (MIVAT)
- Endoscopic approaches to removal of tumors of the internal auditory canal
- Perioperative neuromonitoring
- Fibroendoscopy of swallowing pathways (FEEST)
- Operation of the sentinel node in carcinoma of the oropharynx and the oral cavity with help of the gamma probe detection;
- Investigation by means videostroboscopy in patients prior to microlaryngoscopy and phonosurgical interventions;
- Extended microsurgery for tumors of the paranasal sinuses using 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 tumors and tumors 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;  
Endoscopic equipment for the mini-invasive interventions of the thyroid gland and in the operation of the cranial base and the inner auditory meatus;  
Videostroboscope, ENG Video  
NBI in the early diagnosis of tumors  
Neuronavigation, radionavigation  
Video endoscopy of salivary glands  
Microcutter for stapedius ear surgery

**Important event in 2014:**

Prof. Jan Betka, MD., FCMA was appointed as a member of the 1st Medical Faculty Assembly of the Council of Universities, Charles University.  
Prof. Jan Betka, MD., FCMA was appointed a member of the panel of 06 - Disorders of

organ function and accident and Intensive Care Agency for Healthcare Research in Czech Republic.

Prof. Jan Betka, MD., FCMA was appointed a member of the panel of 11 - Medicine of the Government Council for Research, Development and Innovation.

The first implantation of the auditory system Baha Attract in the Czech Republic was performed at the clinic. The clinic was included in the global study Global Market Controlled Release.

Special issue of the magazine BioMedResearch International (IF 2.706) called Endoscopic / Externals otolaryngologist Approaches in Head and Neck Surgery, whose main editor was prof. Betka and guest editor prof. Plzák with four clinic staff.

Zdeněk Fík, MD, Eva Lukešová, MD, Jaroslav Betka, MD defended and successfully completed a postgraduate degree (Ph.D).

Oliver Profant, MD, Ph.D. received the Kutvirtova prize of the Czech Society of Otorhinolaryngology and Head and Neck Surgery for authors younger than 35 years.

June 4th - 6th. 76th Congress of the Czech Society of Otorhinolaryngology and Head and Neck Surgery and 6th Czech and Slovak Congress ORL, Ostrava

June 16th - 20th. 2nd Czech-American Days, Prague

November 11th - 14th. 27th International Course endoscopic endonasal surgery (EES, FES, FESS), Prague,

November 13th - 14th. ORL Forum, Prague.

November 20th - 21th. 21st professional supra-regional conference "Minimally invasive surgical approaches in Otolaryngology - new trends", Ústí nad Labem

December 4th - 6th. Presidential Council ORL-HNS CE, Prague

## Department of Nuclear Medicine and Endocrinology, 2<sup>nd</sup> 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:**

The interdisciplinary workplace of Nuclear medicine and Endocrinology which is, besides standard diagnostics by means of radioisotope methods, 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 <sup>131</sup>I-MIBG from the whole Czech Republic. The department also serves as an educational centre, it accredited in specialisation of Endocrinology and Nuclear Medicine. Last year it provided care for 20,000 patients, 1,000 of which were hospitalised. The outpatient facilities provided 4,000 investigations and therapeutic applications of radioactive pharmaceuticals.

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

### **Specialized outpatient facilities for:**

Endocrinology and diagnostics of differentiated carcinoma of thyroid gland (DTC); the dispensary has over 13,800 patients (this is one of the greatest ensembles in the world) Clinic for thyroid microcarcinoma

Consulting for medullary thyroid carcinoma (MTC)  
Thyroid ophthalmopathy (TAO)  
Nuclear medicine clinic

**New methods and procedures:**

- Diagnostics and treatment of differentiated carcinoma of the thyroid gland using human recombinant thyreostimulation hormone;
- Diagnostics using a hybrid combination of X-ray (CT) scanning and isotope (SPECT) imaging;
- Introduction of new radiopharmaceuticals in clinical practice Tectrotyd-99m;
- Clinical testing of new pharmaceutical for the therapy of medullary carcinoma and radioiodine-refractory differentiated thyroid carcinomas;
- Providing of genetic testing in patients with familial forms of medullary thyroid carcinoma.

**Unique technological equipment:**

SPECT / CT camera Symbio Inteva Excel for ambulance NM and the ward two-headed camera with crystal 5/8 "Symbio S  
Modernization radiopharmaceutical laboratory reaching the level of grade C

**Department of Long-term treatment - Aftercare Centre of Motol University Hospital**

*Senior consultant: Martina Nováková, MD*  
*Head nurse: BA Lucie Kubová*

**Basic characteristics:**

LTT-Aftercare Centre has 381 inpatient beds at 13 stations. It specializes in geriatric issues on the one hand, and care of patients after trauma, surgery, chronic internal diseases, cerebrovascular accidents, etc., without age restrictions. In 2014, the total number of admitted patients was 1,383.

10th station has 24 beds and it specializes in hospitalized patients requiring intensive care, respectively acute care appropriate internal department.

14th-patient station, which has 29 beds is focused on follow-up care for patients in chronic hemodialysis program and works closely with Fresenius hemodialysis center. The station has been in reconstruction since 1<sup>st</sup> September, 2014.

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

Physiotherapy is carried out individually or in groups, using the most modern techniques such as electrotherapy, magnetic therapy, ultrasound, vacuum compressive therapy on the healing of chronic defects, etc. there is continued cooperation with the Volunteer Center.

Department received accreditation of the first degree for teaching geriatrics and is involved in postgraduate medical education in geriatrics and internal medicine teaching a bachelor's degree nurses.

The centre hosts training courses.

**Specialized outpatient facilities:**

Geriatric

**New methods and procedures:**

Healing wounds using vacuum-compression device Extremiter with application of CO2  
Department continues in the international study MIDFRIL

**Unique technological equipment:**

2010-Extremiter better future - + CO2 therapy - a device for vacuum-compression therapy

Two fitness machines to strengthen the muscles of the lower extremities

**Important event in 2014:**

J.Krupková, MD + M.Horáčková, MD: Altrazeal-new path in wound healing (lecture at the congress way to modern nursing, Prague)

M.Nováková, MD: Treatment of pain in frail older people (lecture at the Congress practitioners, Prague)

V.Hejlová, MD: Options rehabilitation interventions Centre after care FNM (lecture at the 19th Congress of Gerontology Hradec Králové)

V.Hejlová, MD + V.Krejčová, MD: Possible practical use of vacuum-compressive therapy in CNP FNM (lecture at the Faculty of biomechanics expert seminar CTU + fa. Embitron - Brno).

## Department of Neurology, 2<sup>nd</sup> 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:**

Neurological Clinic 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, vestibulological, neuromuscular, Neuroimmunological and neurovascular program. In addition to care for the catchment area is selectively provided superconsiliary care for patients from all over the country.

In 2014, the department provided outpatient examination for 38,841 patients. A total of 1,935 patients were hospitalised.

**Specialised outpatient facilities:**

Centre for diagnostics and treatment of demyelination diseases;

Centre for epilepsy - advisory centre for seizure disorders;

Ictus Centre of Motol Hospital, Cerebrovascular clinic and laboratory neurosonology;

Centre for disorders of cognitive functions;

Centre for Neuromuscular Diseases;

Centre for Parkinson's disease and other extrapyramidal disorders;

Advisory centre for neurocutaneous diseases;

Neuro-otologic Centre Hospital Motol;

Advisory centre for neuroAIDS;

Advisory centre for myoskeletal medicine;

Centre for headaches;

**New methods and procedures:**

- Cognitive Centre innovated tests for preclinical investigations and prodromal Alzheimer's disease, including new investigative battery spatial cognition testing in virtual reality.
- CSF laboratory (in collaboration with the Institute of Immunology) Diagnostics-encephalitis-autoimmune antibodies against onconeural well-characterized antigens (Hu, Yo, Ri, MA2 (Ta), CV2 (CRMP5), amphiphysin) by Western blot method with a subsequent automated semiquantitative evaluation - Diagnosis, detection of antibodies against membrane and synaptic antigens (NMDAR, AMPA1R, AMPA2R, GABABR, Caspro-2 LGI-1) by indirect immunofluorescence on cells transfected with genes for the relevant antigens Zic4, Tr (DNER), SOX1, Ma1.
- Within CSF diagnosis after performing of tau, phospho-tau and measurements of beta-amyloid 40, also the first analysis of beta-amylodu 42 was implemented
- Within laboratory differential diagnosis of neurodegenerative diseases, a unique fingerprinting method electrochemical body fluids was introduced.
- Established neuroimaging laboratory enables efficient evaluation of multimodal MRI data and perform advanced MRI analyzes. In the area of MRI signal, 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 ICU
- Extension of personalized medicine antithrombotic agents in the secondary prevention of cerebrovascular disease in cooperation with the Laboratory of Molecular Diagnostics of Hospital Na Homolce and laboratory Pharmakl of measuring the effectiveness of new oral anticoagulants
- Endovascular treatment of acute ischemic stroke as a routine medical procedure (KZM second collaboration with Motol University Hospital)
- Develop and implement special MR protocol for patients with multiple sclerosis (KZM second collaboration with Motol University Hospital)
- In cooperation with the Laboratory of Molecular Diagnostics Na Homolce Examination TOMM40 gene polymorphisms in patients with Alzheimer's disease; The introduction of the indicator model MXA protein levels in routine practice for patients with multiple sclerosis treated with interferon.
- We launched Republic unique method in the Czech, for rehabilitation of patients with chronic of dizziness and balance disorders in hospital. The method uses a visual biofeedback using force and tablet platform. Our work contributed to the development of the system. Creating programs for rehabilitation of strabismus, amblyopia and functional program version Hessian cloth in cooperation with the Department of Cybernetics, FEE CTU and Eye Clinic, 2nd Medical School and Motol University Hospital
- Examination of otolith system using cervical myogenic evoked potential, introducing methods Pupilometry - extension of existing equipment testing opportunities for Video-oculography (VOG). New methodology of vestibulo-ocular reflex introduced, which provides testing with the device ICS Impulse firm Otometrics. The device is unique in that it allows to investigate the function of the semicircular canals and thus detect incomplete vestibular lesion.
- Testing of thin fibers of peripheral nerves method of determining thermal threshold using the Peltier element.
- Introduction of a unique neurophysiological diagnosis of disorders of thin nerve

fibers (A delta fibers C) 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 quantitative electromyography in the diagnosis of myopathy (computer processing of EMG signal - power spectrum analysis, peak ratio, number of small segments). The methodology enhances the sensitivity of the original 64% to 91%

#### **Unique technological equipment:**

256-channel high-density EEG for epilepsy and cognitive program  
device companies Otometrics ICS Impulse for testing the function of the semicircular canals

Telemetry central monitor Philips IntelliVue M3150 for 9 patients

Ultrasound device rimed Intraview helmet for long-term monitoring

Toshiba ultrasonographic device 500 applications for examination transcranial and extracranial arteries and peripheral nerves with a 3D display along with MR / CT data

128-channel EEG system NicoletOne video EEG monitoring

Rotating armchair NYDIAK for electronystagmography - ENG testing;

Two systems for video EEG monitoring Schwarzer/BrainLab and Schwarzer/Stellate;

FAN Study system for a complete evaluation of functioning of the autonomous nervous system including the test on an inclined plain.

Experimental laboratory for testing spatial memory and spatial orientation (Blue Arena) - in cooperation with the Institute of Physiology

Termotester Somedic, Sweden - electrodiagnostic evaluation function device thin fibers Adelta + C fibers.

Digital algeziometr SDomedic, Sweden - Electrodiagnostic apparatus for research of deep neuropathic pain experimental laboratory for testing spatial memory and spatial orientation (Blue Arena) - in collaboration with the Institute of Physiology ASCR.

#### **Important event in 2014:**

Professorship - prof. Hort;

Organization of the 27th Czech and Slovak epileptologic Congress in Čestlice. The work of organizing the 28th Czech and Slovak neurological congress in Ostrava, Brno VII. international neuromuscular Congress, 2014, and 42nd Czech and Slovak cerebrovascular Congress in Mikulov;

Organizing of international training days in neuro-otology and regular annual courses Neurotology;

A total of 35 publications in international journals, 2 publications in peer-reviewed international journals, 1 chapter in foreign memoir, 6 papers in domestic journals, monographs and 1 home 35 chapters in domestic monographs.

## 1<sup>st</sup> Department of Orthopaedics, 1<sup>st</sup> 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 Sládková*

### **Basic characteristics:**

1<sup>st</sup> Department of Orthopaedics provides both conservative and surgical care for adult patients in the full spectrum of orthopaedic interventions and traumatology of the locomotors apparatus with the exception of the spine and paediatric orthopaedics.

The department has 129 beds of which 14 at the ICU for nonseptic patients and 2 for ICU septic orthopaedics, 30 for traumatology and 20 are septic.

A total of 4,866 patients were hospitalised in 2014 and the outpatient care was provided for 62,764 patients. Total number of operations made was 4,444.

### **Specialised outpatient facilities:**

Joint replacement

Surgery of major joints

Surgery of the hand and the leg

Arthroscopy of the shoulder, wrist, hip, 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;
- Introduction of routine use of reverse shoulder arthroplasty
- New techniques in wrist surgery
- New omega splint for a broken pelvis put into practice;
- Developed and put into practice retrograde nail for arthrodesis of the ankle
- RS Scan International - pedobarograf - functional load measuring foot before and after surgery

### **Important event in 2014:**

Rastislav Hromádka, As.MD, Ph.D. successfully habilitated in April and was appointed assistant as a professor of orthopaedics.

### **Published books:**

S. Popelka, A. Sosna, P. Kovarik, R. Hromádka, Jahoda D., V. Bartak: Foot and Ankle Surgery - selected chapters. Aeskulap Edition, Praha

Netval M., D. Chocholáč: Atlas orthopedic tuberculosis. Karolinum, Praha

**Publishing activities** of the clinics was published 11 works in journals with IF

## Centre for Spinal Surgery of Motol University Hospital

Senior consultant: Ass. Prof. Jan Štulík, MD

Head nurse: Bc. Dagmar Šeborová

### **Basic characteristics:**

Specialized department has been treating injuries and diseases of the spine, including the consequences. In a year 2014 total of 1,365 patients were operated, 1,465 patients were hospitalised and outpatient care was provided for 12,421 patients.

### **Specialised outpatient facilities:**

Treatment of injuries and diseases of the spine

Scoliosis in children

### **New methods and procedures:**

- New technique of resection en bloc subaxial cervical vertebra;
- En bloc resection of sacrum;
- En bloc resection of thoracolumbar vertebrae;
- Correction of deformities, scoliosis;
- Kyphosis correction of deformities;
- Spinal osteotomy PSO.

### **Unique technological equipment:**

O – ARM – device for 3D imaging of the spine in the course of surgical intervention and a navigation spinal system

NIM – ECLIPSE – device for peroperative monitoring of neurological functions

Surgical microscope Carl Zeiss

### **Important event in 2014:**

Cervical Spine Course, Aesculap Academy, Prague, Czech Republic – lecture

Organizing the National Spinal Congress in Prague in 2014

Štulík J. : spinal injuries. In: M. Zeman, Krška Z., et al. : Special Surgery, Galen, 2014

Štulík J. : spinal injuries. In: P. et al. : Orthopedics, Grada, 2014

Štulík J. : Surgical treatment of spinal diseases. In: P. Kolar et al. : Clinical Rehabilitation, Prague, Galen 2014

Klézl Z., Štulík J. : Surgical treatment of the cervical spine in rheumatoid arthritis. In: Bentley G. : European surgical orthopedics and traumatology, The EFORT textbook. Volume 2, Heidelberg, New York, Dordrecht, London, Springer, 2014

## Department of Pneumology, 2<sup>nd</sup> 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:**

Department of Pneumology is concerned with 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 CHOPD, 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 2014, 1,714 patients were hospitalized, outpatient treatment was given to 1,598 patients, bronchoscopy was performed 1,485 times and 1,126 times was given chemotherapy.

### **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 lung cancer patients with ALK-positive breakthrough using the crizotinib medicament;
- Endobronchial ultrasonography (EBUS) allowing puncture mediastinal lymph nodes under ultrasonographic control in real time with immediate cytological evaluation findings using ROSE (Rapid On Site Evaluation).
- The introduction of bronchoscopic lung kryobiopsie, which is a method that, in some cases prevents open lung biopsy
- Treatment of tracheal stenosis introduction 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 as a transport

measurement of carbon monoxide in exhaled air unit Smokerlyzer to verify non-smoking

### **Important event in 2014:**

Head of Department Petrik performed the first lung lavage total cardiopulmonary bypass in a patient with alveolar proteinosis. Motol CF center, which also includes our clinic, was enrolled in the prestigious European Cystic Fibrosis Clinical Trial Network.

Award for the best work in the journal *Studia et Pneumologica phthiologica* in 2013 won in two categories dr. Fila and prim. Petřík.

Active participation (lecture) at the 37th European Cystic Fibrosis Conference, Gothenburg, Sweden, 11-14 June 2014, the first author dr. Fila.

Dr. Fila and dr. Valentová Bartáková are coauthors of the recommended procedure for lung transplant.

For the first time in the Motol University Hospital (outside of clinical trials) was applied biological treatment of patients with cystic fibrosis product Kalydeco.

Prof. Marel was the second time named the best teacher, 2nd Medical School.

## Department of Oncology of Motol University Hospital

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

*Senior consultant: Zdeněk Linke, MD*

*Head nurse: MSc. Drahomíra Nikodémová*

*Senior radiology assistant: Alena Čuprová*

### **Basic characteristics:**

The department provides a complete care for oncological patients in the field of anti-tumorigenic pharmacotherapy and radiation therapy. It belongs to Complex oncological centres in the CR that provide a highly specialised care. Department is accredited for specialist training in clinical oncology and radiation oncology. Department is accredited for the practical part of specialist training in the field of medical oncology and radiation oncology.

In 2014, a total of 193,373 patients were treated on the outpatient basis, 2,960 newly admitted (of which 1,678 to chemotherapy and 1,282 to radiotherapy), 2,866 patients were hospitalised. The number of irradiated fields was 138,054, number of brachytherapy applications was 583 and number of applied cycles of chemotherapy was 10,066.

### **Specialised outpatient facilities for:**

Dispensary care for patients after the anti-tumorigenic treatment was completed

Checking of patients during chemotherapy

Checking of patients during teletherapy

Chemotherapy application

Checking of patients during brachytherapy

### **New methods and procedures:**

- Periodic adjustment of protocols of the treatment of malignancies with the introduction of new molecules chemotherapy, new combinations of chemotherapy and biological therapy. Improving symptomatic therapy, improvement of pain treatment, monitoring nutrition of patients, the use of growth factors for the treatment and prevention of decrease in the number of blood cells during cancer treatment.
- Introduction of central venous access (ports) and peripheral PICC in all patients with chemotherapy applications.
- Cooperation in clinical studies and grants with an international participation which solve new therapeutic methods in solid tumours and hemoblastomas.
- Cooperation in the research project together with genetic workplaces in the search for families with a genetic risk of malignancies.
- Cooperation with the Institute of Immunology and Department of Urology, Motol

University Hospital in application preparation SNP01 - established centre for the treatment of prostate cancer.

- Improvements and full use of IMRT method (intensity modulated radiotherapy) which allows for a higher dose in the target volume, sparing healthy tissues
- Implementation techniques IGRT (image guided radiotherapy), based on the current control patient positioning in radiotherapy and the possibility of correction according to the reference position for the simulation of radiation plan. The Use of dynamic wedges to perfectly linear accelerators applied 3D (three dimensional) planning. Option fusion of images from MRI and CT examinations with the planning CT images to create a more perfect radiation plan.
- Improving and full use of fractionated stereotactic radiotherapy. Department implements a new method for 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) Millennium MLC-120 and with an electronic imaging system (EPID – electronic portal imaging device) for the check of correct position of the patient during therapy. One of these accelerators is equipped with an additional kV source for 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) Millennium MLC-120 and an electronic imaging system (EPID). This accelerator is equipped with a micromultilamellar colimator (m3 micro-MLC) and accessories 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.

Cancer Information System Aria, which integrates linear accelerator, 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 2014:**

In 2014, the department became the Oncological centre as part of the 2nd Faculty of Medicine, Charles University and Motol University Hospital.

Department participated in organization and lecturing at the 3rd Symposium on colorectal cancer with international participation at the 5th Prague Onco colloquium. It actively participated in the implementation Uro-oncologic symposiums and other Czech symposia.

Department annually organizes a symposium radiotherapists, oncologists, medical physicists and laboratory technicians – Days of Motol. In 2014 already XVI., In collaboration with the Department of Oncology in Thomayerova Hospital, Department of Pediatric Hematology and Oncology and the Department of Surgery at Children's 2nd Medical Faculty on child cancer in adulthood and adult tumors in children.

Doctors have actively participated in international events ASCO, ESMO with their abstracts and posters.

## Department of Urology, 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital

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

*Senior consultant: Jan Jerie, MD*

*Head nurse: Bc. Alena Kašajová*

### **Basic characteristics:**

Department of Urology provides therapeutic and preventive care in the full range of adult urology. It is specialised in surgical treatment of malignancies of the uropoetic tract including the subsequent oncological treatment. It belongs to top workplaces in the treatment of lithiasis and it is a unique workplace for surgical conversion of sex. In 2014, the treatment was provided for 25,931 outpatient clients, 3,098 patients were hospitalised of which number 1,639 were operated.

### **Specialised outpatient facilities for:**

Oncology

Treatment of metapylax 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 tumor;
- Improvement of endoscopic treatment of stones - a technique mini PEK etc;
- Enhancement of shunt operations after cystectomy;
- Use of new imaging methods for diagnostics of the urinary bladder tumors („narrow band imaging“);
- Neuromodulation in the treatment of urge urinary bladder symptoms;
- Introduction of microsurgical techniques in andrologic operations (varicocele repair, vaso-vasoanastomosis etc.);
- Use of Ho:YAG laser in surgical interventions;

### **Unique technological equipment:**

Ho:YAG laser

devices for NBI (narrow band paging), fluorescence cystoscopy

devices for LESS

devices for miniPEK

### **Important event in 2014:**

Organization of Central European Congress of the European Association of Urology (EAU CEM) in Prague, 3<sup>rd</sup> to 5<sup>th</sup> October 2014. The event was attended by 300 doctors from 26 countries.

Organization of Annual Conference ESOU (European section for onco urology) in Prague, 17th January 19, 2014. The president of the conference was prof. Babjuk. Over 900 participants attended the event

I. Minárik, MD won 1<sup>st</sup> place in the Czech Urological Society for the best publication in a journal with IF for work in Immunology Letters.



# COMMON EXAMINATION AND THERAPEUTIC UNITS

## Department of Radiology of 2<sup>nd</sup> Faculty of Medicine, Charles University and Motol University Hospital

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

*Senior consultant: Radek Pádr, MD*

*Head of RA: Mgr. Tomáš Schilla*

### **Basic characteristics:**

In 2014, Clinic of Medical Imaging (CMI) carried a total of 253,279 examinations, which is about a 5% increase compared to 2013. This number includes conventional examinations, examinations of the gastrointestinal tract examination in the child radiology, ultrasound examinations, CT scan, MRI and examination of vascular and interventional radiology. There has been steady increase of the number of MR examinations, which is related to the full service of the MR at the children department of CMI. The number of CT examinations remains stable. There is also an increasing demand at the Department angiography and interventional radiology.

### **Unique technological equipment:**

magnetic resonance imaging - 4 devices: the inspection in their entirety, including spectroscopy (MR 1.5 T Philips Ingenia- new replacement within)

CT - 2 devices with 64 rows of detectors, new variations within the Toshiba CT Aquilion One with 320 rows

modern angiography Toshiba Infinix

mammography, Breast sonography, stereotactic, vacuum biptom

sonography children and adults, Doppler sonography (ultrasound machine Toshiba aplite within 2 new permutations)

6 fully digitized radiography

mobile X-ray unit DR Fuji Go - 2 pcs (new - only DR- within permutations)

### **New methods and procedures – unique technological equipment:**

- CT angiography, 3D VR visualization, CT cardio - cardiac imaging, CT angiography;
- CT cardio – imaging of the heart, CT coronarography.
- MR new opportunities for examination of blood vessels, heart function tests, tractography, T2 relaxometry, examination of uncooperative patients, spectroscopy.
- Prenatal US and MR diagnostics.
- MAMO SONO workplace - ductography, cyst puncture and cut core biopsy under ultrasound control, puncture by device Vacora, preoperative localization by ultrasound and stereotactic navigation
- Radio-frequency ablation and chemo-embolisation of metastases in the liver and lungs.
- Implantation of aortal stentgrafts, subintimal recanalisation of peripheral arteries in the lower extremities, treatment of acute and chronic deep venous thrombosis, treatment of vascular accesses to haemodialysis, introduction of translumbar catheters.
- Treatment of cerebral malformations in both children and adults.
- Interventions on the bile ducts (including absorbable stent implantation), spondylitis

and vertebroplasty

- Interventions under CT fluoroscopy.
- Ultrasound equipment Toshiba Aplio software, which enables the use of diagnostic contrast agents, especially for dynamic diagnosis of focal liver lesions in particular. 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 could hold conferences and consultations with departments in the Czech Republic and other European countries.
- Research in prenatal and postnatal detection monitoring of patients with pulmonary cystic adenomatoid malformation.
- Establishment of Arterial spin labeling as a recent method for visualizing cerebral perfusion in the form of color maps as well as its quantification expressed in exact terms.

#### **Important event in 2014:**

Organization of 39th Bohemian radiological congress with international participation in Prague in Hotel Diplomat;

Presentation of the results of the expansion of the neck in the prenatal and postnatal MR tracking on ESPR 2014 in Amsterdam;

Organization Symposium radiology assistants CR with rich active participation from employees of the Department of Imaging Methods;

Department organized a European sonographic school EUROSONO 2014.

Under the auspices of the European School of Radiology Clinic organized 2st ESOR Tutorial of Radiology in Prague.

IV. Motol Day Paediatric Radiology for large multidisciplinary participation.

## **Department of Biology and Medical Genetics of 2<sup>nd</sup> 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 genetics. It determines diagnostics of selected congenital developmental disorders, hereditary tumors, neurodegenerative diseases in children and adults, including disorders of mental development in both prenatal and postnatal periods. At the same time DBMG cooperates with other departments of the University Hospital in solving the subsequent genetic issues (Department of Obstetrics and Gynaecology, Paediatrics and more). The department solves projects in the field of biomedicine research, participates in the undergraduate, postgraduate and specialising education of doctors and health care professionals, cooperates with a number of foreign departments and international research consortia.

It also solves a number of projects of the 7<sup>th</sup> OPK Framework Program and the European Commission in the field of medical genetics. DBMG cooperates with national coordination centre for rare diseases and DBMG and Paediatric Clinic was established by Ministry of Health of the Czech Republic - Centrum highly specialized healthcare for patients with cystic fibrosis. DBMG laboratories are accredited by the Czech Institute for Accreditation

(CAI). The accreditation is for the molecular genetic and cytogenetic testing. DBMG laboratories are also recorded in the registry of clinical laboratories authorization of the National Centre for Clinical Laboratories at Czech Medical Chamber of J.E. Purkyně (NASKL) and certified to meet the conditions for an audit and the expertise of Clinical Biochemistry and Medical Genetics. Centre for Reproductive Genetics ÚBLG received authorization to operate the tissue establishment of the State Institute for Drug Control (SIDC).

**In 2014, the outpatient's of our department provided consultations for 9,998 to patients / 5,997 families.** We indicated termination of 36 pregnancies from genetic indications. Laboratories of DBMG **conducted 291 pre-natal and post-natal 6,082 molecular genetic testing, prenatal cytogenetic examination was performed 296, postnatal 1,580.**

#### **Specialised outpatient facilities:**

Prenatal genetic consulting

Neurogenetic consulting

Genetic consulting for sensoric disorders and non-syndromic deafness

Genetic consulting for microdeletion syndromes

Genetic consulting dealing with dysmorphology

Genetic consulting for infertile and infertile 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 – solved in the section of the Centre for CF

#### **New methods and procedures:**

- Clinical use of NGS in cardiogenetics - detection of specific mutations for early detection, diagnosis and treatment of hypertrophic (HCM) and dilated cardiomyopathy (DCM), inherited arrhythmias with risk of sudden death in children and adults.
- An implementation and verification of the latest screening methods 1T QUAD.
- Continued expansion of new diagnostics of microdeletion syndromes by FISH and array CGH and diagnostics without the need for cell culture.
- Diagnosis refined by submicroscopic aberrations by array CGH using various types of oligonucleotide microarrays firm. Bluegenome, Agilent, OGT including the most accurate commercially available chips for aCGH - oligo 4x180K loci with testing for loss of heterozygosity. It was developed a procedure where the method cannot reliably distinguish between benign and pathologic findings.
- Oligoarray CGH method is also used for prenatal diagnosis, not only out of culture, but also the native (i.e. freshly collected) material.
- Workplace expanded DNA diagnostic method according to Sanger sequencing or by fragmentation analysis on more than 110 genes responsible for genetic syndromes, congenital defects, cancer predisposition syndromes, organ and sensory disabilities, thrombophilia, numerous rare genetic syndromes, and others.
- Performs testing for imprinting disorder syndromes PWS / AS and BWS / RSS.
- Dozens of deletions / duplications or microdeletion syndromes being investigated using MLPA.
- ÚBLG conducted a pilot analysis of the use NGS methods for diagnosis with cardiomyopathy, cystic fibrosis, neurofibromatosis, Duchenne muscular dystrophy, a hereditary predisposition to malignant tumours.

- New approaches introduced for a more accurate interpretation of the a priori mutation of unknown significance.
- In collaboration with the University Hospital Vinohrady in Prague we provide newborn screening for cystic fibrosis for the Czech region.
- In the field of assisted reproduction is introduced from 2013 and further developed a new method - heavy preeclampsy screening in the first trimester to the early detection of risks and the introduction anopyrin preventive examinations of placental growth factor PLGF.
- In collaboration with Gyn.-por. Clinic offers ÚBLG cryopreservation of ovarian tissue for cancer patients prior to treatment.
- Continued instability DNA testing of sperm by flow cytometry.
- Implemented using methods PICSI and Comet assay methods and Halosperm.
- In collaboration with the Department of Urology, Motol University Hospital were successful IVF cycles in patients after spinal cord lesion, where sperm is gained by penile Vibrostimulation, these results were presented at several international and national conferences and have been accepted for publication in a journal.
- DBMG cooperates with KI. Pediatric Hematology and Oncology at the project Pancare- (cooperation was presented at several international events).

**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

InControl meter for accurate verification of culture conditions

Maylor-Wharton Cryogenics-type K10 with a capacity of 10,000 doses

Laminar flow fy Faster, SafetyFast Classic, Class II biohazard

Increased comfort Centres Reproductive Genetics

HiSeq 1500 the firm Illumina NGS

MiSeq firm Illumina NGS

CBOT, Covaris S200 for NGS

External analyzer CO2 and Temperature

**Important event in 2014:**

Organisation of an international workshop on rare diseases in collaboration with the Ministry of Health and the European Commission Chafee on 2th till 3rd December 2014

## Department of Medical Chemistry and Clinical Biochemistry, 2<sup>nd</sup> 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. 617,300 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 outputs in 2014 amounted to 7,407,921, which is, by 2.4% more than in 2013. Other sections of the department are specialised outpatients facilities focused on hyperlipoproteinemia-related problems, disorders of bone metabolism, nutrition disorders in terms of obesity and malnutrition. In 2014 we treated 5,500 patients in outpatient clinics.

### **Specialised outpatient facilities:**

Ambulance dealing with treatment of hyperlipoproteinemia

Ambulance dealing with bone metabolism

Ambulance dealing with nutrition

### **New methods and procedures:**

- 2012 - stat intact PTH peroperatively
- 2012 - Capillary electrophoresis of serum proteins
- 2013 - the introduction of levetiracetam determination
- 2014 - introduction of a highly sensitive determination of thyroglobulin TGL hs
- 2014 - changing determine IGF-1 and IGFBP3 (immunoradiometric method (IRMA) has been replaced by automated chemiluminescent (CLIA)
- 2014 - department OUPD were immunochemical analyzer AQT90 added two new methods and beta-hCG and D-dimer

### **Unique technological equipment:**

New blood gas analyzer Rapidlab 1245

Gas chromatograph

Coulometer

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

ELITE 200 IQ 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)

Analyzer LIAISON XL, 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 new department ARO

**Important event in 2014:**

Successful completion of the inspection audit by TÜV International 16 January 2014;  
Conference ÚLCHKB: Hepatitis Investigations at Motol University Hospital June 18, 2014.

**Department of Immunology, 2<sup>nd</sup> 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:**

Department of immunology provides full care for both paediatric and adult patients with immunopathological conditions including clinical and laboratory examination as well as dispensary care. Besides the outpatient examination and treatment in the full extent of allergology and clinical immunology, the department provides also a regular therapy and infusion application of the indicated drugs in serious immune disorders at the ward for both paediatric and adult patients. Since 2012, the department includes the Institute of Immunology and Vaccine Centre. It serves as a basis for pre- and postgraduate education of immunology and is also concerned with research in the same discipline. The outpatient facilities in 2014 examined 16,008 patients and the laboratories carried out 290,130 examinations of 34,348 patients.

**Specialised outpatient facilities for:**

Immunodeficiencies

Allergies, autoinflammatory and autoimmune diseases

Short stay ward for the therapy of immunopathological conditions

Specialized premises for the production of antitumorigenic vaccines and specialized outpatient clinic for their application in clinical studies

ambulance of vaccination centre

**Centres**

Centre for treating hardly treatable asthma (Omalizumab, a monoclonal anti-IgE antibody)

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:**

- Enhanced diagnostics severe immune disorders mainly in the testing methods of cellular immunity;
- Component diagnosis of allergies;
- Expanding home care centres in supervision by subcutaneous immunoglobulin;
- Clinical studies of immune globulin preparations;

- Treatment by blocking cytokine (anti-IL-1 therapy).

**Unique technological equipment:**

Completely equipped laboratory for flow cytometry

Microscopic workplace including confocal microscope and scanning cytometer

**Important event in 2014:**

The accreditation SAK within the FN Motol

The accreditation of Ministry of Education program of university non-physicians, expertise 813

Completion Phase I / II clinical trials for prostate cancer immunotherapy using vaccines based on dendritic cells in prostate cancer Eudragit CT 2009-017295-24 and Eudragit CT 2009-017259-91

Management immunodeficiency centres in the global network of centres Jeffrey Modell Foundation, USA

Arrangement International Congress ESID (European Society for Immunodeficiencies, in October 2014, Prague)

Centres focus (Federation of Clinical Immunology Societies)

The project solutions Institutional Support of Motol University Hospital

The project "T cell therapy for prostate cancer" in the scheme advanced therapy

Solution 2 grants IGA, IGA completion of two grants and grant GACR

12 foreign papers have been published.

**Department of Medical Microbiology, 2<sup>nd</sup> 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:**

Department carries out laboratory diagnosis of bacterial, viral, fungal, parasitic infections. It also provides consulting services in the antibiotic therapy, differential diagnosis of infections and infectious complications. Cooperation in monitoring the incidence of nosocomial infection and monitored for abnormal profiles of antibiotic resistance. It is connected to the European system of surveillance and antibiotic resistance in European studies to monitor the incidence of infections caused by *Clostridium difficile*. Through representatives of the CCC NAP and SKAP CLS JEP is actively involved in the implementation of antibiotic policies in the country. In 2014 the department reported a total of 103,762,691 points.

**New methods and procedures:**

- Diagnostics (i) based on PCR: panel 16 respiratory viruses, enteroviruses, panfungal PCR, micromycetes and candidates, (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 *B. cepacia* complex (chronic infections in patients with cystic fibrosis)
- Demonstration of neutralizing antibodies against drugs type beta-interferon for MS

centre CR

- Cooperation with the Department of Internal Medicine Motol University Hospital in introducing fecal transplantation in patients with recurrent C.difficile colitis induced.

**Unique technological equipment:**

Insulator of nucleic Acids for PCR diagnostics Qiacube

Anaerobic box JOUAN

IF BX 53 Olympus microscope equipped for photographic documentation

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 agents

**Important event in 2014:**

Active participation of employees in Ulm in international conferences in 2014 (10): ECCMID, Barcelona; 19th EHA, Milano; SCOPE's Annual Meeting Leiden; EASD 50th Annual Conference in Vienna; 37th European Cystic Fibrosis, Goteborg, Sweden; 40th Annual Conference ISPAD; 17th Annual Conference ESCV; B.cepacia International Working Group meeting, Nimes; North American CF Conference Atlanta, USA.

Publication activity: 9 international scientific articles, 3 home impacted publications, 7 articles in Czech peer-reviewed journals. 1 chapter in Czech memoir.

**Department of Pathology and Molecular Medicine, 2<sup>nd</sup> 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 diagnostics of various types of diseases. It employs methods of classical histology and cytology combined with other special laboratory methods. In 2014, department examined 26,773 patients, which provided 463,706 histological and cytological specimens. In the laboratory of molecular pathology was done by flow cytometry, PCR, FISH and IHC predictive total 25,041 examinations in 2,547 patients. 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 hospital.

**Specialised laboratories for:**

Electrone microscopy

Immunohistochemistry

Diagnostics of neuromuscular diseases

In situ hybridisation

DNA and RNA analysis

cytology

Biopsy

Necropsy  
pulmonary cytology

**New methods and procedures:**

- We introduced diagnostics of lung carcinomas via method of PCR mutations at the EGFR gene and ALK gene breaks, ROS1 and c-MET.
- We introduced the detection of mutations in the BRAF in melanoma patients as a predictive marker for targeted therapy.
- Lymphoplasmacytic detection introduced in patients with lymphoma of mutation in the gene MyD88, which helps in the diagnosis of disease.
- Continually during the year we introduce new immunohistochemical methods for diagnosing tumours.
- The biopsy laboratory were introduced new dyeing methods.

**Unique technological equipment:**

Cyclery for real-time PCR

MiSeq device for methodology for “Next Generation Sequencing” panel TruSight Tumor - detecting changes in 26 genes

**Important event in 2014:**

Project institutional support for the Ministry of Health Sciences continues in 2014 at a good level, total IF for 2014 was 57th

Publication: Kalinová M., and colleagues: The use of formalin-fixed paraffin embedded lymph node samples for detection of minimal residual disease in mantle cell lymphoma. Br. J. Haematol. Oct 14th 2014 doi: 10.1111 / bjh.13182. (Graft ahead ofprint), IF 4959

## Department of Clinical Haematology, 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. The department is divided into two parts, laboratory and clinical.

The laboratory performs routine and special haematology tests to Motol University Hospital with supra-regional powers. In 2014, the laboratory conducted 685,000 performances. The laboratory is the reference laboratory for the diagnostics of paediatric acute myeloid leukaemia and myeloproliferative conditions in children. In adult haematology attention is focused on its morphological diagnosis of myelodysplastic syndrome.

The clinical part of the workplace includes an outpatient section for paediatric and adult part. The clinic is part of the adult day care centre serving the application of blood products and chemotherapy. A total of 11,108 patients were examined in 2014.

**New methods and procedures:**

- Procedures for functional analysis of platelets
- Introduction to the methodology of the evaluation of new antithrombotic drugs

- 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
- Grant IGA 9905-4 Changes in coagulation parameters monitored during pregnancy
- OKH participating in the project of the European register of patients with myelodysplastic syndrome (EUMDS), which is organized by European LeukemiaNet in cooperation with the European Hematology Association. The department is actively involved in activities CZECH MDS GROUP 2 times a year and holds morphology seminars nationwide.
- An international study is under way at the department - Open-label, randomized, parallel-group, assents, controlled, multi-center, noninferiority study of dabigatran etexilate versus standard of care for treatment versus thromboembolism in children from birth to less Than 18 years of age: The study DIVERSITY Clinical Phase IIb / III.

**Unique technological equipment:**

Coagulometer (ACL) for the examination of special coagulation tests  
 Device for platelet function analysis (PFA Innovance 200)  
 Hematologic line Sysmex XE-Alpha N  
 Microscope (Olympus, Leica) with camera equipment

**Important event in 2014**

Department develops Internet application morphological atlas - "Atlas of myelodysplastic syndrome" on MDS CZECH GROUP.

**Department of Clinical Psychology, Motol University Hospital**

*Head physician: Jaroslava Raudenská, Ph.D.*

*Mgr. Zuzana Kocábová (substitute for Jaroslava Raudenská, Ph.D. since October 2014)*

**Basic characteristics:**

The department employs of 28 psychologists with various workloads in both adult and paediatric parts who provide preventive, diagnostic, psychotherapeutic and rehabilitation care for paediatric and adult patients, in- and outpatients and their families in MUH. In 2014, the department treated 3,478 patients and carried out 11,509 operations, representing a gradual increase in comparison with previous years. It is accredited by the Czech Ministry of Health in the field of Clinical Psychology and Paediatric Clinical Psychology.

**New methods and procedures:**

- Long-term research project the quality of life of patients with cancer and chronic non-malignant pain in collaboration with the CLB and other workplaces.
- 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.
- Research on early markers of bipolar disorder supported by the IGA in cooperation with the Children's Psychiatric Clinic.
- Participation in development of methodology transit process in paediatric patients transplanted in cooperation with the Department of Paediatrics.

**Important event in 2014:**

Department organized 10 professional seminars accredited by the Association of Clinical Psychologists in the Czech system of lifelong learning.

Employees actively participated in lectures at national and Slovakian psychological, psychiatric, somatic and psychosomatic congresses and lectures for the public, published in scientific journals, contributed to the authorship of scholarly books.

Participation in the organization of the external meeting Registry of patients with cystic fibrosis - RECYF III.

## Blood Bank Department, Motol University Hospital

*Senior consultant: Eva Linhartová, MD*

*Senior laboratory technician: Mgr. Martin Matějček*

**Basic characteristics:**

Department of Blood Bank is one of the CITD at the University Hospital. It provides purchasing, storing and expedition of all types of transfusion preparations for patients of UH Motol. In 2014 there was dispatched a total of 40,433 T.U. of all types of transfusion preparations, of which 21,830 erythrocytic preparations, 14,640 of plasma T.U., 3,549 thrombocytic preparations T.U. and granulocytic TP 52 T.U. Consumption of blood products remained the same for all types of blood products, except for plasma, which fell against dispensing in 2013.

The blood bank department carries out basic and special immunohaematological investigations according to requirements of clinics and departments, prenatal examinations for pregnancy counseling Gynecol-obstetric clinic and if needed, it procures transfusion preparations for the intrauterine and replaceable transfusion.

In 2014 was carried out a total of 11,550 of pretransfusion basic tests (blood group), 20,233 antibody screening and 40,395 compatibility tests. Number of specialized immunohematological examinations raised compared to 2013 to 1,181. Number of irradiation of blood components raised compared to 2013 - 9,690 irradiations.

In the field of autologous donations are performed autologous whole blood mainly for orthopedic patients, Motol University Hospital, Department of Urology, Charles University, 2nd Faculty of Medicine and Motol University Hospital, but also for patients Hospital Na Homolce.

In 2014 were carried out a total of 453 autologous donations and 11 leukapheresis. The department provides instruction in the 2<sup>nd</sup> Faculty of Medicine and pre-and post-graduate study in transfusiology for doctors.

**Department specifics:**

Laboratory section

Stretch apheresis and autotransfusion

Irradiator for the irradiation of blood products

**Unique technological equipment:**

Blood cell separator Spectra Optia

**Important event in 2014:**

Initiation of separation (leukocytapheresis) in patients enrolled in clinical trials

## Department of Rheumatology for Children and Adults, Motol University Hospital

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

*Senior laboratory technician: Indira Jankovičová*

### **Basic characteristics:**

Department of Rheumatology of children and adults provides diagnosis, treatment and follow-up of paediatric and adult patients with inflammatory rheumatic diseases with a focus on juvenile idiopathic arthritis, rheumatoid arthritis, ankylosing spondylitis and other seronegative spondyloarthritis, as psoriatic arthritis, systemic connective tissue diseases, and vasculitis. Patient care is necessarily involved in other cooperative fields and laboratory complement. The department is actively involved in consulting activity in University Hospital and provides live consultant advice to other customers outside Prague workplace. As there are two centres for biological treatment of rheumatic patients - children and adults.

During 2014 there was an increase in traffic and outpatient capacities currently are 3 parallel operation of ambulance and social welfare. In 2014, 1,970 outpatient treatment were performed, minimum 1,036 of contacts and 1,266 telephone consultations.

### **New methods and procedures:**

- The department carried out 17 international studies, most of which focused on patients with rheumatoid arthritis, three studies on the issue of Osteoarthritis and one study in systemic lupus erythematosus.
- The department is involved in a long-term project - study P10-262, aimed at verifying the safety and efficacy of Humira in patients with active polyarticular juvenile idiopathic arthritis type.
- Continued studies BASE - treatment of patients with systemic lupus erythematosus and extends belimumab Study B-1801315, evaluation maintain potency etanercept combination with disease-modifying antirheumatic drugs (DMARDs) compared with DMARDs alone in patients with rheumatoid arthritis.
- During 2014, we initiated using tocilizumab and abatacept for the treatment of adult patients with rheumatoid arthritis. This procedure is used especially for patients who have failed anti-TNF therapy in first-line and systemic forms of JIA.

### **Unique technological equipment:**

The device capillaroscope to investigate pathology in patients with SSc, SLE, MCTD and systemic autoimmune diseases.

### **Important event in 2014:**

Centre for Biological treatment actively participated in the results presentation registry ATTRA the Czech Republic, on the grounds of EULAR and ACR. At ACR Congress in 2014 said a team of messages about 5 years of experience with a long-term study of adalimumab in patients with moderately to highly active JIA. At EULAR 2014 Congress was notified about the date of the occurrence of Familial Mediterranean fever in the Czech Republic.

## Department of Central Operating Theatres for Paediatric Patients, Motol University Hospital

*Head nurse: Drahomíra Fryčová*

*The physician responsible for the supervision: Vladimír Mixa, MD, Ph.D., Dept. of Anesth. and Intensive Care Medicine.*

### **Basic characteristics:**

In addition to the cardiac surgery, the department concentrates all surgical interventions of all surgical as well as non-surgical disciplines from the paediatric part of the hospital with the exception of cardio surgery; in the field of ophthalmology it ensures also surgeries of adult patients. A total number of interventions in 2014 was 8,183.

### **New methods and procedures:**

- Department continues to be in conformity with the Act. 123/2000 Coll. thorough documentation of all devices used in the operations of medical records of patients, including documentation of sterile material and tools. Orders for sterilization are sent from all workplaces surgeries only in electronic form.
- In the field of transplantology, 11 kidney transplants were performed.
- In the field of pediatric surgery, 2226 performances were performed, among others 280. chest deformity surgery - PE NUSS.
- In the field of orthopedics and traumatology in 2014 were conducted 1,199 performances for children and 188 performances in pediatric patients.
- In the field of dentistry 442 performances have been realized, 13 operations were carried out in the field of pediatric gynecology.
- At children ENT were performed 1,980 performances and among others activities there was an extension of the cochlear implant surgery in terms of bilateral implantation.
- In the field of ophthalmology, a total of 1,354 performances was performed in children and in the field of neurosurgery, a total of 370 performances.

### **Unique technological equipment:**

Neuronavigation, devices for mini-invasive laparoscopic, arthroscopic and endoscopic techniques, ultrasonic aspirator crusher and tumor masses, harmonic scalpel, surgical microscopes, special ultrasonic crusher and extractor lens materials for ophthalmology.

### **Important event in 2014:**

Digitization of the operating room with the processing of video signals from a variety of medical devices, their display, data storage, etc. Conducted connection microscope with links to e-PACS and archiving.

## Department of Central Operating Theatres for Adult Patients, Motol University Hospital

*Head nurse: Mgr. Vladana Roušalová*

*The physician responsible for the supervision: Petr Příklad, MD, Dept. of Anesth. and Intensive Care Medicine.*

### **Basic characteristics:**

The department provides a background for 9 of 11 surgical workplaces of the adult part of Motol University Hospital; it supplies about two thirds of the personnel. In 2014, 18,693 of interventions were performed. The department also organizes further study of nurses in the specialisation of perioperative care. Since 2013 heads the COS-adult nurse. Supervising the operation of COS-adult medically entrusted Department of Anesthesiology and Intensive Care Medicine.

### **New methods and procedures:**

- Further negotiations on the introduction of a computerized management system operating rooms.

### **Important event in 2014:**

Two new operating rooms received lights.

The operating screens have been retrofitted and restored.

New self-closing doors were installed at the septic hall.

## Department of Transplantation and Tissue Bank of Motol University Hospital

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

### **Basic characteristics:**

Since 1st January 2014, the Department of Transplantation and Tissue Bank (OTTB) started working. It is unique in the Czech Republic at the same time as the program ensures organ procurement and transplantation (TC) as well as donations and transplantation of tissue (TZ).

### **Department specifics:**

OTTB - TC creates the organizational prerequisites for that individual workplaces so that removal of organs and tissues, kidney transplantations for children, heart transplantations for children and lung transplantations can be performed at the Motol University Hospital. It cooperates with the Coordination centre of transplantation, with all regional TC in the Czech Republic and the Ministry of Health.

OTTB - TZ operates specialized tissue bank (STB 85) which is engaged in purveyance, processing, storage and distribution of cardiovascular tissue from cadaveric donors and bone tissue from living donors. In the advanced stage of preparation are taking and processing the bone tissue from multi-organ donors and the collection and processing amniotic membrane.

Bank cardiovascular tissue also works with a nationwide scope.

In 2014, a total of 10 multi-organ collection from deceased donors (donor 1 children) were realized, within multi-organ collection were successfully removed 18 kidneys,

heart 4 and 1 pancreas. Was performed 11 renal transplantation in children and 32 lung transplants (1x after ex vivo perfusion of the graft) and 4 heart transplantation. To a flask cardiovascular tissue was taken and transplantation of hearts 65 issued 78 of grafts for transplantation of heart valves.

**Important event in 2014:**

The transplant team was led by prof. Lischke developed a method “ex-vivo lung perfusion” (EVPP) via an animal experiment. In 2014, the method has been firstly applied successfully. The aim is to expand the pool of donor lungs, allow to realize a greater number of lung transplants to reduce the mortality rate of patients on the waiting list. Last year was firstly implemented more than 30 lung transplants, more than 3 in 1 mil. inhabitants. Thanks to these performances we reached the level of developed countries. Continuation of the Ross surgery (aortic valve replacement with a pulmonary autograft replacement of the valve and the pulmonary artery from the pulmonary allograft our bank) in cooperation with the University Hospital in Hradec Kralove.



# OUTPATIENT SECTION

## Emergency Department for Children of Motol University Hospital

*Head physician: Marie Mikulecká, MD, MBA, Ph.D.*

*Head nurse: Zdena Čechová*

### **Basic characteristics:**

The department provides a comprehensive evaluation and treatment of acute conditions of children in an until 19<sup>th</sup> year of life. In service there are paediatric outpatient departments as well as department surgical, ENT, orthopaedic, oral surgery, ocular and neurological. These outpatient departments work during emergency hours, in the morning shift work podiatric departments for acute paediatric conditions, with the exception of those that are brought in by ambulance and treated in the emergency reception SP. During morning shift is also in service paediatric department for foreigners.

As part of first-aid services in 2014 in paediatric patients were performed a total of 17,389 paediatric examinations, 21,109 testing other scopes together 38,498 examinations. The ED on both floors, a total of 15,052 examinations were carried out. The department as a whole reported a year 53,550 examinations.

### **Unique technological equipment:**

Laboratory equipment enabling rapid diagnosis of diseases indicative directly in the emergency intake.

## 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 2014, 7,733 patients were treated on an outpatient basis and 23,673 treatments were performed.

### **Specialised outpatient facilities for:**

- Venereology
- Pigmentary nevi and skin tumours
- Dermatoallergology and professional dermatoses
- Corrective dermatology
- Lymphology
- Acne consulting
- Care after organ transplantation
- Short stay ward for lamphology
- Phototherapy ward
- Nail clinic

Ambulance for diagnosis 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 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.

## Dermatological Department for Children of Motol University Hospital

*Head physician: Štěpánka Čapková, MD*

*Head nurse: Alena Kurešová*

**Basic characteristics:**

The department, which consists of 2 ambulances, staffed by 3 part-time doctors and 2 full-time nurses. The department treats patients in the study in paediatric dermatology, and not only provides consulting services to all children's wards of hospitals, but also superconsiliary services for the whole country. In 2014 there were treated 8,323 patients aged 0-19 years and 321 consultations in the inpatient clinics of children's department of the hospital were performed. The workplace runs pregraduate and postgraduate teaching field of paediatric dermatology.

**Specific features of the department:**

The physicians provide specialist advice (for emergency patients with severe atopic eczema, neve disease, genodermatozy, hemangiomas). Since 2012, in cooperation with pharmacy MUH and the Department of Paediatric Haematology and Oncology our department provides new treatment of superficial hemangiomas - a non-selective beta-blocker propranolol locally.

**Important event in 2014:**

Head physician Čapková, MD along with head physician, Bučková MD from Brno organized a conference in Prague in the field of paediatric dermatology with international participation, which was due to its professional quality highly appraised by Committee of the Czech Society of Dermatology.

**Publications:**

Čapková W: Atopic eczema - what's new? Dermatovenerology selection of student essays. Special 2014 Children's dermatology, vintage 56th

Čadová J: nail disease in childhood. Dermatovenerology selection of student essays. Special 2014 Children's dermatology, vintage 56th

**Lectures:**

MD. Čapková lectured as an "invited speaker" at the 20th National Congress of Dermatology, at the Congress of Pediatrics practice, the Conference of child dermatology

at the autumn conference in Carlsbad and Santa Claus conference in Podjestedi, etc.

## Emergency Department for Adults of Motol University Hospital

*Head physician: Jiří Zíka, MD*

*Head nurse: Bc. Renáta Všetečková*

### **Basic characteristics:**

The department provides emergency medical care to patients with acute health disorders, form the link between pre-hospital acute care and hospital definitive. All beds are fitted with ED to provide urgent and emergency medical care.

The main feature of the work is sorting patients according to the acuteness and urgency of care and, as the health disorder so as to effectively ensure the provision of continuing care in hospital. Patients Rejected bed hospitals are in the ED and discharged to outpatient care.

In 2014, 15,237 were treated patients at the department.

## Department of First aid for Adults of Motol University Hospital

*Head physician: Jiří Zíka, MD*

*Head nurse: Bc. Dana Černá*

### **Basic characteristics:**

The Department provides an outpatient treatment of acute patients with sudden health disorder after regular working time, to the extent of general practitioner care medicine. On weekdays, one doctor and one nurse have office hours, on weekend shifts are reinforced by another doctor.

When it is necessary, patients are referred for further treatment at the emergency department or specialized outpatient ambulances of the hospital. In 2014, 14,902 patients were treated there.

## Department of Primary Care of Motol University Hospital

*Head physician: Jaroslava Kulhánková, MD*

*Head nurse: Dana Černá*

### **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 2014, 23,451 patients were treated the Dept. 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 2014 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 nosocomial infections apparent incidence of 2.35%. Another increase suggests further improvements of communication with clinicians and physicians to contact NI and the positive impact of educational activities department. In 2014, we recorded 242 MRSA seizures, both colonization and the clinical infection, which corresponds to 2.8 to 1, 000 patients.

According to the current legislation the department controlled sterilization technique, observance of sanitary-epidemiological regime for workplace clinics and departments collected 625 control handprints for microbiological examination and 3,844 culturing of bacterial swabs to check the purity of the environment. Special attention was paid to the so-called. clean spaces, where the environment has been regularly monitored by aeroscopes (156 complete measurement). A part of the normal hygienic is also to supervision is to prevent the occurrence of Legionella., warm potable water (253 samples), water treated for dialysis, swimming pool and water rehabilitation operations were investigated. A total of 775 surveys were carried out for diagnosed infections in hospitalized patients, 845 infections were announced to public health authorities in accordance with applicable legislation. Spatial disinfection ensure constitutional disinfectant 470. It carried 306 internal audits of workplace hygiene, public health authorities to carry out checks on an ongoing basis with the cooperation of workers from the department.

### **New methods and procedures:**

- Introduction of software integration with MicLab Institute of Medical Microbiology, 2nd Faculty of Medicine, which enables immediate reports of serious results of microbiological tests (ie. Early reports).
- Organizational changes in the system of reporting infections to public health authorities on infectious department.
- Under the control and prevention of bloodstream infections was implemented in cooperation with the nursing section of the study focused on peripheral venous access.

### **Important events in 2014:**

Pre-accreditation activities and its own accreditation audit was attended by representatives of the department.

The department is involved in ensuring the practical part of the 6th and 7th cycle of accredited course "Working in the field of hospital hygiene and epidemiology."

In Aeskulap Academy department was prepared and launched a series of seminars Akademia Hygiea.

Ongoing lectures took place at the 2nd Faculty of Medicine, internal seminars at various clinics and WHO program to increase hand hygiene compliance.

## 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 hospital pharmacies of Motol University Hospital is to provide effective and safe drugs for inpatients and outpatients 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 dispensing and individual and collective preparation of medicines, and sterile (from cytotoxic agents, parenteral medicinal products without antimicrobial agents and others) and nonsterile (individual training, especially for paediatric patients) acquisition of unregistered medicines and providing medicines for clinical trials.

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 drug policy Motol Hospital - establishment of a positive list of medicines, ensuring the most cost-effective medicines etc. It also creates internal regulations of Motol University Hospital in handling pharmaceuticals.

The hospital pharmacy during an ordinary day issues about 10,000 drug packaging. In 2014, we were preparing approximately one hundred daily doses of cytotoxic drugs for adults and 32 paediatric patients. At the Department of sterile drugs 9,726 individual pieces of parenteral nutrition and hydration or cardioplegic solutions were prepared. This department prepares and ensures parenteral nutrition for paediatric and adult patients in outpatient care.

In accordance with the principles of good clinical practice and good pharmacy practice, pharmacy participates in all clinical trials of drugs that take place in the Motol Hospital. In the scientific and publishing areas, among others. It focuses on individual products for specific age groups of patients, especially paediatric patients, the development of new products with extemporaneous formulations suitable validated methods and proven stability. The outputs of these activities are regularly published and presented at professional forums in Europe.

### **New methods and procedures:**

- New recipes introduced - oral solutions of cyclophosphamide and etoposide for cancer patients, and complete stability studies for oral liquid dosage forms containing sotalol.
- Counselling started services for smoking cessation.
- Launching of a new reverse osmosis Purelab Option R.

**Important events in 2014:**

Publications in impacted European Journal of Hospital Pharmacy and other media, active participation in national and international congresses.

Participation in the pilot group 7 European countries for the establishment of a common European specialization in hospital pharmacy (PharmDr. Horak).

Started reconstruction of the Department of sterile pharmaceuticals (for completion in spring 2015).



## NURSING CARE

In line with the development of health care, the hospital has proceeded to improve quality and patient safety in the provision of nursing care in 2014. We continue to focus particularly on supporting multidisciplinary care through teamwork all paramedical professions. Support for education in communication and management, focused on increasing the satisfaction of patients and staff, has become commonplace.

Continued evaluation of quality of care, especially through audits focusing on operations and processes and indicators of nursing care / falls, pressure ulcers, nosocomial infections /. Emphasis was put on preventive measures. In autumn, the university hospital launched a study on the prevention of infection related to peripheral venous line.

In 2014, Centre vascular input / PICC Team / strengthened and expanded its presence under the auspices of the Department of Internal Medicine. PICC nurse team provides care for hospitalized patients based on the requirements of individual workplaces. Over the past year the team has introduced 240 PICC catheters / peripherally of a central venous / 420 midline catheters / peripherals /.

The goal of the hospital management is to improve organizational culture within communication and relationships. Nursing care segment used a new method based on the principle of artificial neural networks and focused on sociometric survey of nursing management. Based on the outcomes they were organized micro courses that responded to the needs of healthcare professionals.

Last year, the cooperation of the Silent line has continued through which there is the abolition of barriers of communication and effective contact with deaf patients, health professionals and vice versa.

### Social care

The year 2014 meant a large increase in social segregation number of patients who need social care. In acute beds, health and social workers provide social care for a total of 2,871 patients were treated and the Centre of after care service treated 1,325 patients. From the acute care beds, 930 patients were released for home care, 329 patients needed subsequent rehabilitation and palliative care beds, 1,024 patients were placed on long-term sick bed. In the care of social workers were involved also 731 paediatric patients.

### Spiritual care

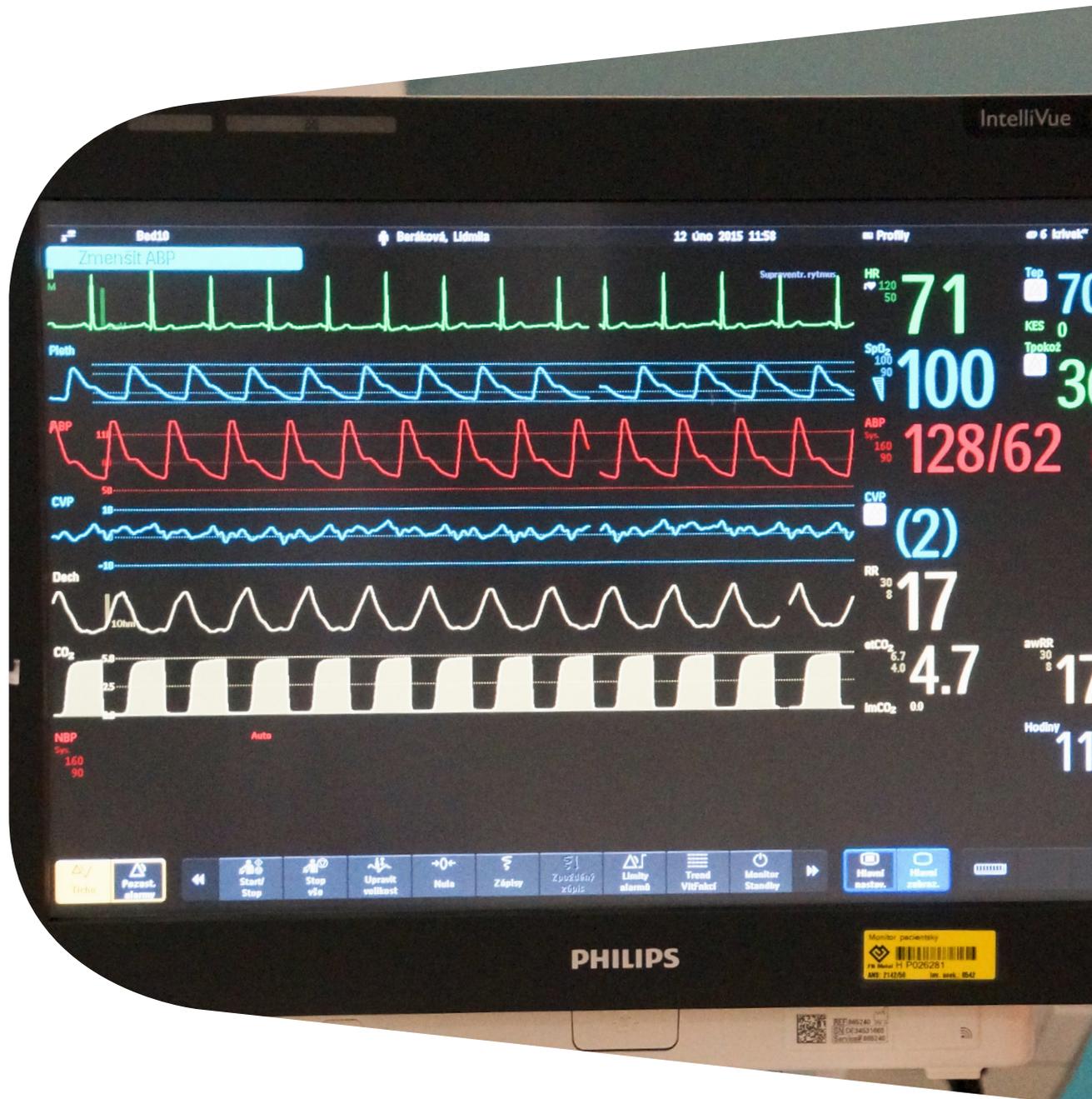
In 2014 there was an increase in requests for spiritual care, hospital spiritual care was provided for 4,007 patients. Satisfaction in the spiritual needs has become an integral part of comprehensive care for patients and contributes to the quality of nursing care.

### Volunteers

Volunteer programs are of great interest for both children and adults. Volunteers pay attention to 9,967 patients and they worked in total for 4,654 hours. Some attend regularly, while others help to single events or perform at various events.

## Healthy hospital

Motol University Hospital is a member of the international network of hospitals promoting health WHO since 2003. Pneumology 2nd Faculty of Medicine, Motol University Hospital is actively involved in the international project "Recognition process". In September 2014, the project was completed via an international audit. The hospital met the requirements and was awarded by a gold certificate / Gold Level /. Outputs from the successful operation of the project present a springboard for an action plan throughout the hospital for the next period.



## Quality Management

The year 2014 was especially important in the area of quality management because the hospital has defended the third accreditation certificate of The Common Accreditation Commission o.p.s. in a row. Not only it proves a successful and good managerial concept, moreover it shows all the efforts made by all hospital staff. The comprehensive accreditation audit affects all areas of the hospital activity ranging from providing of health services while respecting the patients' rights through maintenance activities in order to ensure safe operation of the hospital to the managerial activities of the executive management. The year 2014 was for the separate Department of Quality Management a year of balance. The work of the department is run in three-year planning cycles and this accreditation is the culmination of the cycle and at the same time the beginning of the next cycle.

The evaluation of the work of the Department of Quality Management during the accreditation went very well, which means a source of satisfaction for the department personnel as well as a commitment to continue improvement efforts for the future. When evaluating patients' satisfaction with the services of the Motol University Hospital it is visible that even patients perceive the improvements and they show it in the questionnaire which has been run in the MUH continuously since 8 years. This improvement is reflected in the global evaluation. The two main criteria, ie. an average rating grade (on a scale 1-5) and a number of fully satisfied patients, show an upward trend. It is considered a success that the number of fully satisfied patients (graded by mark 1) exceeded in 2014 the level of 90% in several indicators - attention to the treatment of pain, permanent availability of nurses and preservation of the intimacy of the patient. We are very pleased by the satisfaction with the work of physicians and nurses and especially with the evaluation of the sensitive approach to children.

The hospital management and employees appreciate launching of the system for monitoring the staff satisfaction. The Employee Satisfaction Survey in the form of anonymous structured written questionnaire with a possibility for own comments or formulation of requirements at the end was launched in February 2014. The interim results show that it is a valuable tool for managing of the hospital.

Also the training activities of the Department of Quality Management were successfully proved both in teaching of undergraduate students of the 2<sup>nd</sup> Faculty of Medicine, Charles University as well as in a post-graduate specialized education. The physicians, nurses and other medical and non-medical professions used in practice have already accepted the quality management as an usual part of managerial tools. The results of the year 2014 guarantee that the quality and safety of health services are an important priority in our hospital.

## Hospital Ombudsman

The hospital ombudsman operates in Motol University Hospital since January 2012 when the separate Department of the Hospital Ombudsman was established and took over the complete agenda of complaints.

The main objective of the activity of the Department of the Hospital Ombudsman and Complaints is to protect patients' rights, improve communication between patients, their relatives and hospital staff, raise the quality of health services and patients' satisfaction. The hospital ombudsman settles requests, suggestions, and other submissions oriented against the proceedings of the Motol University Hospital in providing of health services or for other activities associated with provided health services. The department is available especially in cases where the patient or other person feels that their rights have been violated or threatened, where a serious conflict has occurred or is impending or in case of limited communication between the involved parties which needs to be dealt impartially.

During the year 2014 the department dealt with a total of 294 written submissions and 445 inquiries. In case of inquiries, these non-written submissions were solved straightway without the need for setting up a file.

From a total of 294 submissions there were 221 complaints. This situation represents a slight decline compared to the year 2013, on the other way dealing with complaints prior to their official submission reports a significant increase compared to the year 2013, about 109 queries. The majority of complaints were evaluated as unjustified complaints, there were 32 partially justified and 14 justified complaints representing a decrease of 6 complaints compared to 2013. The most frequent chosen form of settlement of the justified or partially justified complaints was remedial education of the employees.

The most frequent persons of submitter were patients (99 submissions), the legal representatives of an under-aged patient (54 submissions) and a person close to the patient (51 submissions). According to the subject of the submission, the most often was a wrong communication (announced in 100 cases) and providing of health services (70 submissions). In the past year the order was the same - 86 submissions on wrong communication, 82 submissions on providing of health services. Communication in the hospital as a problem is growing on importance. Sometimes there is not only one subject of complaint specified in the submission, but the complainant mentions more factors to be pointed on.

A total of 198 submissions (147 submission on medical preventive care and 51 submissions on nursing care) were directed towards healthcare workplaces and a total of 23 submissions were headed against non-medical workplaces. In 76 cases, the complaints were directed against a specific person.

The submissions with a specific subject are always solved with the management of the particular department. In case of suitability with regard to the nature of the complaint, there is an oral negotiation with the presence of the involved management in order to lead to successful solutions. The oral discussion of the complaint is recorded in a written report. The workplace against whom the complaint is made is informed about the outcome of the investigation and if necessary it is informed about proposed remedial provisions.

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

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. 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 2014 was the third year of the scheme.
- In 2014, the hospital dealt with 17 projects of the Internal Grant Agency (IGA) of Ministry of Health as chief investigator and 49 projects as partner. Within the Institutional support was in 2014 solved 33 of the Internal grant projects.
- In 2014, the MUH performed activity in science and research with the following split allocated funds (CZK):

IGA investigator	27,041,000 CZK
IGA Investigator	18,772,000 CZK
TAČR Investigator	1,548,728 CZK (2 projects)
GA Investigator	360,000 CZK (1 project)
Institutional support	60,942,000 CZK
FP7 EU	498,257 CZK (2 projects)
OPPA	306,913 CZK (1 project)
Leonardo da Vinci	288,432 CZK (1 project)
Norwegian funds	1,613,558 CZK (2 projects)

The obtained support for scientific and research activities was 111,373,888,- CZK in total.

- 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 2014, the rise of the global impact factor, which reached 1,323 points.

- The Motol University Hospital is gradually earmark priority of science, research and innovation in hospital. As the strongest lines of research to show the pediatric fields, particularly pediatrics and its subspecialties (endocrinology, nephrology, gastroenterology, pneumology, etc.), paediatric haemato-oncology, genetics, paediatric cardiocentre and pediatric neurology, and other fields and adult neurology, pathology, but also industries clinical, surgical and orthopedics. We will continue to support the activities of strong research groups in these priority areas, which are in line with world trends.
- In recent years, vigorously we 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 Modern Therapy

In order to support innovations, transfer of research outcomes research into practice, the MUH introduced System Projects „advanced therapies“. Under this scheme, five projects where it is expected practical output in the form of new diagnostic and therapeutic options were solved in 2014.

### Combined programme of education of doctors, M.D. and PhD Program

The combined programme MD / Ph.D. is under way in Motol University Hospital since 2004, thus in 2014 it was celebrating the 10-year anniversary. For 10 years the program has undergone over 40 students, 12 students at the Ph.D. and specialization in the field. One of the graduates of MD/ Ph.D. program in 2014 became tender after the head of department of rheumatology of children and adults in the MUH

### International activities

In 2014, we continued to develop the research of international activities, especially at the level of individual clinics and institutes. In 2014, we dealt with four EU FP7 programs. It also significantly increased the publication activities, taking into account international cooperation.

### Creative initiative

Motol University Hospital follows and appreciates the quality and successes in the field of medicine and scientific research progress. In 2014 it awarded for the seventh best creative achievement in the previous year and this year the award received the 3rd Department of Surgery for its New uses proposal biodegradable stent and method of application in the airways.

In 2014, Motol University Hospital defended the position of research department and also applied its outputs in science assessment in 2nd pillar according to the methodology.



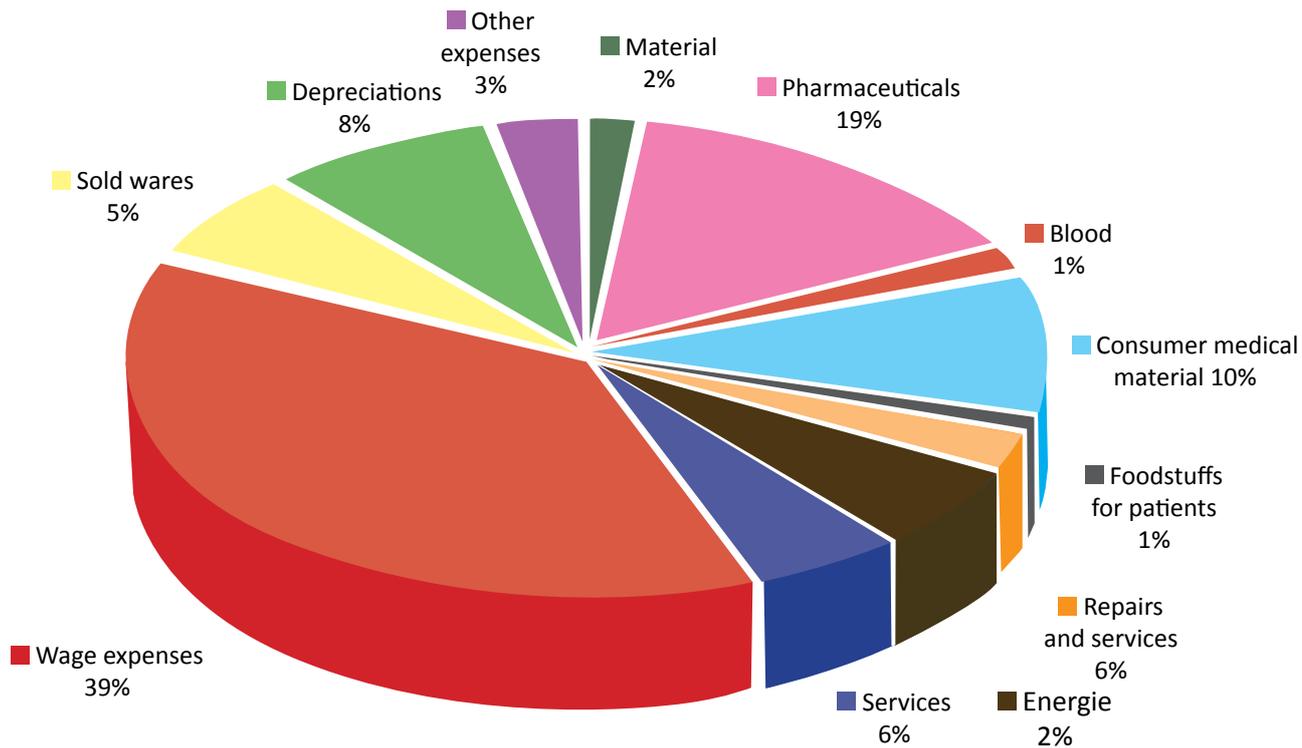
## ECONOMIC ACTIVITIES

<b>BALANCE SHEET</b> (in thousands CZK)	situation on 1 <sup>st</sup> January 2014	situation on 31 <sup>th</sup> December 2014
<b>ASSETS</b>	<b>11,211,992.37</b>	<b>10,802,873.97</b>
<b>Permanent assets</b>	<b>9,016,953.53</b>	<b>8,747,151.62</b>
Long-term intangible assets	24,504.27	21,325.35
Long-term tangible assets	8,983,881.47	8,716,755.23
Long-term financial assets	11.93	0.00
Long-term claims	8,555.86	9,071.04
<b>Current assets</b>	<b>2,195,038.84</b>	<b>2,055,722.35</b>
Reserves	148,757.17	107,485.41
Claims	1,287,961.75	1,092,528.24
Financial assets	758,319.92	855,708.70
<b>LIABILITIES</b>	<b>11,211,992.37</b>	<b>10,802,873.97</b>
<b>Own Resources</b>	<b>10,527,410.64</b>	<b>10,048,279.76</b>
Property funds	9,030,112.06	8,760,013.52
Financial and monetary funds	2,931,084.45	2,721,039.17
Economic result for current accounting period	1,521.47	1,012.94
Accumulated loss from previous years	-1,435,307.34	-1,433,785.87
Economic result in licensing procedure		
<b>Foreign sources</b>	<b>684,581.73</b>	<b>754,594.22</b>
Reserves	753.29	1,019.49
Long-term liabilities	750.53	0.00
Current liabilities	683,077.91	753,574.73
Bank accommodations and loans	0.00	0.00

<b>PROFIT AND LOSS STATEMENT</b> (in thousands CZK)	situation on 31 <sup>th</sup> December 2014
Material costs	3,055,805.69
Repair and service expences	675,711.34
Wage expenses	2,915,355.03
Taxes and charges	244.88
Other costs	145,663.51
Depreciations, sold property, reserves and adjusting items	693,704.61
Financial costs	503.53
Cost of indisputable rights (the state budget, local governments, state funds)	0
<b>Total costs</b>	<b>7,486,988.59</b>
Revenues for medical outputs and wares	6,648,625.69
Other revenues	700,609.64
Financial income	4,656.43
Income of indisputable rights (the state budget, local governments, state funds)	134,109.77
<b>Total revenues</b>	<b>7,488,001.53</b>
Economic result before taxation	1,012.94
Income tax	0
Additional income tax payments	0
<b>Economic result after taxation</b>	<b>1,012.94</b>

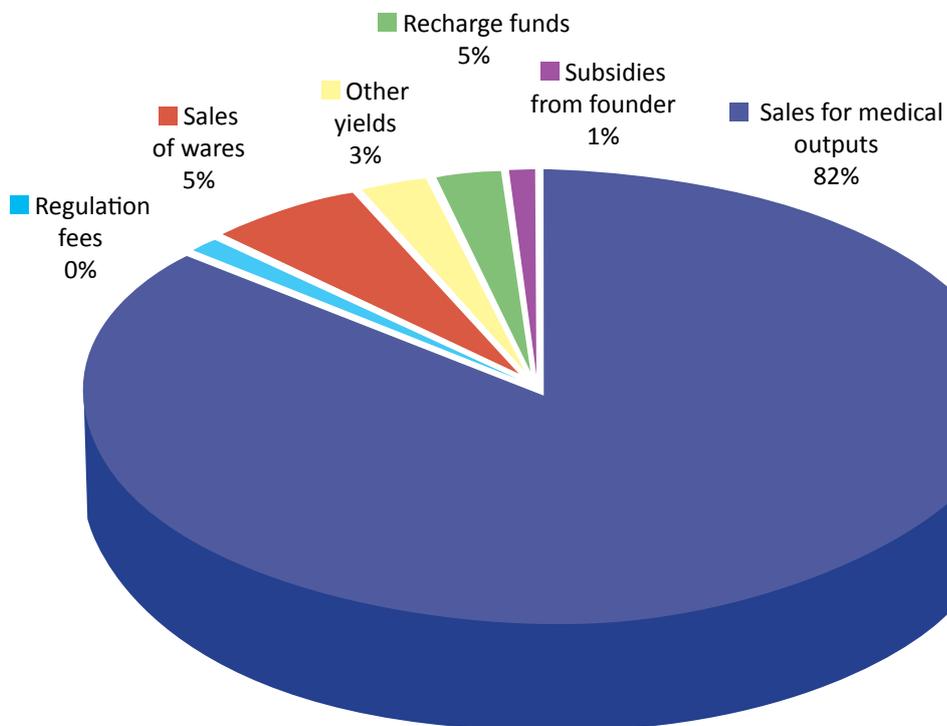
Survey of economic indexes				in thous. CZK
Index	2012	2013	2014	14/13 in %
Yields	7,169,647	7,152,775	7,488,001	104.69
Expenses	7,167,908	7,151,254	7,486,988	104.69
Economic result	1,739	1,521	1,013	66.60
Accumulated loss from previous years	-1,437,047	-1,433,785	-1,432,773	99.93
Tangible investment assets	9,356,923	8,983,881	8,716,755	97.03
Reserves	134,835	148,757	107,485	72.26
Claims	1,015,127	1,287,961	1,092,528	84.83
Obligations	763,027	683,078	753,575	110.32
Payroll Fund	0	0	0	
Cultural and Social Services Fund	18,882	17,674	17,619	99.69
Reserve fund	42,882	44,242	46,475	105.05
Fund for reproduction of investment assets	2,907,601	2,869,168	2,656,946	92.60

## Survey of Expenses for 2014



■ Wage expenses, ■ Sold wares, ■ Depreciations, ■ Other expenses, ■ Material, ■ Pharmaceuticals, ■ Blood, ■ Consumer medical material, ■ Foodstuffs for patients, ■ Repairs and services, ■ Services and energies, ■ Energies

## Survey of Yields in 2013



■ Regulation fees, ■ Sales of wares, ■ Other yields, ■ Recharge funds, ■ Subsidies from founder, ■ Sales for medical outputs

## I. Liabilities and claims

Short-term trade liabilities	360,552,895.80 CZK
Short-term trade claims	437,218,903.50 CZK
Long-term liabilities	0.00 CZK
Long-term claims	71,042.20 CZK
Liabilities after the due date	157,132.26 CZK
Claims after the due date	51,513,294.43 CZK
Liabilities for employees	137,505,140.08 CZK
Claims against employees	15,857,069.60 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. Long-term liabilities were fully paid during the year 2014 and the hospital has currently no long-term liabilities. Short-term trade liabilities are about 41 million CZK higher than in the previous year but there are no liabilities of more than 60 days after the due date. Liabilities for employees are equal to the volume of unpaid wages.

The total amount of the claims is stable and the volume of short-term claims decreased by 303 million CZK compared to the previous year. 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. In the volume of claims after the due date are included also overdue claims for regulatory fees in the amount of 8.14 million CZK which are being continuously enforced. Charging of regulatory fees for outpatient treatment and for stay in the hospital was terminated on 31. 12. 2014, the regulatory fee for emergency care is still being charged. 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 1<sup>st</sup> January 2010, the accounting adjustments to claims are being created and the claims are continuously written off into expenses. During the year 2014, a total of 7.018 million CZK of claims (it is higher by 3 million CZK that the previous year) and 3.177 million CZK of accounting adjustments were written off. It represents returns that have not been paid and the possibility of payment is minimal.

Financial flows of the Motol University Hospital were balanced for the whole year 2014. During the year 2014, the hospital paid for the reconstruction of the Children's Hospital from its own resources what has significantly reduced the cash flow. 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 inventory making

was performed according to Decree No. 270/2010 Coll., on the inventory of assets and liabilities.

## II. Inventories

The situation on inventories of the MUH:

- material, low value tangible fixed assets	33,498,632.41 CZK
- medicaments, consumer medical material	60,144,044.58 CZK

The number of inventories of material and low value tangible fixed assets decreased compared to the same period of the year 2013. The MUH is trying to minimize inventories. During the year 2014 was put into use some long-term asset as the equipment of Children's Hospital.

In the area of the inventories of medicaments and consumer medical material, there was also a decrease of inventories compared to the year 2013. Inventories of medicaments and consumer medical material are kept to a minimum, because the distribution of supplies of these goods is very fast. The Motol University Hospital in many cases succeeded to purchase medicaments and consumer medical material at substantially lower prices through electronic auctions and therefore it also reduces the direct costs per patient.

## III. Assets

Acquisition of fixed assets:	367,191,512.65 CZK
Acquisition of low value fixed assets:	60,051,612.73 CZK
Fixed assets implementation:	272,718,710.22 CZK
Low value fixed assets implementation:	70,508,117.63 CZK
Disposal of fixed assets:	115,158,716.52 CZK
Disposal of low value fixed assets:	34,596,983.57 CZK

## IV. Situation on accounts

### Account balances on 31<sup>th</sup> December 2014

Current account	738,148,432.68 CZK
Deposit account	115,214,838.62 CZK
Account of Cultural and Social Services Fund	2,290,779.77 CZK

The balance of the current account increased by 45.90 million CZK compared to the year 2013. This increase is caused only by a reserve created to cover financing of the Children's Hospital reconstruction from hospital's own resources, financing of VAT payment from the tax of completed Children's Hospital reconstruction and instalments of the supplier loan.

At the same time, there was an increase in payments from health insurance companies

according to the applicable reimbursement decree for the year 2014.

The balance of the deposit account is mainly created from donations in the amount of 43.69 million CZK, the rest of the account are the deposits of patients of the hospital and long-term hospital patients.

Account of cultural and social services fund is influenced by its income and output. For the year 2014, the collective agreement was signed and the fund is 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 2013 and 2014

### Costs connected directly with a patient

Item	year 2013 in thous. CZK	year 2014 in thous. CZK	growth in thous. CZK	growth in %
Medicaments	1,245,874.86	1,444,071.66	198,196.80	1.16
Blood	87,762.84	93,258.71	5,495.87	1.06
Consumer medicine material	718,568.88	825,433.29	106,864.41	1.15
Foodstuffs for Patients	47,362.12	46,466.56	-895.56	0.98
Total	2,099,568.70	2,409,230.22	309,661.52	1.15

### Expenses for electricity, water, gas

Item	year 2013 in thous. CZK	year 2014 in thous. CZK	growth in thous. CZK	growth in %
Water	27,673.32	26,765.92	-907.40	0.97
Gas (heat energy)	75,840.35	66,259.60	-9,580.75	0.87
Electricity	101,274.00	83,905.80	-17,368.20	0.83
Total	204,787.67	176,931.32	-27,856.35	0.86

### Other indexes

Item	year 2013 in thous. CZK	year 2014 in thous. CZK	growth in thous. CZK	growth in %
Material in general	84,268.36	92,165.38	7,897.02	1.09
Material for maintenance	5,183.73	4,653.12	-530.61	0.90
Linen	11,108.69	11,276.33	167.64	1.01
Repairs and maintenance	276,781.20	321,987.32	45,206.12	1.16
Services	335,163.04	344,307.63	9,144.59	1.03
Total	712,505.02	774,389.78	61,884.76	1.09

### Costs of wages and salaries

Item	year 2013 in thous. CZK	year 2014 in thous. CZK	growth in thous. CZK	growth in %
Wages and salaries	2,129,799.37	2,170,656.45	40,857.08	1.02
Health insurance	189,765.95	193,616.01	3,850.06	1.02
Social security	522,195.36	529,719.53	7,524.17	1.01
Creation of the Cultural and Social Services Fund	20,973.60	21,363.02	389.42	1.02
Total	2,862,734.29	2,915,355.03	52,620.73	1.02

### Revenues for medical outputs

Item	year 2013 in thous. CZK	year 2014 in thous. CZK	growth in thous. CZK	growth in %
Revenues for medical outputs – General Health Insurance	5,831,216.21	6,079,850.06	248,633.85	1.04
Other medical outputs	166,066.31	118,864.24	-47,202.07	0.72
Total	5,997,282.52	6,192,714.30	195,431.78	1.03

When comparing the costs directly connected with the patient, there was an increase of 15 % in the year-to-year comparison. The highest increase of 16 % occurred in medicaments which was mainly due to the transfer of centric medicaments from recipes to requisitions. The increase of 15% was observed also in medical supplies mainly due to the purchase of cardioverters. The blood increased by 6%. The costs of food for the patients 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 decreased by 14%. This was mainly caused by lower prices of energy, particularly electricity. Opening of the Children's Hospital means opening of energy-intensive capacities and higher total subscriptions of energy, therefore the savings does not correspond to the decrease in prices announced by energy plants. Savings also occurred in the heat energy mainly through provisions in order to regulate consumption.

The other expenses increased by 9% in year-to-year comparison. The increase in costs of general material by 9% influenced the increased amount of forms (informed consents etc.) and costs of hygienic material for single use. In linen is the increase in costs at the minimum. The costs of repairments and maintenance are higher, they are associated with the adult section and other buildings in the hospital complex because repairments in the Children's Hospital are minimal. In the adult section the repairments occur primarily in technology, also emergency situations need solution which require higher costs as well as mandatory inspections and services. The growth in services reached 3%, which correlates with higher performance of the hospital.

In year-to-year comparison of personnel expenses there was an increase of 2%. Since November 2014 the hospital conducted the adaptation of wages according to the government decree 224/2014.

Revenues from the treatment of patients experienced an increase of 3% in medical procedures including an increase of 4% in health care services from health insurance companies. The increase was affected by growth in the number of hospitalizations and outpatient procedures, increase in the provided care within the centres and the revenue growth was also influenced by the applicable reimbursement decree for the year 2014. The other medical services were reduced, mainly by reducing of the number of self-payers.

## VI. Conclusion

The economy of the Motol University Hospital to 31<sup>st</sup> December 2014 was balanced, the economic result after taxation reached 1.012 million CZK., out of which the main activity of the hospital ended with a loss of -39.40 million CZK and the economic activity reached a profit of 40.41 million CZK. **The most important fact is that the Motol University Hospital has a balanced economy, has no tax arrears and it is an economically stable organization.**

The year 2014 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. Although there was an increase of 4 % in reimbursements from health insurance companies according to the applicable reimbursement decree for the year 2014, the hospital also performed a higher amount of medical procedures which required higher material costs. At the end of the year, the personnel costs have been increased according to the government decree 224/2014.

The VAT payments have permanently a negative impact on the economy of the hospital because the hospital pays VAT without the entitlement on deduction. The MUH paid a tax in the amount of 96.86 million CZK in 2014. Only in economic activity, a total of 8% may be enforced by the hospital (8.42 million CZK for the year 2014) which is negligible in comparison to the hospital's turnover.

**The management of the Motol University Hospital puts stress mainly on the enforcement of provisions to keep the economy balanced. The priority is of course to maintain the range of provided medical services and to improve the quality of health care in accordance with the status of an accredited medical facility even when the amount of funds is limited.**

## Personnel activities

In 2014, the Motol University Hospital employed:

***in revised numbers (RN):* 5,127 employees, of which 4,114 medical professionals**

***in natural persons (NP):* 5,647 employees, of which 4,610 medical professionals**

### Profession structure

	2012	2013	2014	2012	2013	2014	INDEX 14/13	
	NP	NP	NP	RN	RN	RN	NP	RN
<b>Total</b>	5,642	5,647	5,709	5,014	5,065	5,127	1,01	1,01
<b>PHYSICIANS</b>	1,139	1,152	1,197	828	842	888	1,04	1,05
<b>PHARMACISTS</b>	28	31	32	25	25	26	1,03	1,04
<b>NURSES</b>	2,104	2,100	2,060	1,948	1,948	1,916	0,98	0,98
<b>MP WITH PROF. QUALIFIC</b>	378	361	375	349	346	355	1,04	1,03
<b>MP WITH SPEC. SKILLS</b>	213	208	234	169	175	190	1,13	1,09
<b>MP UNDER SUPERVISION</b>	686	694	707	659	683	697	1,02	1,02
<b>JOP WITH PROF. QUALIFIC</b>	53	64	55	40	44	41	0,86	0,93
<b>TOS (TECHNICAL/ OFFICE STAFF)</b>	687	693	699	641	655	663	1,01	1,01
<b>WORKERS</b>	354	344	350	355	347	351	1,02	1,01

### Employees according to age and sex – situation on 31<sup>th</sup> December, 2014

Age	Men	Women	Total	%
to 20 years	10	21	31	0,54
21 - 30 years	338	865	1203	21,07
31 - 40 years	442	1042	1484	26,00
41 - 50 years	289	1024	1313	23,00
51 - 60 years	287	912	1199	21,00
61 years and older	196	283	479	8,39
<b>Total</b>	<b>1 562</b>	<b>4 147</b>	<b>5709</b>	<b>100</b>
<b>%</b>	<b>27,36</b>	<b>72,64</b>	<b>100</b>	

## Employees according to education and sex - situation on 31<sup>th</sup> December, 2014

Reached education	Men	Women	Total	%
Elementary	111	127	238	4,17
Trained	103	106	209	3,66
Secondary vocational	212	168	380	6,66
Full secondary vocational	314	2093	2407	42,16
Higher vocational	53	225	278	4,87
University	769	1428	2197	38,48
-of which Bachelor degree course	42	395	437	
-Master degree course	727	1033	1760	
<b>Total</b>	<b>1562</b>	<b>4147</b>	<b>5709</b>	<b>100</b>

## Qualification structure – situation on 31<sup>th</sup>December 2014

Reached education of nurses and midwives	Total	%	with specialisation	%
Secondary health care	1428	69,32	517	36,20
Higher health care	181	8,79	54	29,83
University – Bachelor degree	319	15,49	121	37,93
University – Master degree	132	6,40	86	58,33
<b>Total</b>	<b>2060</b>	<b>100,00</b>	<b>1017</b>	<b>49,37</b>

- **Health care professionals according to Law 95/2004 Coll.** = Physicians and pharmacists: A total of 1,229 of the 1,197 physicians, 33 medical graduates prior to enrolment, and 312 already included in the field of specialization, ie. that 28.8% of doctors only professional competence. Specialist qualification (ie. 2nd degree attestation, Medical Licensing Examination, license CLK, the Ministry of Health Certificate) has 852 (71.2%) physicians.).
- **Health care professionals according to Law 96/2004 Coll.** = paramedical professions: in total 3,376, including 2,060 nurses and midwives..

## Wages area

On the payroll it was spent a total of 2,130,998,641 CZK in 2014 (without other personnel costs-remuneration for work performed outside employment). Compared to the year 2013 saw an increase of 40,921,485 CZK, ie. 2%.

The increase of wages was caused both by salary adjustments since November 1st, 2014 according to Government Decree no. 224/2014 Sb. and by increasing the fund for extraordinary bonuses for health professionals, as instructed by the Minister of Health, offset by an increase in deferred salary tariffs until January 1, 2015. Furthermore the expended funds also contributed to an increase in the number of employees by 1%.

The average gross salary in the hospital up to December, 31st 2014 was 34,893 CZK. Compared to the year 2013 there is an increase of 1.5%.

### Development of the average salary in last 10 years

	2005	2006	2007	2008	2009	2010
<b>TOTAL</b>	<b>21 989</b>	<b>24 625</b>	<b>26 835</b>	<b>27 711</b>	<b>29 925</b>	<b>30 824</b>
<b>PHYSICIANS</b>	<b>39 951</b>	<b>44 972</b>	<b>48 906</b>	<b>49 199</b>	<b>50 565</b>	<b>51 373</b>
<b>NURSES</b>	<b>20 369</b>	<b>22 946</b>	<b>24 860</b>	<b>26 724</b>	<b>29 171</b>	<b>30 206</b>

	2011	2012	2013	2014
<b>33 356</b>	<b>35 016</b>	<b>34 364</b>	<b>34 893</b>	
<b>61 510</b>	<b>67 464</b>	<b>65 564</b>	<b>66 474</b>	
<b>31 307</b>	<b>32 853</b>	<b>32 079</b>	<b>32 035</b>	

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