

**2023**





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# ABOUT US

## A WORD FROM THE DIRECTOR

Dear friends,

Last year was primarily marked by the implementation of major investment projects, the likes of which Na Homolce Hospital has never experienced in its more than thirty years of existence. With total revenues of CZK 5.1 billion, the hospital achieved a net profit of CZK 577 million, reflecting not only our economic stability but also our ability to invest effectively in the future of the hospital.

In the evaluation of the financial health of all hospitals in the Czech Republic, prepared by NEXIA AP, a. s. and presented by the HealthCare Institute, Na Homolce Hospital was ranked first. We have reached the top position by gradual steps, and considering the 36th place in 2018, it is an undeniable success for us. We are extremely happy about the award, as it is based on clear criteria and is therefore an objective reflection of our five years of dedicated work.

It is worth noting that, out of the eight primarily economic parameters evaluated, two were ranked the highest. The first of these is the average wage level, where we have been ranked first four times in the last five years, only in one year we were surpassed by the Center for Cardiovascular and Transplant Surgery in Brno by a small margin. The second top-rated criterion is the hospital's investment activity, which has been historically record-breaking in recent years and exceeds CZK 2.6 billion.

The hospital continues to develop across all disciplines. The largest volume of investments, exceeding CZK 1 billion, was allocated to implementation of construction works related mainly to the EPC project (energy-saving measures) and the insulation of hospital buildings. Thanks to our ongoing economic stability and EU subsidy programs, we were able to implement one of the most comprehensive energy-saving projects in the Czech Republic in 2023, which will bring us annual savings of up to 40% of energy costs (CZK 30-40 million) in the future.

Other investment expenditures were directed towards the replacement of strategic medical equipment, amounting to over CZK 300 million. This demonstrates our commitment to continuously improving the level and quality of medical care provided. We renovated the Department of Anesthesiology and Resuscitation, electrophysiology and catheterization operating rooms in the Department of Cardiology, which included the purchase of new angiography devices. We also commissioned two new mobile O-arm X-ray systems for 2D/3D imaging for neurosurgery and stereotactic and radiation neurosurgery (Leksell gamma knife). We also reconstructed the PET center and introduced a unique hybrid PET/MR device, which will enable more precise diagnostics in specific indications.

It should also be noted that several operational investments had to be addressed in order to comply with the current regulations in force. These include the renovation of elevators, air conditioning, central sterilization, wastewater sterilization, catering facilities, IT networks, and meeting the ever-stricter requirements for cybersecurity, fire protection and asset protection.

I would like to acknowledge the efforts and contributions of all our employees who were involved in the successful implementation of these projects and in the day-to-day care of our patients. Their dedication and professionalism are the driving force that enables us to continuously evolve and provide high-quality healthcare to our patients.

Petr Polouček, MD, MBA



Petr Polouček, MD, MBA  
Director of the Hospital



Vladimír Mikulěnka, MD, MBA  
Deputy Director for Treatment  
and Preventive Care



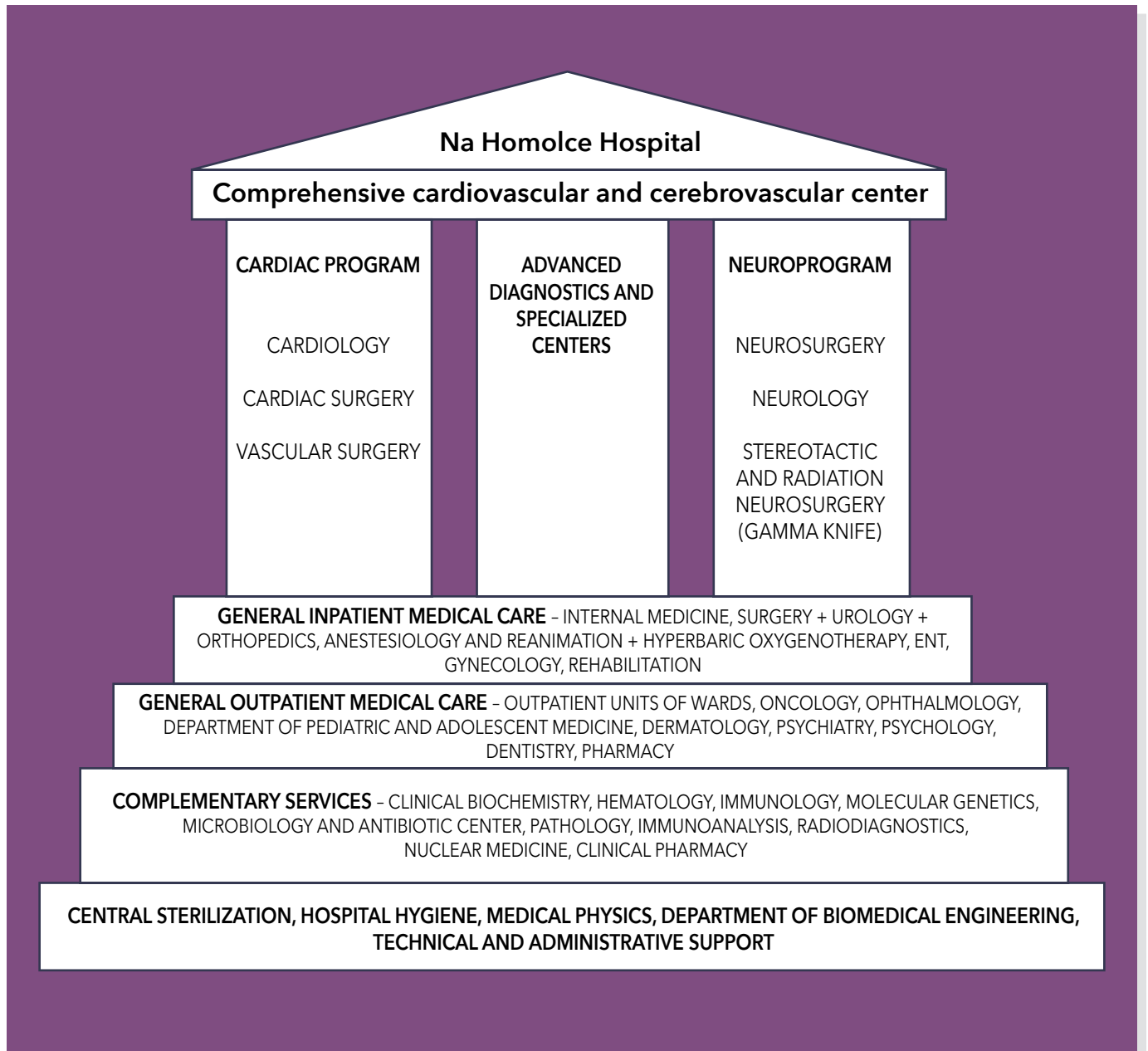
Tomáš Hadžega, MSc  
Deputy Director for Economic  
and Technical Administration



Ivana Kirchnerová, MSc, MBA  
Deputy Director for Nursing Care



Prof. Josef Vymazal, MD, DSc.  
Deputy Director for Science and Research





## BASIC, STAFF AND WAGE DATA

### Basic data

Number of employees	Number of beds	Number of hospitalizations	Number of surgeries	Number of outpatient examinations
1,777	376	19,189	16,321	578,197

### Staff and wage data

	Physicians	Pharmacists	General nursing staff	Other auxiliary medical staff with professional competence	Auxiliary medical staff with professional and specialized competence
Wages paid total (in CZK)	433,624,389	15,468,476	552,812,282	116,273,001	47,102,269
Average recalculated number of employees	293.31	16.09	662.47	155.97	57.16
Average salary (in CZK)	123,199	80,114	69,539	62,124	68,670
	Auxiliary medical staff under specialized supervision or direct guidance	Technical and administrative staff	Workers	Total	
Total wages paid (in CZK)	99,802,328	193,599,122	49,068,272	1,507,750,139	
Average recalculated number of employees	212.34	275.35	108.70	1,781.25	
Average salary (in CZK)	39,866	57,404	38,023	70,500	

Auxiliary medical staff - medical staff excluding physicians  
 Technical and administrative staff



# ECONOMIC STABILITY

## Development of costs and revenues

Cost of medical supplies	2022 (in CZK mil.)	2023 (in CZK mil.)	Increase/decrease 2023/2022 (in CZK mil.)	2023/2022
Drugs	92	89	-3	97%
Separately charged medical preparation	82	100	18	122%
Blood and blood derivatives purchase	37	37	0	100%
Special medical materials	223	208	-15	93%
Separately accounted materials	933	956	23	102%

Labour costs (in CZK mil.)	2022 (in CZK mil.)	2023 (in CZK mil.)	Increase/decrease 2023/2022 (in CZK mil.)	2023/2022
Wages	1,475	1,531	56	104%
Obligatory payments	490	508	18	104%

Other costs (in CZK mil.)	2022 (in CZK mil.)	2023 (in CZK mil.)	Increase/decrease 2023/2022 (v mil. Kč)	2023/2022
Other consumables (including low-value fixed assets)	82	107	25	130 %
Energy consumption	75	74	-1	99 %
Sale of goods	126	135	9	107 %
Repairs and maintenance	74	98	24	132%
Travel expenses and education	9	9	0	100%
Services	106	118	12	111%
Other costs	331	285	-46	86%
Depreciation	211	273	62	129%
Total costs	4,345	4,529	184	104%
Costs before taxes	4,189	4,395	206	105%

## ECONOMIC STABILITY

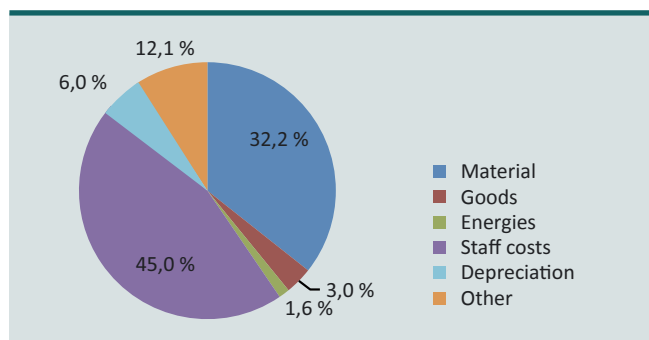
Revenues (in CZK mil.)	2022 (in CZK mil.)	2023 (in CZK mil.)	Increase/decrease 2023/2022 (in CZK mil.)	2023/2022
Revenues from own goods and services	4,548	4,698	150	103%
- of which revenues from Health Insurance Companies	4,489	4,632	143	103%
Sale of goods	163	176	13	108 %
Financial and other revenues	253	232	-21	92 %
Total revenues	4,964	5,106	142	103%

Profit (loss) (in CZK mil.)	2022 (in CZK mil.)	2023 (in CZK mil.)	Increase/decrease 2023/2022 (in CZK mil.)	2023/2022
Profit before tax	775	711	-64	92 %
Profit (loss) in the accounting period	619	577	-42	93%

### Costs structure by types

	2022 (in CZK mil.)	2023 (in CZK mil.)	Share in the total in 2023
<b>NHH total</b>	<b>4,345</b>	<b>4,529</b>	<b>100%</b>
Material	1,449	1,459	32.2%
Goods	126	135	3.0%
Energies	75	74	1.6 %
Staff costs	1,965	2,039	45.0%
Depreciation	211	273	6.0%
Other	519	549	12.1%

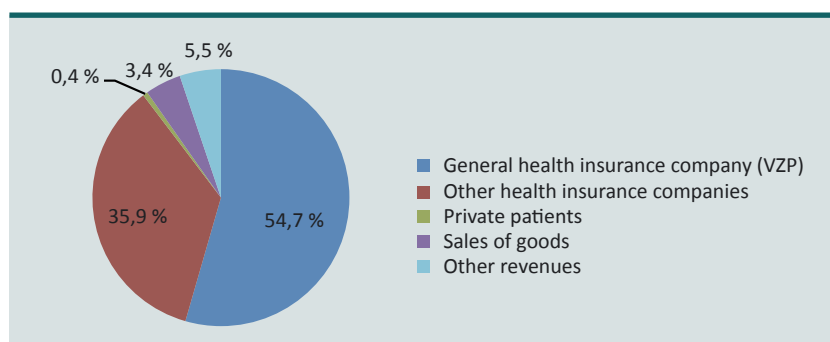
### Costs structure 2023 by types



### Structure of revenues

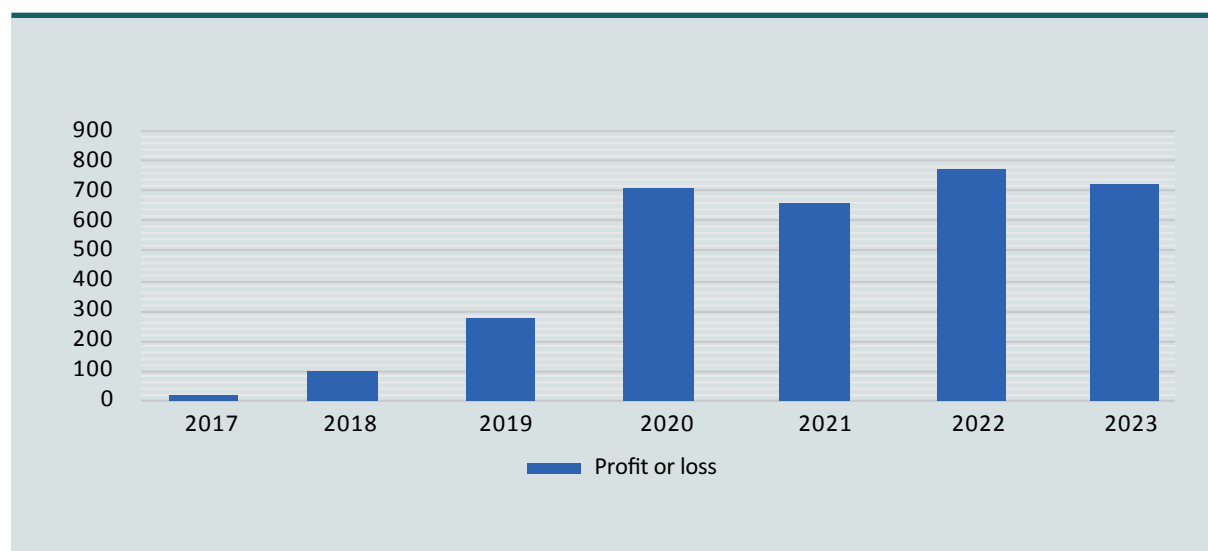
	2022 (in CZK mil.)	2023 (in CZK mil.)	Share in the total in 2023
<b>Total revenues</b>	<b>4,963</b>	<b>5,106</b>	<b>100%</b>
General health insurance company (VZP)	2,749	2,793	54.7%
Other health insurance companies	1,737	1,835	35.9%
Private patients	19	21	0.4%
Sales of goods	163	176	3.4%
Other revenues	295	281	5.5%

### Structure of revenues in 2023



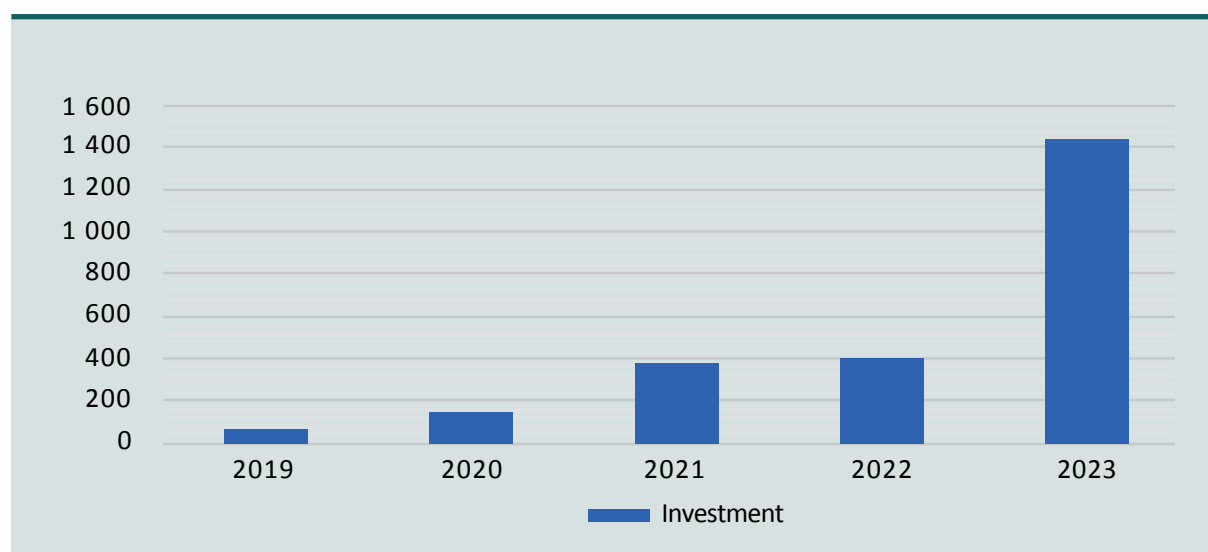
### Profit before tax

in CZK mil.	2017	2018	2019	2020	2021	2022	2023
Total costs	3,321	3,435	3,615	3,780	4,040	4,188	4,394
Total revenues	3,337	3,533	3,894	4,491	4,699	4,963	5,106
Profit or loss	17	98	279	710	659	775	711



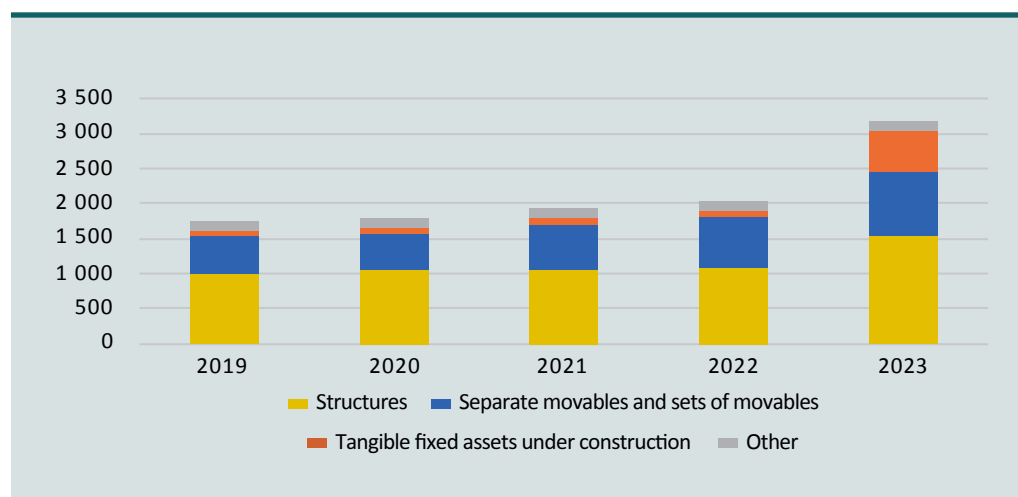
### Growth in investment volume

in CZK mil.	2019	2020	2021	2022	2024
Investment	64	144	374	395	1,437



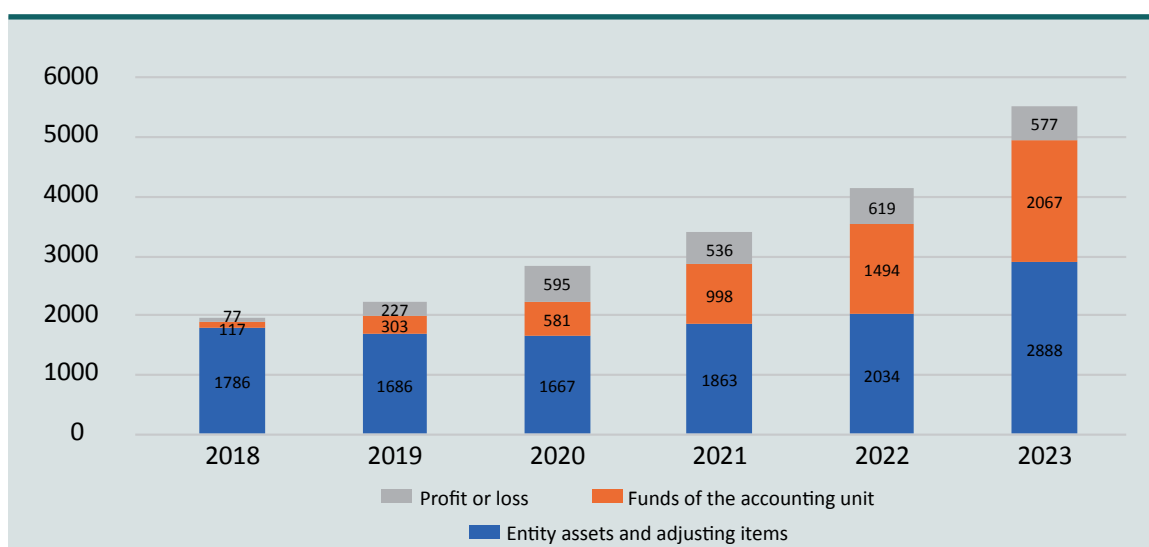
## Tangible fixed assets

in CZK mil.	2019	2020	2021	2022	2023
Structures	1,045	1,009	1,032	1,055	1,526
Separate movables and sets of movables	504	521	627	752	961
Tangible fixed assets under construction	19	20	72	57	541
Other	137	137	137	137	137



## Equity

Liabilities - equity (in CZK mil.)	2018	2019	2020	2021	2022	2023
Fixed assets	1,980	2,216	2,843	3,397	4,147	5,532
Entity assets and adjusting items	1,786	1,686	1,667	1,863	2,034	2,888
Funds of the accounting unit	117	303	581	998	1,494	2,067
Profit or loss	77	227	595	536	619	577



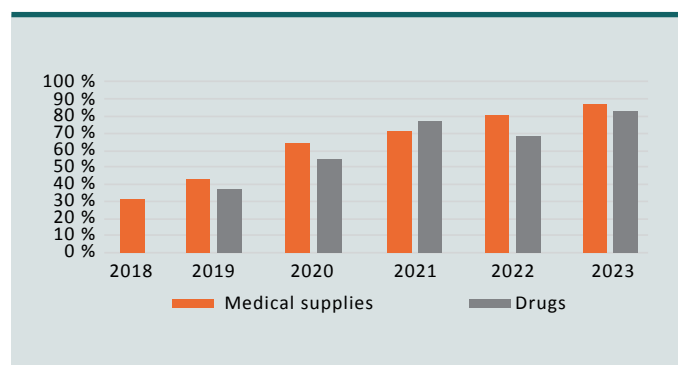
### Percentage of material tendered

Percentage of material tendered	2018	2019	2020	2021	2022	2023
Medical supplies	32%	43%	65%	72%	81%	86%
Drugs		37%	55%	77%	69%	83%

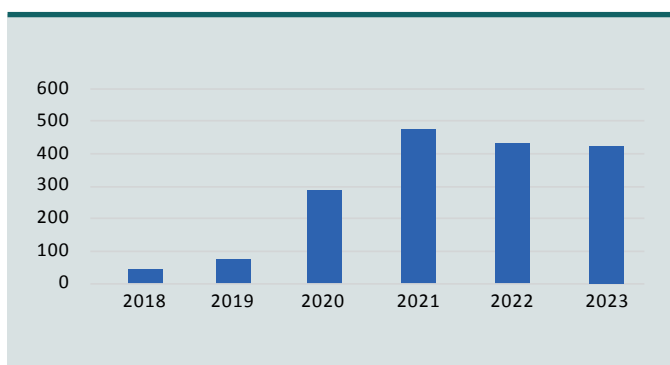
### Number of public contracts launched

Number of public contracts launched	2018	2019	2020	2021	2022	2023
All public contracts	44	75	289	477	432	430

### Percentage of material procured

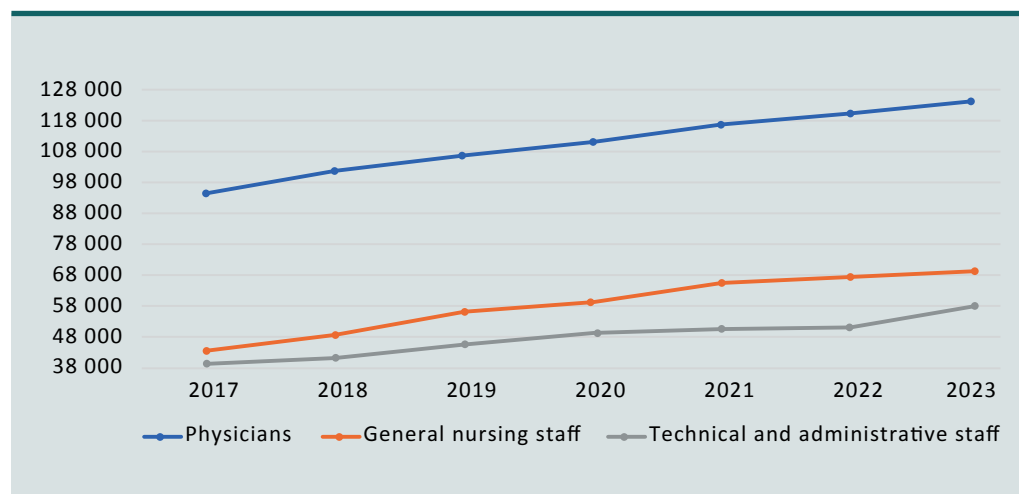


### Number of tenders issued



### Average monthly salary for selected categories of NHH employees (2017-2023)

Monthly average salary	2017	2018	2019	2020	2021	2022	2023	Increase in average monthly salary 2023 compared to 2017
Physicians	94,510	101,704	106,918	111,048	116,443	120,362	123,199	130%
General nursing staff	43,680	49,051	56,572	59,552	65,796	66,641	69,539	159%
Technical and administrative staff	39,447	41,636	45,514	49,431	50,649	51,474	57,404	146%





## Hospital financial health

Nexia AP/AUDITone/i Rating  
**EFFICIENT HOSPITALS**  
 STRATEGIES OF HEALTH INSURANCE COMPANIES AND HOSPITALS

How did the Hospital Na Homolce do in the past years?

2018 36th place  
 2019 34th place  
 2020 12th place  
 2021 4th place  
**2022 1st place**

In 2023, overall financial health results are presented separately for university hospitals and separately for other hospitals.

Placing	Other hospitals 2023	Points 2023
1.	Na Homolce Hospital	83.44
2.	Masaryk Memorial Cancer Institute	81.61
3.	Institute of Clinical and Experimental Medicine	81.31
4.	Institute of Hand Surgery and Plastic Surgery, Vysoké nad Jizerou	80.96
5.	Hospital České Budějovice, as	79.73
6.	Military Hospital Olomouc	76.75
7.	Centre of Cardiovascular and Transplant Surgery Brno	76.73
8.	Trauma Hospital in Brno	73.13
9.	Hospital Český Krumlov, as	72.35
10.	Hospital Písek, as	71.88

Placing	University hospitals 2023	Points 2023
1.	University Hospital Olomouc	79.79
2.	University Hospital Plzen	76.49
3.	University Hospital Ostrava	70.33

## Statutory audit of the annual financial report for 2023


### 9. Auditor's Report


Our audit of the Financial Statements identified deficiencies as noted above. Since these findings do not affect the true and fair view of the assets, liabilities and financial position of the Company as at December 31, 2023 and of its expenses, income and result of operations and cash flows for the year ended December 31, 2023, the auditor's opinion is

**without reservation.**

We are prepared to provide you with any explanations that relate to the above finding or any matters that relate to the audit in question.


With regards,


  
 David Ficbauer  
 auditor  
 FIZA, a.s.



Převzetí dopisu potvrzuje:

  
 vedoucí oddělení finančního  
 účetnictví  
 Iveta Šimoničková

  
 náměstek pro ekonomiku  
 a provoz  
 Ing. Tomáš Hadžega, ml.

  
 ředitel organizace  
 MUDr. Petr Polouček, MBA



# OUR ACTIVITIES



# NEUROLOGICAL-NEUROSURGICAL PROGRAM

## Department of Neurology

Head of Department, Martin Kovář, MD

### Activities of the Department

- Emergency diagnostics and treatment of patients with acute ischemic stroke and other urgent neurological diseases - at the Neurological Intensive Care Unit (a key part of the Comprehensive Cerebrovascular Center)
- Diagnostics and treatment of epilepsy both in the outpatient consulting clinic and in the Epilepsy Monitoring Unit (EMU), including a complete epilepsy surgery program
- Inpatient diagnostic and therapeutic care for other neurological patients, including interventions for a range of vertebrogenic diseases
- Examination in the Center for Sleep Disorders with two beds for polysomnography and consulting clinic
- Cerebrovascular consulting clinic with neurosonology
- Two electromyography laboratories performing, in addition to all methods of electromyography, also somatosensory and motor evoked potentials, in high annual numbers of patients treated and super-consular reach
- Consulting center for patients with movement disorders, especially Parkinson’s disease, including indications for and implementation of deep brain stimulation
- Specialized examination room for visual and auditory evoked potentials
- Two electroencephalographic examination rooms and a mobile EEG device
- General neurological outpatient units

### Organizational units of the Department

- Intensive Care Unit with 12 beds is a central part of the Center of Specialized Cerebrovascular Care (formerly a Comprehensive Cerebrovascular Center).
- Inpatient Unit: 3 inpatient rooms with standard beds and the Epilepsy Monitoring Unit (EMU), which is together with a consulting clinic a basic part of the Center for Pharmacoresistant Epilepsy with the status of a highly specialized care center. The center is one of three such centers in the Czech Republic. The inpatient unit also includes a fully accredited Center for Sleep Disorders with a sleep laboratory where sleep polygraphy is performed on two monitored beds, indications for corrective ENT operations, and especially supportive aids (CPAP, BiPAP) helping patients with sleep apnoea syndrome.
- Outpatient unit: The outpatient section includes an extrapyramidal clinic, a cerebrovascular clinic, an epileptology clinic, a sleep clinic, an outpatient clinic for patients with neuromuscular diseases and an outpatient clinic focused on neuroimmunological diseases of the central nervous system, especially multiple sclerosis.

### Basic data

Number of physicians	23 (18 FTE)
Number of nurses	58 (45 FTE)
Number of administrative staff	3
Number of standard beds	21
Number of intensive care beds	12
Number of EMU beds	4

Number of sleep laboratory beds	2
Average length of hospital stay (in days)	4.25
Number of hospitalizations	1,868
Total number of outpatient examinations	25,556

## Performance overview

### Admissions

The total number of hospital stays at the Department of Neurology increased by 4% year-on-year. The average length of hospital stay slightly reduced.

In 2023, 590 patients were hospitalized for acute CVA and transient ischemic attack in the NHH. At the Department of Neurology, it was 521+65. The total number of hospitalizations for dg 16\* in NHH is 915. By the hands of interventional radiologists we performed 120 mechanical thrombectomies of closed cerebral arteries (one of the leading places in the country). 139 patients underwent intravenous thrombolysis for CVA. All recanalized patients are hospitalized in the neurological ICU. The median time from patient arrival by ambulance to thrombolysis administration was 25 minutes, to the initiation of thrombectomy was above-average 45 minutes. All patients with mechanical and intravenous recanalization are entered in detail in the national registry ResQ. We make decisions about recanalization in some specific situations with the help of a software tool that evaluates cerebral perfusion on CT. In addition to the ambulance service, many patients are urgently sent to us by hospitals in Central Bohemia and Prague.

The Epilepsy Monitoring Unit treated 169 patients per year within typically seven-day diagnostic admissions. Patients underwent a comprehensive diagnostic evaluation – video-EEG, MRI in epileptic protocol, neuropsychological examination. Several patients had invasive EEG monitoring using intracerebral electrodes to determine the epileptogenic zone that may be a candidate for surgical removal and cure of epilepsy. 22 resection epilepsy surgery operations were indicated and performed, and 14 patients were implanted or reimplanted with a vagus nerve stimulator (VNS).

296 patients have been admitted to the Center for Sleep Disorders, well over half of them were newly indicated for treatment with a device providing permanent airway overpressure (CPAP or BiPAP). The effectiveness of their treatment can be monitored remotely and the parameters readjusted, while having many hundreds of patients monitored in this way.

Percutaneous cement vertebroplasty of a lumbar or thoracic vertebral fracture was performed in more than one hundred patients during a short hospitalization. It is an effective and minimally invasive method of treating pain resulting from osteoporotic vertebral fracture. Na Homolce Hospital is traditionally one of the leading institutions in the use of this method.

Many patients are also hospitalized to the standard department on an acute basis – for diagnosing and treatment of neurological problems and/or pain management.

### Outpatient Unit:

The number of outpatient examinations (including auxiliary examinations) increased by 13%. Most patients are examined in specialized outpatient units – epilepsy, sleep, cerebrovascular, neuroimmunological, neuromuscular and extrapyramidal. Other patients are examined and treated in the general neurological outpatient unit. The outpatient units cooperate with all disciplines within the hospital.

## Changes / new events in the previous year

- We received the Diamond Status Award under the auspices of the European Stroke Organisation as a recognition of the quality and speed of care for patients with acute stroke.

- We deepened our cooperation in the Stroke Czech Research Network in the organization of multicentric research. We launched the CARES study, prepared participation in the e-STROKE study.
- MUDr. Martin Jerie received his Ph.D. and MUDr. Otakar Herda was certified in neurology.
- MUDr. Kateřina Seltenreichová started cooperation with the Psychiatric Clinic of the 1st Faculty of Medicine Charles University in the field of transcranial magnetic stimulation in patients with insomnia.
- The outpatient units and examination rooms have undergone reconstruction and window replacement.

### Perspectives for the next year

Our task is to maintain a high standard of care even with a large number of treated patients - both the inpatients and outpatients. The core segment is the cerebrovascular program, especially the acute treatment of CVA. The number and proportion of mechanical thrombectomies performed in patients with acute stroke due to cerebral artery occlusion is likely to increase, and the spectrum of indications has broadened. A large proportion of patients with acute stroke will continue to receive intravenous thrombolysis. We will continue to work with the Department of Neurosurgery in the care of patients with cerebral hemorrhage and inter-hemorrhage in ruptured aneurysms. We will publish the results of patients operated on with cerebral bypass for chronic carotid closure and the beneficial effect of the surgery on their mental function. In patients with focal spasticity, we will now have a mobile stimulator to administer botulinum toxin. Ongoing:

- Cooperation with Motol University Hospital in the framework of the Center of Highly Specialized Care for Pharmacoresistant Epilepsies.
- Development of deep brain stimulation indications and cooperation with stereotactic and radiation surgery and the Neurological Clinic of the 1st Faculty of Medicine of the Charles University.
- Recruitment of patients in the OCEANIC Stroke, MCA-AF, e-STROKE, CARES studies, collaboration with the Department of Cardiology in the program of diagnosis of obscure disorders of consciousness, in the examination and prognosis of patients after cardiopulmonary resuscitation and in the non-pharmacological treatment of atrial fibrillation.

### Educational and other specialized activities

- Lectures, teaching activities: lectures at the Institute of Postgraduate Education in Health Care, especially in the course Stroke (Head of Department Martin Kovář, MUDr. Dagmar Součková), conducting neuro-intensivist internships (MUDr. Michal Panský), presentations at national professional seminars and congresses (Head of Department Martin Kovář, doc. Zdeněk Vojtěch, MUDr. Kateřina Seltenreichová, MUDr. Jan Peregrin, MUDr. Dagmar Součková, MUDr. Michaela Nová, MUDr. Vojtěch Skovajsa, MUDr. Martin Jerie), teaching at the 1st and 3rd Faculty of Medicine Charles University (doc. Zdeněk Vojtěch), conducting internships in epileptology and electroencephalography (doc. Zdeněk Vojtěch), electromyographic internships (MUDr. Martin Jerie), neurological internships of neurologists from other medical institutions and physicians of other disciplines within the framework of pre-certification training in our country (Head of Department Martin Kovář).
- Principal investigators and co-investigators of NHH grants: doc. Zdeněk Vojtěch, MUDr. Adam Jaroš, MUDr. Matěj Červenka.
- A study of the global impact of COVID-19 on the treatment of strokes and subarachnoid hemorrhage (SAH) was published in a high-impact international journal, in which we participated.
- At the European Stroke Conference, Prof. David Školoudík presented the positive result of the multicentric Sonobirdie study, to which we contributed the second largest number of participants and participated in its design, as part of the Large Clinical Trials.
- Membership in professional associations: Czech Neurological Society (Head of Department Martin Kovář a MUDr. Dagmar Součková are the members of the committee Section), European Stroke Organization, Epistop Civic Association.
- Active participation in the Stroke Czech Research Network, participation in a number of national studies and projects, (Head of Department Martin Kovář is a member of the Scientific Council).

- Preparation of internal reviews in the field of Neurology in Courts.

- Publications for 2023:

KLAIL, T. - SEDOVA, P. - VINKLAREK, J. - KOVACOVA, I. - BAR, M. - CIHLÁŘ, F. - ČERNÍK, D. - KOCÍ, L. - JURA, R. - HERZIG, R. - HUSTÝ, J. - KOCHER, M. - KOVÁŘ, M. - NEVSIMALOVA, M. - RAUPACH, J. - ROČEK, M. - ŠAŇÁK, D. - SEVCIK, P. - ŠKOLOUDÍK, D. - ŠRÁMEK, M. - VANIČEK, J. - VASKO, P. - VÁCLAVIK, D. - TOMEK, A. a MIKULÍK, R. Safety and Efficacy of Baseline Antiplatelet Treatment in Patients Undergoing Mechanical Thrombectomy for Ischemic Stroke: Antiplatelets Before Mechanical Thrombectomy. *Journal of Vascular and Interventional Radiology*. 2023, 34(9), s. 1502-1510.e1 2. ISSN 1051-0443.

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## Department of Neurosurgery

Head of Department, Jan Klener, MD

In 2023, despite the difficult situation caused by the reconstruction of the hospital, the Department of Neurosurgery continued to deal with comprehensive diagnostics, surgical treatment and follow-up care of patients suffering from diseases of the central and peripheral nervous system in order to provide comprehensive and safe services that improve patients' quality of life.

### Activities of the Department

These activities mainly involve neurosurgical treatment of patients with diseases of the brain, base of the skull, spinal cord, spine and peripheral nervous system, including patient education, pre-operative diagnostics, the actual surgical treatment and post-operative neurointensive and follow-up care. In particular, emphasis has been put on the high quality of surgical and post-operative care, using modern methods and technology, minimizing stress and risks for patients, good communication with them, and observance of SAK accreditation standards (SAK Joint Accreditation Commission). Patient care was traditionally provided in four key areas - as part of the neuro-oncological, neurovascular, functional neurosurgical and spinal programs. In 2023, a total of 2,225 surgeries were performed, 2,154 patients were admitted and 13,421 patients were seen in the outpatient unit.

The Department of Neurosurgery is a supra-regional, national or even international centre for a number of treated diagnoses. Morbidity of planned surgeries ranges at lower values than national data. These are mainly patients with serious diseases which can only be treated in a small number of centers in the Czech Republic. In 2023, surgical treatment was performed in a multifunctional complex of operating rooms equipped with state-of-the-art technology, including intra-operative magnetic resonance imaging and surgical navigation systems, surgical microscopes, and intra-operative electrophysiological monitoring. Integration of operating room technologies enables the Department to provide patients undergoing operations of the brain, spinal cord or spine with a higher standard of precisely targeted, highly efficient and safe treatment.

### Neuro-Oncological Program

Within the Neuro-Oncological Program, operations on a wide range of brain tumours, including both intra-axial and extra-axial brain tumours, as well as tumours of the base of the skull are performed. In the surgical treatment: emphasis is put on mini-invasive approaches which reduce the burden on patients. Where appropriate, "keyhole" craniotomy and "non-retraction" neurosurgery, minimizing trauma to the brain, are preferred. The Department of Neurosurgery of Na Homolce Hospital is one of the pioneers in the use of this technique and is a leading facility in the Czech Republic. The surgical standard employs microsurgery techniques using neuronavigation and intraoperative imaging aided by intraoperative MRI and perioperative duplex ultrasonography. The safety and accuracy of surgical operations are increased by using functional neuronavigation, intraoperative fluorescent visualization of tumors or intraoperative electrophysiology monitoring. In the field of electrophysiological monitoring, we promote the use of subcortical stimulation integrated in the suction device that is permanently placed in the surgical field, leading to increased safety of the procedure. Resections of speech centers are routinely performed by means of so-called "awake craniotomy" which means that part of the procedure is performed on a patient who is fully conscious. We continued in the development of endoscopy surgical techniques, especially in surgeries of hypophysis adenomas, and rarely in surgeries of intradural tumors. In addition to its own surgical program, the Department of Neurosurgery also promoted other treatment methods for patients with brain tumours in 2023, for instance in the form of regular interdisciplinary neuro-oncology workshops attended by a multidisciplinary team of specialists from Na Homolce Hospital and oncologists from Motol University Hospital and University Hospital Na Bulovce (fractionated radiotherapy, chemotherapy, radiosurgical treatment especially with the use of Leksell Gamma Knife or proton treatment).

### Neurovascular Program

With regard to the Neurovascular Program, the Department of Neurosurgery is part of the Comprehensive Cerebrovascular Centre, whose status Na Homolce Hospital acquired in April 2010 and since then it has been regularly renewed.

The main task is to provide comprehensive care to patients with subarachnoid hemorrhage which includes both treatment of the most frequent cause of bleeding, i.e. cerebral aneurysm rupture, as well as neurocritical and other types of care. A wide range of microsurgical and endovascular treatment techniques are available. In 2023, microsurgical treatment included a broad range of currently used methods – standard clipping, clip reconstruction, temporary clipping and remodelling, trapping and indirect methods using vascular occlusion and revascularisation bypass techniques. Neurosurgeons have applied a mini-invasive approach to surgery and cerebral retraction, routinely used electrophysiological imaging, state-of-the-art intra-operative video-angiography and the selectively useful method of flowmetry. In individual cases, circulation was stopped by means of adenosine during cerebral aneurysm surgeries. In the field of endovascular treatment, interventional radiologists have at their disposal all currently available endovascular methods for aneurysm treatment. Microsurgery and endovascular treatments are available around the clock. Even in 2023, we operated a large number of unruptured aneurysms, arteriovenous malformations and cavernomas, as well as numerous operations to stop spontaneous intracerebral hemorrhage. In cooperation with the Department of Neurology, procedures were performed in accordance with prepared indication criteria for decompression (pressure relief) craniotomy for some types of ischemic cerebral strokes, and bypass procedures between extra- and intracranial blood flow.

The safety of surgical procedures to treat vascular lesions can be increased by using microscope fluorescence mode which shows the patency of critical vessels and obstruction of pathological vessels after the application of a special fluorescent agent. Procedure safety is also increased by Dopplerometry or a flowmeter, measuring qualitatively or quantitatively blood flow in individual arteries. Monitoring of blood flow allows for a prompt response to hemodynamic changes and prevents a critical lack of blood supply to individual parts of the cerebral tissue. In 2023, the hospital acquired two new state-of-the-art microscopes (Kinevo, Mitaka) enabling further refinement of fine microsurgical techniques.

### Functional Neurosurgery Program

The Functional Neurosurgery Program mainly includes epilepsy surgery and neurosurgery aimed at reducing pain. The Center for Epilepsy Treatment at Na Homolce Hospital is, together with a similar center at Motol University Hospital, part of a large center for the Czech Republic and has been granted European accreditation for the treatment of patients with epilepsy. The Center includes several departments of Na Homolce Hospital (Department of Neurosurgery and Neurology, Leksell Gamma Knife Unit, Department of Radiodiagnostics and PET Center) and around 30–40 patients undergo surgery for epilepsy treatment per year.

Resection operations were carried out both by standard microsurgery technique and by stimulation treatment (application of vagal stimulators). During the procedure, patients are examined by intra-operative MRI which provides instant feedback on the extent of the resection, thus increasing the safety and efficiency of surgical procedures. The main procedures aimed at alleviating pain include a so-called microvascular decompression and partial sensory rhizotomy for intractable pain of the trigeminal nerve. The treatment of pain by neurostimulation and neuromodulation has been further developed in collaboration with the Department of Anesthesiology and Reanimation.

### Spinal Surgery Program

The Department of Neurosurgery at Na Homolce Hospital has been for years one of the leading centers in the Czech Republic for its Spinal Surgery Program. These operations are performed on the entire spine using all access routes to treat degenerative diseases, as well as trauma and oncological conditions. Preference is given to a microsurgical approach and safe minimally invasive techniques using electrophysiological monitoring where indicated. Spine surgery uses a complete range of spinal implants, including arthroplasty systems and percutaneously implanted stabilizers at its disposal. A minimally invasive cha-

racter is also preferred for major fixation surgeries which can be performed by means of novel, safe techniques. Further, minimally invasive percutaneous vertebroplasty or kyphoplasty are used, which are most commonly performed to treat osteoporotic fractures of the vertebral column, in cooperation with intervention radiology. The endoscopic approach is also routinely used, which allows us to completely minimize the access path and thus reduce the morbidity of the procedures. The equipment also includes an exoscope, which extends the possibilities of mini-invasive approaches.

The range of spinal tumour operations included in 2023 all types of lesions, including intradural, extradural, intramedullary and extramedullary tumours.

In 2023, O-arm - intraoperative CT was launched in our operating rooms, which ensures more precise instrumented procedures and thus significantly further reduces the risk of spinal surgery.

### Operational data

Total number of beds	65
Number of standard beds	45
Number of intensive care beds	8
Number of intermediate beds	12
Number of physicians	18
Number of general nursing staff	88
Number of outpatient examinations	13,421
Number of hospitalizations	2,154

### Breakdown of interventions

Cerebral tumours	230
Vascular diseases	190
Functional procedures	57
Spinal diseases, including tumours	1,220
Craniocerebral injuries	105
Other	423
Total	2,225

### Educational, research and other specialized activities

- The Department of Neurosurgery of Na Homolce Hospital is a training center for physicians preparing for postgraduate examinations in neurosurgery, both in cranial neurosurgery and in spine surgery.
- In 2023, neurosurgeons of Na Homolce Hospital were involved in undergraduate training of medical students and postgraduate training of neurologists and surgeons for postgraduate certificate and were organizing internships in neurosurgery for Czech and foreign physicians.
- In 2023, two internal grant projects were carried out in the Department of Neurosurgery. Furthermore, in cooperation with the Czechoslovak Academy of Sciences, research into glial cancer diseases is being carried out within the framework of the Grant Agency of the Czech Republic. Physicians actively participate in webinars of world and national congresses and attend in person major meetings of neurosurgeons. Three important works were published in impacted journals.
- The neurosurgeons of Na Homolce Hospital also participate in humanitarian neurosurgical activities within the framework of Medevac missions organized by the Ministry of the Interior and also participate in teaching neurosurgery on the African continent in cooperation with the European Association of Neurosurgical Societies and the New York Presbyterian Hospital.

## Department of Stereotactic and Radiation Neurosurgery

Head of Department, Assoc. Prof. Roman Liščák, MD, PhD

### Activities of the Department

Radiosurgical treatment using the Leksell Gamma Knife, stereotactic and functional neurosurgery. In addition to consulting and follow-up care provided to our neurosurgical patients, our outpatient unit provides also specialized ophthalmic and neurosurgical consulting care.

### Organizational units of the Department

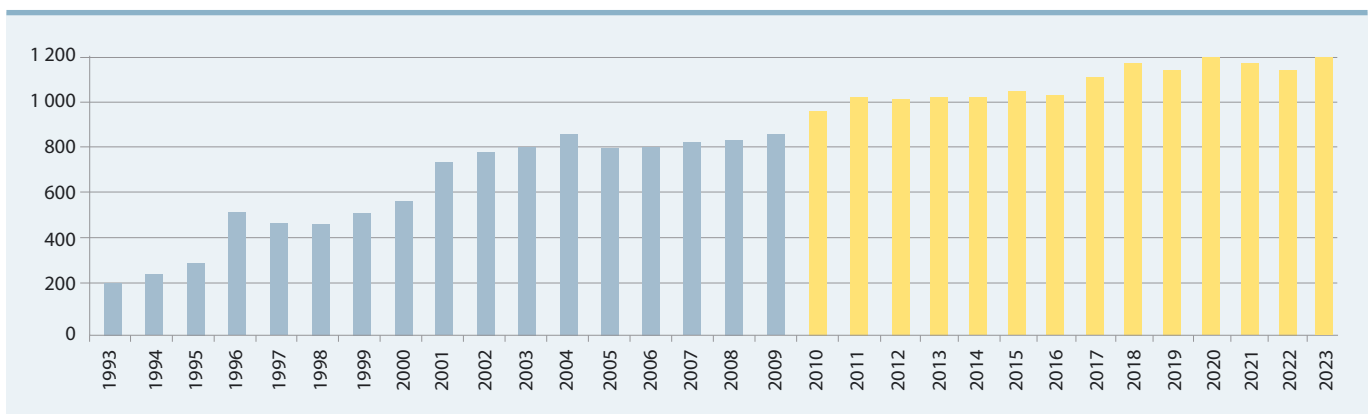
Outpatient Unit: Neurosurgical Outpatient Unit, Neurophysiological Outpatient Unit, Neurological Outpatient Unit, Ophthalmological Outpatient Unit.

Inpatient Unit: 8 beds day care center (Sunday-Friday), 1 operating room for stereotactic and functional neurosurgery, Leksell Gamma Knife Treatment Unit.

### Operational data

Number of physicians	6 + 2 external ophthalmologists, 2 neurologists
Number of nursing staff	FTE 11 + 2 radiology assistant
Number of other staff	7 (3 attendants, 4 orderlies)
Number of beds	8- short stay ward (Monday-Friday)
Number of operations performed using Leksell gamma knife	1,194
- of which	127 were foreigners (10.6%) - Poland 2, Slovakia 124, Ukraine 1
Number of other operating room surgeries	195
- of which deep brain stimulation	64 (20 primo-implantations and 44 re-implantations)
Number of hospitalizations	1,101
Number of outpatient examinations	2,322 patients

Number of surgeries with gamma knife in individual years (yellow after the installation of the Perfexion model)



## Changes / new events in the previous year

- In August 2023, after 7 years, we replaced the Co60 radiation sources with fresh ones, so now the irradiation time has been reduced by more than half again. A new service contract has also been signed to ensure the operation of the gamma knife for the next 4 years. The replacement of the radiation source required a lockdown of almost a month, when the department's activities were interrupted. At the same time, the reconstruction of the department and the replacement of the windows were carried out in parallel. Despite these limitations, we treated 1,194 patients with the gamma knife, only 6 fewer than the highest number ever. The number of foreigners increased to 10.6%, but these were mostly patients from Slovakia.
- The program of deep brain stimulation for patients with extrapyramidal movement disorders and cooperation with the staff of the Neurological Clinic of the 1st Faculty of Medicine Charles University and the General University Hospital in Prague within the established Center for the Treatment of Movement Disorders continued. The operating room for these patients was retrofitted in 2023 with a Medtronic O-arm mobile CT unit. The unit has proven its effectiveness not only in deep brain stimulation, but in all invasive stereotactic procedures.
- The number of patients with eye cancer where an ophthalmologist participates in the treatment procedure was 37, which is at the standard level.
- We donated an older but functional neurogenerator for stereotactic surgery to the department of neurosurgery in a hospital in Kiev.

## Perspectives for the next year

In 2024, a new neurogenerator will be purchased for the operating room along with a new monitoring device with microelectrodes for neurophysiological monitoring of patients during deep brain stimulation. The program of algiesiological invasive procedures (spinal cord stimulation) will be further developed in cooperation with the Algiesiology Outpatient Unit of our hospital.

## Educational and other specialized activities

- In 2023, 8 trainees completed their pre-certification internship in neurosurgery at our Department.
- In 2023, we offered further international radiosurgical courses, together with the Department of Medical Physics. A total of 6 four-day courses were organized, attended by 34 specialists (neurosurgeons, radiation oncologists and medical physicists, or other specialties) from 13 different countries. The number of participants from each country was as follows: Iraq 8, Spain 4, Turkey 3, UK 3, India 3, Italy 3, Sweden 2, Netherlands 2, Georgia 2, Malaysia 1, Colombia 1, Japan 1, Canada 1.
- Within the framework of institutional support we are working on 4 grant projects.
- Publications: 19 articles in impact journals.
- During 2023, the Gamma Knife was visited by 182 registered visitors in the controlled area.



# CARDIOVASCULAR PROGRAM

## Department of Cardiology

Head of Department, Prof. Petr Neuzil, MD, PhD, FESC

The clinical activities of the Department cover a wide range of preventive, diagnostic and therapeutic care provided to patients with diseases of the heart and blood vessels or who have an increased risk of these diseases. As in previous years, the Department continued to cover all individual specialized areas in 2023.

Our Department is very active in organizing and participating in many professional national and international cardiology conferences and symposia. Every year we organize the "Peter Niederle Cardiology Day", which is an independent professional one-day conference organized with the VZP headquarters, the State Institute for Drug Control and the Association of Outpatient Cardiologists.

The joint project of the experimental laboratory at the Institute of Physiology of the 1st Faculty of Medicine Charles University continues to develop and expand in an excellent way. Experiments with different types of cardiac support, new ablation technologies and treatment devices have been performed.

### Multifunctional Catheterisation Unit

In 2023, we continued to grow both of our two flagship programs - catheter ablation of cardiac arrhythmias and cardiac implantable electronic devices (CIEDs).

In 2023, more than 3,000 diagnostic and therapeutic medical procedures were performed in our operating rooms. Catheter ablations accounted for the largest part - we performed a total of 1,616 of them (the highest number in the Czech Republic). Currently, so-called complex interventions (ablations of atrial fibrillation, atrial and ventricular tachycardias) account for almost 90% of all ablations. In most cases of complex ablations, it is an ablation for atrial fibrillation. In 2023, a total of 1,187 procedures were performed for this diagnosis (of which 50% ablations for the paroxysmal form and 50% for persistent or long-term persistent forms of atrial fibrillation). In the treatment of atrial fibrillation, we already use the latest pulsed electric field method as standard (the Farapulse system - Boston Scientific Inc.), which has been actively developed at our department in recent years and was approved in Europe in 2021. Compared to other methods with thermal energy used so far, this treatment is significantly more effective and less burdensome and risky for the patient, the procedures are shorter (30-60 minutes) and simpler. Pulsed-field ablation was applied to more than 900 patients in 2023 and in October 2023 we became the first in the world to reach a total of 2,000 patients treated with this innovative technology.

We performed 145 catheter ablations for ventricular tachycardias (year-on-year increase of more than 15%), of which 30% were ablation of idiopathic ventricular tachycardia, 40% were ablation in structural heart disease (IHD, DCM, ARVC). The number of so-called cardioneuroablation procedures continues to grow, the indication for which is cardioinhibitory syncope, especially in young patients, which until recently were treated primarily by permanent cardiac pacing.

In terms of the number of implanted pacemakers and defibrillators (ICD - implantable cardioverter defibrillator), the Department has long been among the largest centers in the Czech Republic and Europe. The Department specializes in cardiac defibrillator implantations (449 procedures) and cardiac resynchronisation therapy (205 procedures). A clear trend in cardiac pacing and device treatment of heart failure is the so-called physiological stimulation from the septal area (left bundle of Tawara (LBBAP) or bundle of His). We continue to implant subcutaneous ICDs, of which a total of 30 were implanted in 2023. A new procedure for implanting a so-called substernal ICD was introduced at the end of 2023. The advantage is, as in the case of the standard subcutaneous ICD, the extravascular placement of the defibrillation electrode (it is inserted by a special technique under skiascopic control under the sternum near the front of the heart), but this method also offers the possibility of more permanent cardiac stimulation if necessary. Another newly introduced technology ensures communication between the implanted leadless pacemaker and the subcutaneous ICD - thus, for example, severe ventricular tachycardia can be adequately treated not only with an electrical discharge but also with so-called ATP (anti-tachycardia pacing), which is completely painless for patients.

Implants are also associated with procedures where the pacing or defibrillation electrodes need to be extracted, especially for reasons of infection. The total number of these procedures in 2023 was 63 with the rate of success reaching 98% (mortality 0%).

Since 2012, the Department has been the world-wide recognized development center for implantation of leadless pacemakers.

In 2023, a total of 34 leadless stimulators were implanted at our Department.

Our electrophysiological laboratory closely cooperates with a syncope and Neurology Outpatient Unit in diagnosing cardiac arrhythmias, non-clarified disorders of consciousness or cryptogenic cerebral strokes. Also because of these indications, a total of 203 patients were implanted with a subcutaneous heart rhythm monitor in 2023 (a year-on-year increase of almost 100%!)

We have long been dealing with non-pharmacological prevention of ischemic stroke in patients with atrial fibrillation - and one of the options is catheterization occlusion of the left atrial appendage. In 2023, a total of 62 of these procedures were performed (the most in the Czech Republic).

As part of our clinical research, in 2023 we were involved in the development and verification of the efficiency and effectiveness of new mapping and ablation technologies, especially focusing on the application of pulsed electric fields. For example, we also play a major role in the development of temporary intrapericardial cardiac support.

### Intervention cardiology

A major event was the gradual start of operation of the new X-ray angiography machines, which were installed at the end of the previous year. These are the latest systems in development and offer a range of additional functions beyond X-ray imaging, including invasive coronary artery imaging, including integration of angiographic images, as well as support for structural interventions using integration of X-ray and CT images, or X-ray and oesophageal echocardiography. Their acquisition was supported by the European Union through the REACT development program.

A total of 3,156 catheterization procedures were performed, of which 2,686 were diagnostic coronary angiography procedures. 602 percutaneous coronary interventions (PCIs) were performed, of which 220 were primary PCIs (i.e. PCIs for ST-elevation myocardial infarction - the highest number from Prague cardiac centers). The program of structural cardiac interventions continued, including patent foramen ovale closures, defect of the atrial septum, pulmonary vein stenoses and closures of paravalvular leaks; certain unique combined catheterisations for structural cardiac defects were performed. The total number of catheter closures of the atrial septal defect was 74, this number ranks us first in the Czech Republic.

The transcatheter aortic valve implantation (TAVI) program also continued, in 2023, a total number of 129 procedures were performed (it was 103 procedures in 2022). In addition, 25 mitral insufficiency catheterization intervention procedures were performed (20 procedures in 2022). A new program of catheter treatment of tricuspid regurgitation, the so-called edge-to-edge plasty, was initiated.

Thus, the successful structural heart intervention program continues to grow and is very extensive, both in terms of the spectrum and quantity of diagnostic pre-operative examinations, actual intervention and post-operative care, and in the demands of multidisciplinary collaboration. A large proportion of patients are able to undergo procedures (namely TAVI) under analgosedation, allowing earlier rehabilitation and mobilisation and subsequent discharge of these patients. In addition, care continued for adult patients after surgery for complex congenital heart disease in childhood.

The development of a percutaneous coronary intervention program with circulatory support by different types of support continues. The Centre was traditionally involved in the preparation of recommended procedures of the Czech Society of Cardiology and numerous professional programs and presentations at professional conferences and meetings in the Czech Republic.



## Acute Cardiology

In 2023, the Department of Acute Cardiology provided acute and intensive cardiac care to patients with severe cardiovascular disease, including the most severe patients requiring mechanical circulatory support or organ replacement. We actively participated in the extracorporeal resuscitation program (ECPR), where patients were airlifted to us under continuous resuscitation for refractory circulatory arrest

We treated a total of 577 patients and 746 electrical cardioversions were performed on an outpatient basis. A total of 25 patients were treated with mechanical cardiac/circulatory support or a combination of supports. We introduced extracorporeal membrane oxygenation in venoarterial configuration (V-A ECMO) in 15 cases, mechanical cardiac support of the left ventricle with the Impella CP/5.0 system in 14 cases, and counterpulsation was applied in 3 patients. Mechanical pulsatile left ventricular support with the PercAssist system was used for the first time in 2 patients. We performed a total of 62 right-sided catheterizations/monitorings using a pulmonary artery catheter, 38 dialyses and 11 puncture tracheostomies. The mortality rate of patients increased to 8.67%, which indicates that we are treating the most serious patients and is related to the increase in the number of patients admitted to our department in refractory circulatory arrest. This is also related to the increase in the number of referred organ donors from our Department, when donors on running mechanical circulatory replacement (V-A ECMO) were accepted for the first time.

We also successfully carried out scientific research activities, presenting our results at international events (ESICM) and actively participating in workshops and seminars at congresses of the Society of Cardiology.

### Multifunctional Catheterisation Unit

Ablations - total	1,616
Ablations according to arrhythmias	
Atrial fibrillation	1,187
paroxysmal	583
persisting	533
long-term persisting	71
Atrial flutter	21
Atrial tachycardias	54
Non-selective RFA of AV node	16
Atrioventricular nodal re-entry of tachycardia (AVNRT)	133
Wolff-Parkinson-White syndrome (WPW syndrome)	34
Ventricular tachycardia	146
structural	54
non-structural	91
ICD (implantable cardioverter defibrillators) - total	449
ICD: primary implantation	276
ICD: exchanges	173
CRTD (BIV/LBBAP)	205
VVI ICD	59
DDD ICD	153
Subcutaneous ICD	30
Substernal ICD	2
Total pacemakers (VVI, DDD, BiVKS, leadless)	792

## CARDIOVASCULAR PROGRAM

Pacemakers: primary implantation	590
Pacemakers: replacements	235
Extraction procedures - total	63
Subcutaneous recorder implantation	203
Catheter management of left atrial appendage occlusion	62
Spinal cord stimulation	6

### Intervention cardiology

Diagnostic catheterisation	2,696
Percutaneous coronary intervention (PCI)	602
Primary PCI (in acute myocardial infarction)	220
Catheterization occlusion of the defect of the atrial septum (DSS) / foramen ovale patens - PFO	74
Transcatheter aortic valve implantation (TAVI)	129
Transcatheter mitral valve intervention (MitraClip)	25

### Non-invasive cardiology

General and angiology outpatient unit	19,025
Stimulation outpatient unit	8,013
Transthoracic echocardiography	10,101
Oesophageal echocardiography	966
Outpatient monitoring: Holter ECG + Loop monitor + Omron ECG + BP monitor + ECG card	1,752
ECG stress test (ergometry)	386
Tilt test	107

### Operational data

Total number of beds	52
Number of standard beds	30
Number of intermediate beds	4
Number of intensive care beds	18
Number of physicians	42
Number of general nursing staff	126
Number of hospitalizations	4,708
Average treatment period (in days)	2,55

## Department of Vascular Surgery

Head of Department, Prof. Petr Štádler, MD, PhD

### Activities of the Department

- Comprehensive surgical treatment of diseases of the vascular system, primarily the narrowing or occlusion of blood vessels caused by atherosclerotic changes or dilation (aneurysms) and also injuries of the arteriovenous system except for the coronary arteries, the ascending aorta and aortic arch. Focus on classical surgery in the region of the thoracoabdominal aorta and on new trends and techniques in vascular surgery (minimally invasive approaches, endovascular treatment, robot-assisted surgery, and laparoscopic surgery); treatment of infection of vascular prostheses using vascular grafts or special vascular prostheses with high resistance to infection.
- Since the beginning of 2009, the Department has also been performing minimally invasive operations on varicose veins using a radiofrequency method since 2023 using the laser method that reduces post-operative pain and facilitates early return to daily routine activities.
- Referential clinic for surgical treatment of the thoracoabdominal aorta, robot-assisted and laparoscopic vascular surgeries, international training center in the area of robot-assisted vascular surgery.
- Outpatient care and follow-up of patients undergoing vascular surgery and patients indicated for conservative treatment.
- Teaching workplace of the 1st and 2nd Faculty of Medicine Charles University in Prague.

### Organizational units of the Department

Outpatient Unit	6 examination rooms
Reception desk	1
Standard bed station (B)	17 beds
Standard bed septic station (A)	17 beds
Intermediate care unit	13 beds
Intensive care unit (6th floor)	5 beds
Intensive care unit (2nd floor)	7 beds

There are 2 operating rooms available daily, and in addition, a hybrid multidisciplinary operating room is available 1.5 times a week and a robot-assisted operating room is available once a week. An X-ray operating room is also used in cooperation with radiologists for some acute procedures. The Department provides continuous operation for urgent vascular surgery procedures and above-regional service for difficult specialized aorta surgeries.

### Operational data

Number of physicians	18
Number of nursing staff	107
Number of auxiliary medical staff	24
Number of lower medical staff - attendants	1
Number of technical and administrative staff	6
Number of standard beds	34
Number of intermediate beds	13
Number of intensive care beds	12
Number of hospitalizations	2,673

## CARDIOVASCULAR PROGRAM

Number of inpatients	2,121
Bed occupancy rate (in %)	70.5%
Average treatment period (in days)	6.6
Number of treatment days	14,768
Number of outpatient examinations / number of examined patients	15,207/7,687

### Number of procedures

Total number of surgical procedures	1,509
Thoracic aneurysm - classical	34
Thoracic aneurysm - stent graft	27
Abdominal aneurysm - classical	30
Abdominal aneurysm - stent graft	73
Aneurysm of popliteal artery	16
Aortofemoral reconstructions	34
Pelvic reconstructions	6
Extra-anatomic reconstructions	9
Management of vascular prosthesis infections	11
Aortic arch branch surgeries - total	140
of which: carotids - endarterectomy	137
glomus tumour	0
carotid aneurysm	0
bypass or implantation of carotid/subclavian	3
bypass from ascending aorta (sternotomy)	0
Femoropopliteal proximal reconstructions	37
Reconstructions of arteries in the groin area	64
Crural reconstructions - total	102
Varicose vein surgeries	373
of which: classical	242
radiofrequency	39
EVLA laser	21
AV shunts	15
TOS	1
Transplantation of vascular allografts	6
Xenografts	1+15 (patch)
Hybrid surgeries	33
Robot-assisted vascular surgeries	44
Laparoscopic surgeries	0
Thoracoscopic thoracic sympathectomy	10
Lumbar sympathectomy by laparoscopic method	0
Endoscopic sampling of vena saphena magna	0
Vascular Interventions in collaboration with the Department of Radiodiagnostics	809
Rec. inferior vena cava, malignancy	0

## The course of 2023

- Since January 2008, the Department of Vascular Surgery has been managed by the Head of Department, Prof. MUDr. Štádler, Ph.D., who is also a member of the external educational staff of the 1st Faculty of Medicine Charles University, with which the Department actively cooperates. Since 2015, the Department has participated in the training of students from the 2nd Faculty of Medicine Charles University, managed by MUDr. Petr Šedivý, Ph.D.
- Comprehensive diagnostics and surgical treatment of diseases of the vascular system are routinely performed, primarily the narrowing or occlusion of blood vessels caused by atherosclerotic changes, and also of injuries to the arteriovenous system except for the coronary arteries, the ascending aorta and aortic arch that are traditionally the responsibility of cardiac surgery. The range of surgical interventions included operations on branches of the aortic arch, thoracic and abdominal aorta, including aneurysms (the Department of Vascular Surgery has the highest number of aortic operations in the Czech Republic), reconstruction of arteries supplying abdominal and retroperitoneal organs, operations on arteries supplying the limbs, as well as varicose veins, and a relatively unique transplantation of vascular grafts to deal with the infection of vascular prostheses. One of the largest groups of patients includes those with ischemic disease of the lower limbs and with narrowing of the arteries supplying blood to the brain. Minimally invasive approaches are used in thoracoscopic thoracic sympathectomy or laparoscopic lumbar sympathectomy procedures, endoscopic operations of varicose veins, endoscopic sampling of veins for vascular reconstructions, operations of the abdominal aorta through reduced surgical approaches, the so-called mini-laparotomies, and in particular robot-assisted and laparoscopic vascular surgery (these procedures have been newly covered by public health insurance since 2018).
- The Department of Vascular Surgery continues to retain its unique position of a world leader in robot-assisted vascular surgery and a national leader in thoracoabdominal aortic surgery. The cooperation with the NÚSCH in Bratislava and now also with the hospital in Banská Bystrica continued in the field of surgical treatment of thoracoabdominal aorta. This year another international training in robot-assisted vascular surgery took place.
- Another important area vascular surgery deals with is endovascular program. It especially focuses on implanting stent grafts for treating abdominal or thoracic aortic aneurysms and hybrid procedures. Implantation of stent grafts, perioperative angiography and intra-operative angioplasty are routinely carried out in collaboration with the Department of Radiodiagnostics at Na Homolce Hospital. The created team of vascular surgeons and radiologists (MUDr. P. Šedivý, Ph.D., MUDr. O. Stehno, MUDr. H. Přindišová, MUDr. A. Šnajdrová), who are actively involved in endovascular procedures, continues successfully. One vascular physician has the required specialty certification and the other is actively preparing for it. We plan to train another vascular surgeon and a radiologist.
- The Department also carries out challenging procedures to address infections of vascular prostheses using vascular allografts, femoral veins or xenografts (vascular prostheses or patches made of bovine pericardium), which unfortunately have reached the end of "CE" certification and are replaced by alternative material - prostheses with triclosan. Bovine patches remain to be used for surgical vasculoplasty with a higher risk of infection. Together with the Institute of Clinical and Experimental Medicine, the General University Hospital in Prague and the Tissue Bank of the General University Hospital in Hradec Králové, the NHH Department of Vascular Surgery participates in the program of vascular graft cryopreservation. A number of centers in the Czech Republic take advantage of the Department of Vascular Surgery as a consultancy center for the treatment of a range of serious vascular problems.
- Since 2016 our Department has had a hybrid multidisciplinary operating room available at least 1.5 times a week, where robot-assisted surgeries, implantations of stent grafts and hybrid procedures are carried out.
- We presented our results and experience at national and international level. Abroad, we gave presentations in the USA, France, Slovakia, Croatia, where most of the presentations were in the form of lectures upon invitation.
- Prof. Štádler was ranked by Forbes magazine among the top 50 Czech physicians in January 2023. He also received the 1st prize for his presentation of robot-assisted vascular surgery at the ESCVS congress in Paris.

## CARDIOVASCULAR PROGRAM

- The Department's publishing activity consisted of publications in the national professional journals.
- In staffing, two physicians have joined, one graduate and one after completing core medical training.

### Outlook for 2024

- Even in 2024, the Department of Vascular Surgery will carry out comprehensive diagnostics and surgical treatment of diseases of the arteries and veins in the entire range, focusing on new, modern trends. We plan to cooperate with the Department of Cardiac Surgery in addressing vascular conditions falling into both these specializations. Thoracoabdominal aortic surgeries will be further developed. Minimally invasive approaches in operations with a focus on robot-assisted and endovascular surgery will be further developed. Since January 2018, robot-assisted vascular surgeries have been on the official list of procedures and thus it is not necessary to ask for approval for every surgery of this type at the relevant Health Insurance Company.
- We will continue with minimally invasive surgery using a 3D laparoscopic tower, and we will continue our successful collaboration with the Department of Radiodiagnostics in the endovascular program. In addition, the Department of Vascular Surgery will continue to deal with infections of vascular prostheses, the incidence of which grows nationwide. These procedures are technically and economically very demanding and it is necessary to resume negotiations with insurance companies on the reimbursement of these demanding procedures. The focus of the Department on the latest trends in the field of minimally invasive approaches in arteriovenous surgery is also of great importance.
- In 2024, we are planning international training activities in robotic vascular surgery and physician training in laparoscopic vascular surgery in the Aeskulap Academy project. Colleagues from Croatia are interested in closer cooperation in the field of thoracoabdominal aortic surgery.
- We are planning presentations at national and international congresses.

### Educational and other specialized activities

- The Department is also involved in undergraduate training of students of the Faculty of Medicine and postgraduate studies of physicians to obtain a postgraduate certificate in vascular surgery, as well as of physicians whose specialization requires a study visit to in the Department of Vascular Surgery.
- Prof. Štádler is an external teacher and a member of the Board for Postgraduate Certificate in Vascular Surgery at the 1st Faculty of Medicine Charles University in Prague. He also works as a lecturer in robot-assisted vascular surgery at the European Institute of Telesurgery in Strasbourg and as a lecturer in Intuitive Surgical in the U.S.A. Prof. Štádler also holds the post of the president of subcommittee for robot-assisted vascular surgery MIRA in Los Angeles, U.S.A., is deputy president of a committee of the Czech Society for Cardiovascular Surgery and a member of the accreditation committee of the Czech and Slovak Ministry of Health for the specialty of vascular surgery. He is also the founding member of the International Endovascular Laparoscopic Society, a member of ISMICS (International Society for Minimally Invasive Cardiothoracic Surgery) and a reviewer of the journal Surgical Laparoscopy Endoscopy Percutaneous Techniques.
- Prof. Štádler also serves as a member of the examination board for specialization examinations in vascular surgery at the Ministry of Health of the Slovak Republic.
- MUDr. Petr Šedivý, Ph.D., participates in the teaching of medical students of the 2nd Faculty of Medicine Charles University in Prague.
- MUDr. Ondřej Stehno continues his doctoral studies at the 2nd Faculty of Medicine Charles University in Prague.
- The Department is also involved in undergraduate training of students of the 2nd year of the 3rd Faculty of Medicine Charles University in Prague, in the "general nurse" specialization.
- Courses in robot-assisted surgery, vascular surgery and laser surgery of varicose veins (EVLA) for both domestic and foreign physicians will be organized according to the interest and requirements of the trainees.

## Department of Cardiac Surgery

Head of Department, Assoc. Prof. Jaroslav Benedík, MD, PhD

### Activities of the Department

- Comprehensive surgical treatment of heart and intrathoracic major blood vessels.
- Follow-up of selected groups of patients in outpatient unit before and after cardiac surgery.

### Organizational units of the Department

Outpatient Unit	3 examination rooms
Standard bed station	14 beds
Intermediate care unit	12 beds
Unit of post-operative and reanimation care	9 beds

2 classic cardiac surgery operating rooms are available for 5 working days a week. Moreover, surgeries are performed in the hybrid and robot-assisted operating rooms, one day a week at each. One operating room is open 24/7 for urgent procedures.

### Operational data

Number of physicians	19
Number of perfusionists	7
Number of nursing staff	95
Number of auxiliary medical staff	22
Number of technical and administrative staff	2
Number of standard beds	14
Number of intermediate beds	12
Number of reanimation beds	9
Total number of beds	35
Average treatment period (in days)	10.36
Total number of treatment days	8,230

### Number of procedures

Total number of surgical procedures	667
Isolated aortocoronary reconstructions	186
Combined procedures (valve, bypass, aorta)	298
Heart valve replacements / plastic surgeries	227
Isolated procedures on ascending aorta and aortic arch	27

Other (myxoma, pericardiectomy, PM extraction)	33
Implantation of epicardial stimulation electrodes	2
MAZE surgery (combination with ACB and valve procedures)	73
Operations on the thoracic aorta (combined with other procedures)	97
Robot-assisted procedures	84
Number of outpatient interventions(visits)	5,311
Number of hospitalizations	729

### Events of the past year

- At the end of the year we had to deal with the leaving of some physicians, both surgeons and cardiologists. We managed the situation without having to reduce care and, above all, without affecting the quality of the work we did.
- In 2023, we performed almost 700 cardiac surgeries. Despite the high proportion of acute and complex procedures, our short-term mortality rate remains very low. This is a reflection of the excellent work of the whole team of people – cardiac surgeons, anesthesiologists, cardiologists and paramedical staff who care for patients around the clock.
- Valve and aortic surgery remain our core programs.
- Valve surgery is primarily about salvage surgery, which remains our domain and in which we are among the absolute leaders in the field.
- Aortic surgery involves the complex management of the thoracic aorta, on which we collaborate with our vascular surgery
- In the area of interventional valve procedures, the TAVI program, we work closely with the Department of Cardiology.
- The robot-assisted surgery continues in its established scope and is an integral part of the spectrum of procedures we provide to our patients.
- An important event of the past year was the refurbishment of our department, which is part of the overall hospital refurbishment and which erases a neglected debt from the past. Our clients will definitely feel comfortable and satisfied in the renovated environment, which is a necessary part of a good hospitalization process.
- We continue in cooperation with workplaces for whose patients we offer a top cardiac surgery background both for elective and acute interventions. In particular, they include hospitals in Liberec, Karlovy Vary, Příbram, Kladno, Benešov and Hořovice.

### Plans for development in the next year

- We will continue to systematically develop our programs, which are the cornerstones of our work. These are: the program for the treatment of aortic diseases (in collaboration with vascular surgery and radiology), the program for the surgical treatment of valve defects (mainly by minimally invasive and robot-assisted approaches) and robot-assisted surgery.
- In the field of minimally invasive procedures, we would like to remain a leading center in the Czech Republic.
- We will continue to develop our cooperation with institutions whose patients we want to provide the best cardiac surgery care.



## Department of Cardiac Anesthesiology

Head of Department, Petr Plášil, MD

### Activities of the Department

The Department provides medical and nursing care for the needs of the Cardiac Center of Na Homolce Hospital. It involves anesthetic care for cardiology, cardiac surgery and intensive care for patients after cardiac surgery and hybrid procedures performed within the Cardiac Center.

#### Anesthesia care

We provide anesthesia care for patients undergoing cardiac surgery across the full spectrum of the field - myocardial revascularization surgery, valve surgery with a preference for salvage procedures, congenital heart disease surgery, robot-assisted cardiac surgery, and minimally invasive surgery.

For the Department of Cardiology, we provide anesthesia care for interventional cardiac procedures, ranging from short procedures such as electrical cardioversions, ablation procedures for arrhythmias, catheterization valve implantations, and anesthesia for extractions of infected pacemakers.

#### Intensive care

In the field of intensive care, we provide care and operation of the cardiac anaesthesia inpatient unit (= post-operative intensive care unit) and also work closely with the cardiac surgery intermediate care unit. Within the whole Cardiac Center, we also support other units of cardiology and cardiac surgery care, by providing consulting services. Together with the Department of Cardiology and the Department of Biomedical Engineering, we participate in the ECMO program and the program of mechanical support of circulation for patients in cardiogenic shock. As one of the few departments in the country, we provide anesthesia and intensive care for robot-assisted cardiac surgery and surgery for complex congenital heart disease in adulthood.

### Operational data

Number of physicians	10
Number of nursing staff	35

#### Administered anesthesia for

Cardiovascular surgery procedures	1,002
Cardiology procedures	1,150
Number of anesthetics exceeding 2 hours	844
Number of anesthetics exceeding 6 hours	187
<b>Total</b>	<b>2,152</b>

# PROGRAM OF GENERAL MEDICAL CARE

## Department of Internal Medicine

Head of Department, Pavel Hrouda, MD

### Activities of the Department

The Department of Internal Medicine covers most fields of internal medicine with its activities and specialization. It focuses mainly on gastroenterology, metabolic disorders and pulmonary issues, including bronchology. This activity is then fully linked to local surgical disciplines or oncology.

The Department of Internal Medicine also provides the background for the activities of the hospital's key disciplines (cardiovascular program and neuroprogram). Diagnostic hospitalizations represent the largest part of hospitalizations from all branches of internal medicine. In a number of cases, the Department also treats patients from other regions. The Department provides specific care for patients with short bowel syndrome and ensures their long-term parental nutrition, which includes treatment of any related complications.

### Intensive Care Unit

The total capacity of the Unit is eight beds. On these beds, we provide comprehensive intensive care for often polymorbid patients with primarily internal issues. Due to the lack of beds at the Department of Oncology, we often provide the beds for the patients with complications of the oncology therapy and, last but not least, we also take over patients from surgical fields of Na Homolce Hospital – especially when the patient's surgical issues are solved while the need for the complex nutritional and internal therapy continues.

Two beds of the ICU of the Department of Internal Medicine are equipped for providing artificial lung ventilation, the cleansing methods are represented by the intermittent hemodialysis which is provided in cooperation with the hemodialysis center B-Braun, s.r.o. Our ICU also provides the back-up for monitoring and observation of patients after gastroenterological surgical procedures and after surgical procedures performed at the Center for Pulmonary Endoscopy.

### Inpatient Unit

The standard inpatient unit provides comprehensive internal medical care both to patients with acute internal diseases referred by the acute internal medicine outpatient unit, and to patients with planned diagnostic and therapeutic treatments. Patients from the internal medicine outpatient units of Na Homolce Hospital, patients with internal issues from other departments of the hospital (including treated oncology and chronic hemodialysis patients with complications), and patients indicated for observation after invasive procedures (gastroenterology, Center for Pulmonary Endoscopy, interventional radiology) are admitted to treatment. Treated oncology patients with complications are admitted because the Department of Oncology has no beds at its disposal.

In general, the Department provides care to a large number of patients from other regions, which is particularly noticeable in the pressure on the acute internal medicine outpatient unit, which is regularly addressed by patients themselves from districts outside Prague. Although the bed occupancy rate percentage is one of the highest in the entire hospital, the inpatient capacity cannot meet the demand. However, the stable average length of hospitalization is mostly the result of long-term parenteral administration of antibiotic treatment and treatment of complicated conditions and therefore difficult to be influenced.

### Internal medicine outpatient unit

The outpatient component is staffed by specialist physicians in specialized outpatient units. There is cooperation, interdependence and thus substitutability of physicians working in the outpatient and inpatient part. In addition to the classical general internal medicine outpatient unit, we also provide care in the pulmonary and gastroenterology outpatient units. An integral part of the unit is also a diabetology, endocrinology, lipid unit as well as a unit for home parenteral and enteral nutrition.

### Acute internal medicine outpatient unit

In particular, the outpatient unit provides treatment and examinations to patients with acute non-surgical issues who have no special referral for a particular specialized examination. Other activities of the outpatient unit include implementation of planned diagnostic and therapeutic interventions and observations after these interventions to cover the needs of the Department of Internal Medicine.

The acute internal medicine outpatient unit operates 24 hours a day and is still the busiest outpatient unit of the Department. The number of patients treated is increasing every year.

### Department of Gastroenterology

The Department of Gastroenterology provides top-quality gastroenterological care in the entire spectrum of endoscopic methods not only for the hospital but also for the surrounding area, especially Prague, Central and Northern Bohemia. In addition to routine endoscopies of the upper and lower digestive tract, including therapeutic procedures, we also perform highly specialized examinations such as ERCP or endosonography. The use of endosonographic methods has enabled us to perform unique interventional procedures, to which patients are referred to us from all over the country.

We have long been a Center for Biological Therapy for Idiopathic Intestinal Inflammation, a Center for Colorectal Cancer Screening, and in June 2023, we were awarded the status of a Highly Specialized Care Center for Digestive Endoscopy.

### Center for Pulmonary Endoscopy

The Center for Pulmonary Endoscopy and related specialized pulmonary outpatient unit offer comprehensive bronchological diagnostics including autofluorescent bronchoscopy, NBI (Narrow Band Imaging) and endobronchial ultrasonography. The combination of new diagnostic methods with existing ones, already established at the Hospital Na Homolce (such as PET/CT), provides for an exceptional opportunity for early diagnostics and staging of bronchogenic carcinoma followed by pneumo-oncological treatment.

The capacity and the use of bronchologic care has been steadily growing, inter alia due to active cooperation with the Center for Interstitial Pulmonary Processes, other field pneumologists and other hospitals. Our physicians are also actively involved in a preventive screening program to detect bronchogenic carcinoma.

### Educational activities

The Department of Internal Medicine is accredited by the Czech Medical Chamber to train and issue functional licenses in internal medicine, gastroenterology, general medicine, abdominal ultrasonography (F008) and endoscopic ultrasonography (F004), endocrinology and diabetology, pneumology and

ftiseology. Postgraduate and pre-certification study visits of younger colleagues from other disciplines of Na Homolce Hospital are annually held in the Department. For a long time, the Department has organized postgraduate courses for physicians preparing for general medicine postgraduate examinations, in cooperation with the Institute of Postgraduate Healthcare Education. To a lesser extent, pre-graduate students of the 1st, 2nd and 3rd Faculty of Medicine Charles University, come within compulsory internships.

### Operational data

Number of physicians (FTE + contract for work)	28 + 4
Number of nursing staff	57
Number of orderlies	9
Number of standard beds	21
Number of intensive beds	8
Number of gastroenterological examinations	
fibroscopy	2,553
colonoscopy	2,745
endosonography	656
ERCP	535
Number of pulmonary examinations	
bronchoscopy	711
Number of outpatient examinations within the polyclinics	
specialized outpatient units	36,052
AIA	6,641

### Total inpatient unit performance 2023 (comparison with 2022)

Number of hospitalizations	1,356
Average treatment period for the entire Department (days)	5.75

## Department of Clinical Oncology

Head Physician, Martin Šafanda, MD, PhD

### Activities of the Department

The Department of Clinical Oncology is an accredited department of the Ministry of Health of the Czech Republic, which focuses on the treatment of solid tumours in adult patients. We are part of the Motol University Hospital Comprehensive Oncology Center together with the Military University Hospital Prague and the Proton Therapy Center in Prague. Another collaborating institution is the Transplantation Surgery Department at IKEM. Symptomatic treatment of terminal stages is conducted in cooperation with Na Pleši Hospital. Since 2009, the Department has been involved in multicentric randomised studies of phase II and III.

### Activities of the Department

The oncology program consists of four key areas:

#### I. Gastroenterology program

- Tumours of small and large intestine
- Stomach and oesophageal tumours
- Pancreatic tumours
- Liver and bile duct tumours

#### II. Breast cancer program

- Breast tumours

#### III. Urogynecological program

- Prostate tumours
- Renal tumours
- Urinary bladder tumours
- Ovarian tumours

#### IV. Pneumo-oncology program

- Pulmonary and bronchial tumours

### Operational data

Number of physicians	3
Number of general nursing staff	4
Number of newly admitted patients	503
Number of outpatient examinations	18,371
Number of chemotherapy administered	8,072

## Department of General Surgery

Head of Department, Ronald Pospíšil, MD

### Activities of the Department

The Department provides a comprehensive clinical program of general medical care including both outpatient and inpatient diagnostics and treatment, including intensive care. This program focuses on the entire field of general surgery and urology as well as selected specialized orthopedic examinations and procedures. The Department of General Surgery treats patients from all over the country, foreign patients and clients of the Homolka Premium Care and H plus preventive programs. It provides a continuous consulting service for other hospital disciplines, including 24/7 emergency visceral operations. It provides training activities in undergraduate and postgraduate programs for physicians and nurses in the field of surgery and urology.

#### General surgery program

Surgery of the gastrointestinal tract ranging from the oesophagus to the rectum, including the pancreas and biliary tract, thoracic surgery, thyroid and parathyroid surgery, hernia surgery, varix surgery, breast surgery for benign and malignant affections. In indicated cases, we prefer minimally invasive approaches in virtually all fields of laparoscopic interventions (from hernia surgery, appendectomy, cholecystectomy, diaphragmatic hernia surgery to laparoscopic surgery of the small and large intestine, rectum, pancreas, spleen and minimally invasive thoracic surgery). Some surgeries - according to contractual conditions with health insurance companies - are robot-assisted.

An essential part of surgical care is onco-surgery in cooperation with other departments of the hospital. Each patient with an oncological diagnosis is indicated for surgery by a multidisciplinary workshop in the presence of experts from all cooperating departments within the Center for Comprehensive Oncological Care. In the field of surgical oncology, the Department of General Surgery provides surgical treatment of the alimentary canal encompassing the oesophagus - rectum, pancreas, biliary tree, spleen. As part of thoracic surgery, then operations on the lungs, mediastinum, pleura, thoracic wall and breast in its entirety, including examination of the sentinel node. Of course, follow-up oncological care within the hospital is also a matter of course. Extensive outpatient surgical activities of the on-duty and specialist clinics, the area of small outpatient procedures.

#### Urology program

- open, endoscopic and robot-assisted urinary tract surgeries, including laser prostate surgery
- urology surgical oncology
- renal surgery for malignant, benign and functional pathologies
- minimally invasive laparoscopic, cystoscopic and ureterorenoscopic surgical procedures
- Ultrasound-guided puncture of the retroperitoneum
- comprehensive diagnostics and treatment of erectile dysfunctions
- wide range of outpatient orthopedic treatments
- in cooperation with the hospital's Department of Radiology, invasive radiological procedures, including RFA
- robotic-assisted surgery of the kidneys, prostate, renal pelvis with the longest experience in the Czech Republic

#### Orthopedic program

- Extensive outpatient orthopedic treatment
- arthroscopy (mainly of knee and shoulder joints)
- total replacement of hip and knee joints, including reimplantations
- modern procedures in bunion surgery and other mini-invasive surgeries

## Organizational units of the Department

### Inpatient Unit

- diagnostic, pre-operative and post-operative care in all specializations
- care of patients admitted to intensive and standard beds within surgery
- in case of complicated procedures, preoperative preparation at the bedside during hospitalization
- Office of Urology and Orthopedics
- Intensive Care Unit - A + B stations

### Outpatient Unit

- **On-Duty Outpatient Surgery:** It provides daily surgical care for acute patients, including wound dressing changes in patients from other departments of the hospital. It also provides acute 24-hour surgical care.
- **Specialization Surgical Clinics:** Consulting center for diseases of the oesophagus and diaphragm, including reflux disease of the oesophagus and diaphragmatic hernias, consulting center for diseases of the pancreas and biliary trees, coloproctology consulting center, consulting center for surgical oncology, hernia consulting center. The Department performs diagnostics, assessment and ordering of planned operations, post-operative monitoring, follow-up health care.
- **Thoracic Surgical Consulting Clinic:** In cooperation with the Respiratory Consulting Clinic and Oncology Clinic, it provides assessment and ordering of thoracic operations of the lungs, pleura and mediastinum, post-operative monitoring and follow-up continuing care in patients with respiratory and thoracic diseases.
- **Mammology Consulting Clinic:** Provides examinations, comprehensive care, diagnostic services, pre-operative evaluation and follow-up care to patients with breast disease, in close cooperation with the Department of Radiology, pathologists and oncologists.
- **Orthopedic Outpatient Unit:** For diseases of the musculoskeletal system, it provides basic diagnostics, therapy and indications for surgery in orthopedic patients in a selected range of diagnoses. Also provides consultancy services to other departments of the hospital.
- **Urology Outpatient Unit:** The Unit provides care for urological patients, diagnostics including ultrasonography and laboratory tests and outpatient treatment. It also provides indications for surgical procedures, especially in the field of onco-surgery, post-operative checks, complex diagnosis and therapy of erectile dysfunction and performs numerous outpatient diagnostic and therapeutic procedures (cystoscopy, ureteral probing for other departments, etc.).
- **Outpatient Unit for Minor Surgical Procedures:** It performs minor surgical procedures under local anesthesia at the request of general practitioners and physicians of the hospital's Department of Dermatology, and on patients from specialist units the on-duty surgery.

### Operating Rooms

- one operating room for orthopedic surgery and aseptic surgery
- two operating rooms for open and laparoscopic surgery
- robotic operating room with Da Vinci Surgical System - available to surgeons 4 times a week
- one operating room for urological surgery



## Operational data

Total number of physicians	25
Number of surgeons	18
Number of urologists	4
Number of orthopedists	3
Total number of paramedic staff	78
Total number of beds	43
Number of standard beds	34
Number of intensive care beds	9
Number of inpatients	3,681

### Number of interventions

Surgery	1,528
Urology	574
Orthopaedics	304
Minor surgical procedures	525
Total	2,931

### Number of robot-assisted surgeries

Surgery	72
Urology	184
Total	256

### Number of outpatient treatments

Surgery	15,046
Orthopaedics	6,684
Urology	6,955
Total	28,725

## Changes / new events in the previous year

- **Technical equipment:** In the autumn of 2023, a 9-bed inpatient unit for standard surgery was opened, including facilities for the nursing staff and completely new equipment in the hospital rooms, including wi-fi, TV, etc. The laparoscopic and surgical instrumentation was partially renewed. New equipment for urological surgery, a new laparoscopic tower, new operating lights in the operating rooms on the 4th floor were purchased.
- **In the area of surgery:** Standardized multidisciplinary approach (surgery, oncology, gastroenterology, pneumology, radiodiagnostics, pathology) in patients with malign alimentary tract and thoracic organs diseases. Once again, we increased the volume of operated patients with malignant diagnosis in both thoracic and abdominal cavity. The number of laparoscopic interventions has increased compared to the traditional method, particularly in coloproctology, where the minimally invasive approach is already clearly dominant. The number of patients operated for pancreatic diseases has

been increased. Robot-assisted surgery for distal colon and rectal tumours has been introduced into practice. Wound healing with V. A. C. (Vacuum-Assisted Closure) system is performed in routine practice with the possibility of applying the system in outpatient mode. Healing of anastomosis defects using the Endo SPOUCHE method. We performed procedures for anal prolapses and hemorrhoids as standard using the Long method.

- In the area of urology: Endoscopic urethrotomy is used as a routine method, laparoscopic and robot-assisted procedures have been standardized in renal surgeries (pyeloplasty), ureterorenoscopy is used as a routine method. Robot-assisted techniques for prostate surgery are also being improved, and as one of few departments in the Czech Republic, we perform laser surgery for benign prostatic hyperplasia.

### Evaluation of clinical activities

- Full functioning of general surgery and urology is dominant, supplemented by some types of orthopedic surgery with a focus on elective procedures.
- We are seeking to contract robot-assisted surgery for lung, oesophageal and pancreatic tumours with health insurance companies.
- The Department closely cooperates with the Department of Internal Medicine, Departments of Radiodiagnostics, Pathology and Oncology in the care of oncological patients in regular joint workshops.
- We cooperate very closely with other surgical disciplines of the hospital in dealing with complicated patients - vascular surgery, neurosurgery, cardiac surgery, gynaecology.
- Operating rooms are used for surgical treatment of the most severe surgical conditions (including acute interventions).
- The Department was actively involved in the development of recommended accreditation standards and optimization of post-operative pain management.
- Patient satisfaction was continuously assessed by the Department and the outputs were used for further improvements.
- In urology segment, in cooperation with the Department of Gynecology of the NHH and external Department of Urology and Department of Gynecology, the project for the treatment of urinary incontinence in women and for the treatment of urinary incontinence in men after prostatectomies continued within the framework of post-operative physiotherapy.
- In cooperation with the departments of Gastroenterology and neuro-disciplines, the stated project was expanded to include issues dealing with proctology and neurogenic sphincter dysfunctions.
- After surgeries and for the treatment of functional disorders of the musculoskeletal system, the Department of Physiotherapy under the leadership of the Head of Department MUDr. Ivan Hadrava took over surgery and orthopaedics patients.
- The number of undergraduate students in the teaching of virtually at all faculties of medicine in the Czech Republic has increased significantly.

### Perspectives for the next year

- The inpatient unit has successfully completed a major reconstruction with the aim of expansion of the inpatient unit of standard surgery by 9 beds.
- At the end of 2023, a major energy saving project for the hospital began with the need to partially reduce the operation of departments, outpatient units and rooms. This reconstruction project will continue until spring 2024. It will be followed by a major reconstruction and modernization of the intensive care unit and its centralization into one department with a capacity of 7 beds.
- Due to the significant increase in the number of cancer patients in the Czech Republic, our activities will continue to focus on the development of modern surgical procedures with an emphasis on minimally invasive approaches - both laparoscopic and robot-assisted - as part of the comprehensive therapy of oncology patients.

- We will continue to cooperate with specialists – gastroenterologists, pneumologists, endocrinologists in Prague and the Central Bohemian Region and other places in the Czech Republic.
- In addition, certain physicians will continue to be involved in the teaching of medics from the 1st, 2nd and 3rd Faculty of Medicine Charles University in Prague. There will also be a professional nursing practice in the Department.
- The training of physicians will continue in the form of regular educational seminars in the Department.

### Educational and specialized activities

#### Educational and teaching activities

- Clinical educational seminars for the physicians regularly take place in the Department.
- In the field of undergraduate study, medical students (4th, 5th and 6th year) completed internships at our Department from all Prague faculties of medicine, as well as some from outside Prague.
- Within the postgraduate education, physicians from other departments of our hospital as well as general practitioners from the field have completed the pre-certification study visits at our Department.
- We participated in all-hospital seminars and regular common indication seminars together with oncologists, gastroenterologists, pathologists and radiologists.
- The general nursing staff from the Department of Surgery participated actively and passively in a number of training and lectures necessary to improve their professional knowledge and skills.
- We participated in lecturing at Czech and foreign congresses in surgery and urology.

#### Specialized activities and membership in professional associations

Physicians from the Department participated passively and actively in several domestic and international congresses, seminars and workshops.

Our physicians are also members of a number of professional associations, such as:

- Czech Medical Association of J. E. Purkyně
- The Czech Society of Hepatobiliary Surgery
- The Czech Surgical Society
- Czech Society for Endoscopy Section of Endoscopic and Minimally Invasive Surgery of the Czech Surgical Society
- The Czech Society of Coloproctology
- The Czech Society of Gastroenterology
- Czech Society for Orthopedics, Thoracic Surgery Section, Czech Society for Pneumology
- The Czech Association of Urology
- The European Association of Urology
- The Czech Society for Robot-Assisted Surgery of the Czech Medical Association of J. E. Purkyně

## Department of Gynecology and Minimally Invasive Therapy

Head of Department, Petr Popelka, MD

The activity of the Department focused on the diagnostics and surgical treatment of gynecological diseases, with emphasis on minimally invasive approaches. The complete range of pelvic surgery concentrated on three main clinical programs in 2023: urogynecological program, comprehensive treatment of endometriosis, and general gynecological surgery, including oncology. The Department has a specialized center for each program.

Urogynecological program covers diagnostics, surgical and conservative treatment of incontinence and pelvic floor disorders. In total, 220 female patients with the above problems were operated of which 43 interventions were performed with the use of implants.

Program for comprehensive diagnostics and endometriosis surgery offers comprehensive treatment to patients from the whole Czech Republic, including radical laparoscopic surgery and subsequent hormonal therapy with final verification of the outcome. The Department of Gynecology of Na Homolce Hospital is one of the most experienced centers in the Czech Republic in performing radical operations of retroperitoneal endometriosis. In 2023, the Department carried out 78 procedures, of which 12 procedures were radical surgeries for infiltrative retroperitoneal endometriosis.

General gynecological surgery deals with the surgical treatment of sterility, myomatosis, adnexal tumours and cysts, problems with post-operative adhesions, chronic pelvic pain, inflammations and congenital development disorders. Hysteroscopy operations include diagnostic and surgical endoscopy of the uterine cavity.

In 2023, 1,197 gynecological patients were admitted for treatment to the Department.

The total number of surgical interventions in 2023 amounted to 1,188 surgeries, of which 90% were performed using minimally invasive methods.

### Basic data

Number of beds gynecology	20
- standard	16
- ICU	4
Number of physicians	8
Number of nursing staff	22
Number of outpatient examinations	12,420
Number of hospitalizations	1,197
Number of treatment days	
Number of interventions	1,188
Bed occupancy rate (in %)	
Average treatment period (in days)	2.45

## Department of ENT / Head and Neck Surgery

Head of Department, Petr Jiráč, MD

### Activities of the Department

The Department of ENT / Head and Neck Surgery specializes in diagnostics and conservative and surgical treatment of ear, nose and throat diseases.

After the restrictions ended during the COVID pandemic, the inpatient unit was transferred back to caring for ENT patients. Gradually, the original regime of the outpatient unit, rooms and the inpatient unit was started.

Similarly to previous years, surgical procedures carried out in 2023 covered a whole range of head and neck surgery – surgeries of the nose and paranasal cavities (mostly as endoscopic procedures), comprehensive surgery of the thyroid and parathyroid glands, microsurgery of the vocal cords and larynx, cophosurgical interventions (ear surgeries), surgeries to treat sleep apnoea syndrome and rhonchopathy, as well as corrective surgeries in the area of the head and neck, surgeries on the soft tissues of the head and neck, surgeries for injuries of facial bones and ENT surgical oncology. Skull base surgery was intensively developed in collaboration with the Department of Neurosurgery.

In Na Homolce Hospital, the Department cooperates with neurologists in the treatment of balance disorders and has at its disposal a unit with state-of-the-art equipment – the Leksell Gamma Knife – for the treatment of auditory nerve tumours. In cooperation with dental surgeons and neurosurgeons, it performs demanding operations on the facial skeleton and skull base. We cooperate inter alia with experts in allergology and immunology, especially when dealing with chronic rhinitis or chronic sinusitis. We also work closely with the Department of Rehabilitation and Physical Medicine in the diagnostics and treatment of patients with temporomandibular joint disease, vertigo and patients with laryngeal mobility disorders. One of the key areas is treatment of patients with cancer. The Department provides a detailed diagnostics, surgical treatment and follow-up care, in collaboration with oncologists.

The program of temporomandibular joint treatment has further continued. In 2023, the treatment of diseases of the temporomandibular joint was conservative and minimally invasive (arthrocenteses under local anesthesia, arthroscopic surgeries).

Surgical treatment of rhonchopathy and sleep apnoea syndrome is also very common, with the use of a radiofrequency method that reduces healing time and post-operative discomfort for patients.

We have established very close cooperation with the Center for Sleep Disorders which is part of the Department of Neurology of Na Homolce Hospital to treat patients with sleep breathing disorders.

In the field of thyroid surgery, the Harmonic scalpel has been increasingly used, which significantly reduces the length of surgical procedures. In indicated cases, minimally invasive procedures to remove thyroid tissue by the MIVAT method (minimally invasive video-assisted thyroidectomy) are used. At the same time, the Department carries out a whole range of surgeries, ranging from partial to extensive procedures, including removal of the entire gland and surrounding lymph nodes. It provides comprehensive post-operative care in cooperation with endocrinologists. In addition to that, the Department closely cooperates with the Department of Nuclear Medicine of the University Hospital in Motol in the follow-up care of patients with thyroid cancer.

Close cooperation with dental surgery has continued. Together, we indicate and operate on patients for whom the combination procedure is an advantage.

In 2023, the outpatient unit of the Department of ENT / Head and Neck Surgery provided comprehensive services, including specialized consultancy services in oncology, otoneurology, cophosurgery and otoprothetics, outpatient unit for treatment of rhonchopathy, outpatient unit for corrective head and neck surgery, phoniatic outpatient unit, joint outpatient unit (temporomandibular joint), and a specialized outpatient unit for the treatment of salivary glands using endoscopic techniques for diagnostics of salivary gland ducts (sialoendoscopy).

## PROGRAM OF GENERAL MEDICAL CARE

The outpatient center for sleep and snoring disorders (rhonchopathy) accounts for a large part of our outpatient care and cooperates with the Department of Neurology and the Laboratory for Sleep Disorders. The Department also has an ENT pediatric specialist working in the outpatient unit of the Department of Pediatrics. The Department continues to successfully develop an aesthetic program of corrective surgery of the head and neck which primarily includes procedures on auricles, eyelids and the external nose, and laser operations.

As a standard, we use an NBI diagnostic method (narrow band imaging) which allows us, both in the outpatient setting and during surgeries under general anesthesia, an earlier and more precise diagnostics of early stages of serious diseases of ENT mucosa, particularly disorders of the vocal cords and larynx.

For patients with swallowing disorders, we continue to perform the FEES (Fibreoptic endoscopic evaluation of swallowing) examination in cooperation with a speech therapist.

A novelty is the use of a sonograph in our ENT outpatient unit in the diagnostics and monitoring of diseases of the salivary glands, thyroid gland and soft tissues of neck. Under sonographic control, we perform needle biopsies of tumours in the soft tissues of the head and neck, which enables faster and especially minimally invasive diagnostics of certain diseases (FNAB/FNAC).

Since 2019, we also perform balloon tuboplasty (BET), which improves the patency of the Eustachian tube in indicated patients. This opens entirely new possibilities of treatment of impaired patency of the Eustachian tube, which is the cause of some types of hypoacusis.

### Operational data

Number of beds (reserved for COVID OXY)	9
Number of physicians (as of 12/31/2023)	12
Number of general nursing staff	22
Number of outpatient examinations	23,673
Number of consultations	1,108
Number of hospitalizations	805
Number of standard care treatment days	2.5
Bed occupancy rate (in %)	92
Average treatment period for standard care (in days) - ENT patients	2,5

### Number of interventions

Surgeries under local anesthesia	1,067
Surgeries under general anesthesia	1,062
FESS surgeries	102
Thyroid gland surgeries	102
MLS (Microlaryngoscopy)	74
NBI	173
TMJ (temporomandibular joint) surgeries	130

### Outlook for 2024

- The Department will continue to provide comprehensive ENT diagnostics and treatment. The aim is to further improve the professional standard and quality of the healthcare provided, with a focus on procedures necessitating shorter hospital stays.
- The program of functional corrective surgery and rhonchopathy has an increasing trend.
- We continue to perform the newly introduced examination and surgical techniques - sleep endoscopy (DISE) in patients with sleep apnoea syndrome, fine-needle aspiration biopsy in some types of soft tissue diseases of neck (FNAB) using sonography.
- Grant support for research in thyroid gland surgery and grant support for research in the use of navigation in sinus surgery (FESS) continues.
- Within a grant we are working in research of the approach to patients with a combination of chronic rhinosinusitis of the odontogenic origin in cooperation with dental surgeons in combined ENT/dental surgical procedures.
- Within the neuroprogram, close cooperation will continue with the Department of Neurosurgery, particularly with regard to the skull base surgery.
- Within the cardiac program, the Department will continue to be involved in the preparation of patients for cardiac and vascular surgeries.

## Department of Anesthesiology and Reanimation

Head of Department, Viktor Kubricht, MD, PhD

### Activities of the Department

The Department of Anesthesiology and Resuscitation provides the following types of care:

Anesthetic care: comprehensive care of patients in the pre-operative, intra-operative and post-operative periods. Paramedics carry out pre-anesthetic examinations and preparation for surgery, provide anesthesia and other care during surgery and participate in post-operative care, both in the inpatient unit of the Department of Anesthesiology and Reanimation and some intensive care units, and in the treatment of acute post-operative pain and any complications associated with anesthesia.

Intensive care ("resuscitation" care) deals with the diagnostics and treatment of patients with failure of one or more basic life functions, patients with the need for intensive care of the highest degree, with the need for instrumental support of failing organs. The majority of patients are patients with disorders of consciousness, blood circulation, breathing, internal environment or disorders of other organs and organ systems and combinations of these disorders. Often these are patients after major surgery in Na Homolce Hospital or patients after cardiac or respiratory arrest with restoration of circulation after resuscitation. The unit is also equipped with a hyperbaric chamber with the possibility of artificial lung ventilation.

The hospital has a dedicated acute pain management team that systematically monitors and treats acute pain in patients admitted to the hospital, educates patients and staff, and develops advanced techniques in the treatment of acute pain.

Chronic Pain Outpatient Unit then deals with patients suffering from chronic pain.

### Operational data

Number of physicians	30 FTE
Number of general nursing staff	Anesthesia: 25.4 FTE, Intensive Care: 30.25 FTE
Number of beds	10
Average treatment period (days)	11
Median (days)	5

### Organizational units of the Department

- 1 resuscitation station (10 beds)
- 2 post-operative units of vascular surgery (12 beds)
- 5 central operating rooms
- 3 surgical operating rooms
- 2 gynecological operating rooms
- 1 operating room for robot-assisted surgery
- 8 additional operating rooms and workplaces  
(ENT, Stereotactic and radiation surgery, X-ray, dentistry, ophthalmology, ONM - PET, gastroenterology, bronchology)
- 1 hyperbaric chamber



Performance overview, hospitalizations and outpatient unit

Number of admitted	212
Mortality (in %)	15.3
Number of anesthesia and other procedures performed by anesthesiologists outside the E/A inpatient station (total)	8,651
Of which anesthesia alone	8,376
Total number of hours of anesthesia	16,479
Numbers of other anesthesiologist procedures outside the E/A inpatient stations (CPR, intubation, cannulation, ports, etc.)	275
Patients older than 65 years	3,662
Number of anesthetics exceeding 2 hours	2,945
Average anesthetic time/min.	114
Regional/combined anesthesia	545
Number of procedures in the internal emergency service	1,560
Hyperbaric oxygen therapy - number of exposures	544
Number of acute CO poisonings	10
Number of patients in the chronic pain outpatient unit	748

## Department of Rehabilitation and Physical Medicine

Head of Department, Ivan Hadraba, MD

### Activities of the Department

The Department provides comprehensive diagnostic and therapeutic care to restore the maximum physical abilities of disabled patients within its basic specialization. Care is provided to inpatients of the Department, to inpatients of other specialized inpatient units and to outpatients. Another specialized care provided in the Department is orthopedic-prosthetic care. It is provided to all patients of the hospital by physicians of the Department in cooperation with external prosthetic and orthotic centers.

### Organizational units of the Department

The Department is part of the therapeutic and preventive care section. It has an outpatient unit and an inpatient unit with 10 beds. These are provided to the Department by other departments - Neurosurgery, Vascular Surgery, Neurology and Gynecology. The outpatient unit consists of surgeries of rehabilitation physicians, a hydrotherapy room, and rooms for physiotherapy and physical therapy.

### Staff (in terms of FTEs)

Physicians	7
Head Physiotherapist	1
Physiotherapists	31
Occupational therapists	2
Nurses	5
Orderlies	2
Masseurs	4
Administrative staff	3

### Operational data

Number of outpatient physician interventions	33,260
Number of other outpatient staff interventions	78,697
Number of other inpatient paramedical staff interventions	11,0681
Total	22,2638
Number of patients admitted to the inpatient unit of the Department of Rehabilitation and Physical Medicine	173

### Events of the past year

- The Department continued long-term projects in cooperation with the Departments of ENT, Surgery, Urology and Gynecology and with external departments:
  - 1) Treatment of urinary incontinence in women and treatment of urinary incontinence in men after prostatectomy.
  - 2) Comprehensive rehabilitation treatment of voice disorders – voice rehabilitation and reeducation. Examination of the voice field by a device developed in the R&D laboratory of the Academy of Performing Arts in Prague, electrostimulation treatment of vocal cord disorders.
  - 3) In cooperation with the Department of ENT, we also continued to treat patients with temporomandibular joint disorders, vertigo and tinnitus.
- Within the Center of Specialized Cerebrovascular Care (formerly the Comprehensive Cerebrovascular Center), cooperation with the Department Neurology in the treatment of spasticity in patients after stroke has been continuing
- A new cooperation with the pneumology outpatient unit of the internal medicine department and care for patients with chronic obstructive pulmonary disease and bronchial asthma was established.
- There was also a postgraduate education of physicians of the Department, certification in the field.
- Pre-certification training for occupational therapists in the field is provided as part of the postgraduate program.
- The physiotherapists of the Department participated in specialist seminars congresses and courses.
- Regular monthly specialist seminars were resumed.
- Physiotherapy students of various faculties were repeatedly enabled to complete the internship within the Department.
- The provision of commercial services continued – yoga and preventive exercises Healthy Back.
- Acupuncture treatment was introduced.
- Preparations for the transition to the new information system began.
- During the second half of the year, construction work and window replacements took place in the Department.

### Development perspectives for 2024

- Long-term projects will continue to be developed in the framework of interdisciplinary cooperation. We plan to expand functional and morphological diagnostics of the musculoskeletal system, including examination of pelvic floor muscles by ultrasound examination and examination using ultrasound myofeedback.
- Other physicians, physiotherapists and occupational therapists will be trained in spastic paresis rehabilitation.
- We plan new educational events for physiotherapists, occupational therapists and physicians, as well as certification in the field of another physician of the Department.
- Physiotherapy students of individual faculties will continue their internship at the Department.
- An extension of the Department is planned, including new equipment for physiotherapy, occupational therapy and physical therapy.

## Department of Clinical Pharmacy

Head of Department, Milada Halačová, PharmD, PhD

### Activities of the Department

The Department of Clinical Pharmacy was established at Na Homolce Hospital in August 2010 to ensure the safety of pharmacotherapy, which is one of the major priorities of the hospital management. In terms of its organizational structure, it falls within the competence of the Deputy Director for Therapeutic and Preventive Care. The working team of the Department consists of pharmacists specialized in clinical pharmacy or those who will be included in training for this specialization. The work of the clinical pharmacist is governed by the needs of Na Homolce Hospital, safety standards set by JCI, concept of the Czech Professional Society of Clinical Pharmacy and by staff availability within the Department. The activities in which the clinical pharmacist takes part are divided into several areas.

The major areas include the assessment of a newly admitted patient's medications. This is a so-called signal check, i.e. a gross assessment of the patient's medication with respect to indications, contraindications, dosages and chosen route of administration. It reveals any duplication of medication and evaluates the clinical importance and risks of drug and food interactions. In this way, future problematic medications for the patient or high-risk pharmacotherapeutic regimes are identified and continuously monitored.

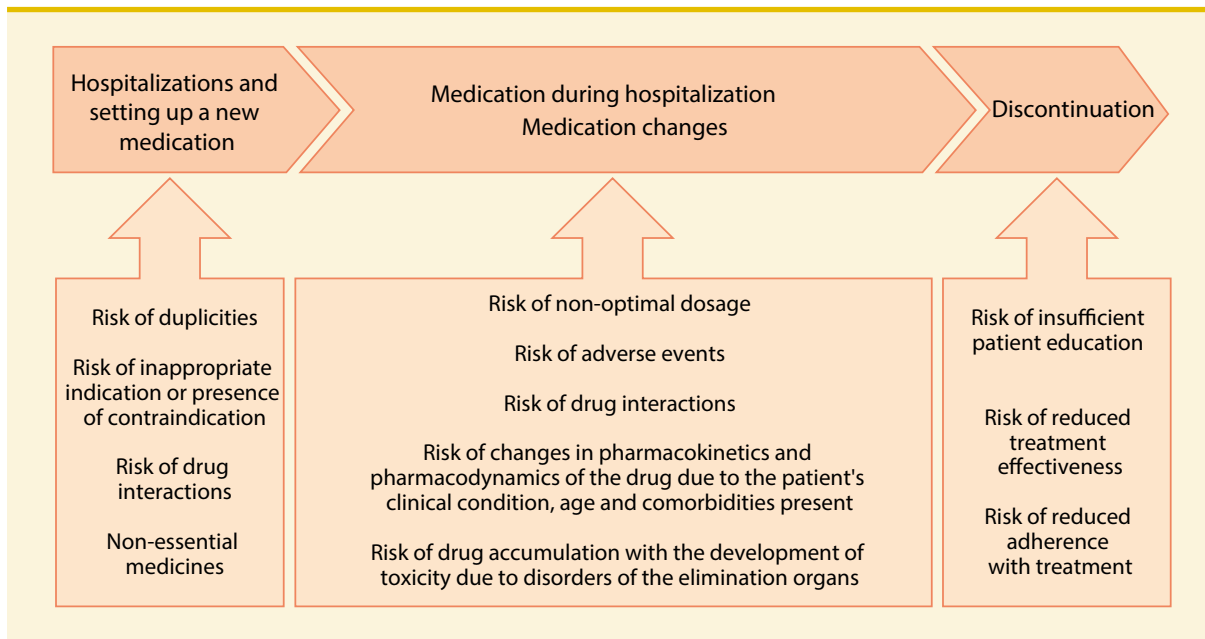
The key activity of a clinical pharmacist is everyday work in the assigned clinical department and close cooperation with attending physicians and nurses. The clinical pharmacist monitors the patient's medication in a broad context and assesses the causal relationship between the patient's specific complaints, or changes in the course of disease or laboratory tests, and the current medication. He/she adjusts drug doses, addresses clinically significant drug interactions and adverse events. He/she works with nurses on drug incompatibilities and the crushing of drugs for nasogastric and jejunal probes.

The clinical pharmacist provides an on-demand (consulting service within the hospital, takes part in the development of best practice, reports adverse events to the State Institute for Drug Control and is responsible for preparing expert reports on dealing with exceptional events in the hospital related to medications. The Department of Clinical Pharmacy is working on a list of high-risk drugs and LASA (look-alike-sound-alike) drugs and is involved in preparing so-called proactive procedures and storage systems to minimize the number of errors in handling these drugs and the impact such errors might have on patients. The Department of Clinical Pharmacy is the creator of the generic positive sheet for the NHH inpatient unit.

Since 2012 the Department of Clinical Pharmacy has been involved in the national Senior project implemented by Ústav lékového průvodce, z. ú. (Institute for Medical Drug Guidance). Clinical pharmacists at Na Homolce Hospital perform regular drug audits in social facilities throughout the Czech Republic. The project continues in the activities of outpatient Department of Clinical Pharmacy where, in 2017, we managed to open a clinical pharmacists consulting service for the needs of outpatient physicians and patients with the financial support of the Ministry of Health. In 2020, the Department entered a pilot project with 11 general practitioners in Prague. The goal is to gradually develop clinical pharmacy in the outpatient sector.

The project was followed by the official opening of the "Clinical Pharmacy Outpatient Unit" at NHH, which is available not only to patients from NHH, but also from various parts of the Czech Republic.

Analysis of the operational processes related to the activities of the Department of Clinical Pharmacy



Work records and activities of the Department

The Department provides care to all patients admitted in the hospital. The admission to our hospital represents the first screening point and separates young patients without medication who undergo a short-term, mostly ½-1 day hospital stay, and those who are treated in the Center for Sleep Disorders, who are indicated for Gamma Knife treatment, etc. The remaining approximately 50% of inpatients require detailed revisions by the clinical pharmacist, as many as several times during the hospital stay. Medication is adjusted on the basis of a clinical pharmacist's intervention in about 3,000 patients annually (30%). The highest percentage of interventions includes adjustments of medical drug dosage in the case of impaired function of the organ of elimination (risk of accumulation), clinically significant medical drug interactions, severe adverse events, incompatibilities, contraindications, unnecessary medical drugs, etc.

Classification of drug problems in NHH (revision according to the International Classification of Drug-Related Problems)

A1	Inappropriate active ingredient
A2	Unclear indication
A3	Dose adjustment
A4	Contraindications
A5	Side effect
A6	Drug interaction
A7	Recommendations for TDM
A8	Recommendation of a new drug
B1	Duplicity
B2	Timing of administration
B3	Method and route of administration
B4	Medicinal form
B5	Length of infusions

B6	Duration of treatment
B7	Incompatibility
C	Formal errors
E	Pharmacoeconomy
F	Recommendations for perioperative management
G	Recommendations for laboratory testing
H	Patient education
I	Risk of falls
J	Other

### Accreditation and specialist activities

- Status of an accredited facility of the Ministry of Health of the Czech Republic in the field of clinical pharmacy, membership of the Accreditation Commission of the Ministry of Health of the Czech Republic in the field of clinical pharmacy
- Membership of the Committee of the Society of Clinical Pharmacology (from 2022)
- Membership of the Board of the Clinical Pharmacy Section of the Czech Pharmaceutical Society of J. E. Purkyně
- Educational activities in the field of pharmacology at faculties of medicine and pharmacology in Prague and Brno
- Membership of the Scientific Council of the non-profit organization Průvodce pacienta, z. ú.
- Guarantee of the national "Senior" pilot project implemented by the non-profit organization Průvodce pacienta, z. ú.
- Close cooperation with the National Institute of Public Health (hospital antibiotic program and infection prevention and control)
- Membership in the Subcommittee on Antibiotic Policy of the Czech Medical Association of J. E. Purkyně
- Publishing and lecturing in national and transnational professional activities
- Implementation of two grant projects

### Staff data

Number of clinical pharmacists	6.0 FTE
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### Conclusion

The clinical pharmaceutical care provided by the hospital is a common standard ensuring a high level and safety of pharmacotherapy for all its inpatients.



## OUTPATIENT UNIT

## Center for Allergy and Clinical Immunology

Head Physician, Assoc. Prof. Petr Čáp, MD, PhD

### Activities of the Department

- The Center provides therapeutic and preventive specialized outpatient care to adult and pediatric patients with allergic diseases, immunity disorders and recurrent respiratory infections.
- In 2023, the Center for Allergy and Clinical Immunology performed comprehensive diagnostic and treatment procedures, including preventive and consulting care, to both child and adult patients from Na Homolce Hospital with allergies, asthma and other immunopathological conditions (immunodeficiency and autoimmune conditions).

### Operational data

Outpatient units: 3 surgeries, 2 prep rooms and 1 functional diagnostics laboratory

Number of physicians: 4 (total FTE: 3.0)

Number of nursing staff: 4 (total FTE: 4.0)

#### Outpatient unit

Number of patients	3,313
Number of examinations	5,331
Number of skin tests	13,523
Number of spirometry tests	4,806
Number of bronchomotor tests	779
Number of rhinomanometries	37
Number of allergen-containing vaccine administrations (treatment initiation)	223

One outpatient unit is located in the polyclinics on the 6th floor (doc. MUDr. Čáp, Ph.D.), other outpatient units moved only within the 1st floor closer to the Department of Pediatric and Adolescent Medicine of the hospital (MUDr. Pončáková, MUDr. Dvorská, MUDr. Škopková).

### Educational and other specialized activities

- Postgraduate training courses of the Center for Allergy and Clinical Immunology provided to physicians and nurses in the field of allergy and clinical immunology for which the Department has received an updated and valid official accreditation by the Czech Ministry of Health as a department of higher type (II)
- Undergraduate courses provided to students of the 2nd Faculty of Medicine Charles University, in cooperation with the Institute of Immunology at the University Hospital in Motol
- Active participation in lectures and organization of educational activities of national character within the framework of continuing education of the Czech Medical Association of J. E. Purkyně and Czech Medical Chamber, conferences and annual congress of the Czech Society of Allergy and Clinical Immunology as well as virtual distance lectures in the postcovid period
- Chairman of the Ethics Committee of Na Homolce Hospital (doc. MUDr. Petr Čáp, Ph.D.)
- PR and educational activities - radio and television program, newspaper and journal articles
- Membership in professional associations: Czech Society for Allergy and Clinical Immunology of J. E. Purkyně (doc. Čáp is also for the fourth term a member of the committee of the professional society), Czech Pneumology and Phthysiology Society J. E. Purkyně (doc. Čáp), Czech Society of Internal Medicine of J. E. Purkyně (doc. Čáp), European Academy of Allergy and Clinical Immunology (doc. MUDr. Čáp, Ph.D., MUDr. Pončáková), European Respiratory Society (doc. Čáp); active participation in distant webinars, including international ones, in the field of allergology and clinical immunology



## Department of Pediatric and Adolescent Medicine

Head Physician, Tibor Savel, MD

### Activities of the Department

- Therapeutic and preventive care provided to children and adolescents up to 19 years
- Professional care in the field of pediatric neurology, endocrinology, psychology, nephrology and speech therapy for children permanently registered at Na Homolce Hospital
- Therapeutic and preventive care provided to foreign nationals
- Consulting services provided to children of foreign nationals

### Operational data

- Outpatient unit with 2 offices and 1 room for laboratory sample collection and also for emergency reanimation and possible isolation of infectious patients
- 4 pediatricians (1 full-time pediatrician, 2 part-time pediatricians, 1 pediatrician with contract for work)
- 1 paramedic university graduate with 0,8 FTE (clinical speech therapy)
- 4 consulting physicians with contract for work
- 3 children's nurses (1 full-time children's nurse)

### Changes in 2023

In 2023, our Department continued to provide care to Ukrainian refugee children, for whom we provide complete care even if they are not registered.

### Development perspective for 2024

Economic activity will be carried out within the hospital flat rate and payment per capita for specialization 002. We continue to provide health services to Ukrainian refugees under the age of 18. The aim remains to maintain a good quality of care and economic results by registering new patients from Prague 5 and the surrounding area and children of hospital employees.

## Department of Dermatology and Venerology

Head Physician, Richard Šuraň, MD

### Activities of the Department

- The Department provides outpatient curative and preventive care for patients of outpatient and inpatient units of the hospital within the framework of consultation activities.
- In case of suspected venereal diseases, the Department makes basic examinations. Patients with a confirmed diagnosis of gonorrhoea or lues are referred to the follow-up care of general consulting specialists in dermatovenerology.
- The Department performs examinations of suspected skin tumours and in the case of histological confirmation of the diagnosis, the patients are treated and followed up by the Department. Patients with a diagnosis of melanoma malignum and lymphoma cutis are referred to the care of the dermatology oncology outpatient units of the skin clinics.
- In addition to the basic specialized examination, the Department performs electrocauterisation, cryotherapy, sclerotherapy of varicose veins, examination of pigment formations by manual and digital dermatoscope, epicutaneous tests.

### Operational data

The staff of the Department include 1 senior physician (1.0 FTE), 1 independent physician (0.5 FTE) and 1 nurse (1.0 FTE).

### Development perspectives for 2024

The Department staff are involved in postgraduate training courses and regularly read professional journals. The task of the Department for 2024 is to maintain the quality of the provided therapeutic and preventive care, to expand epicutaneous testing and to improve the diagnostics of pigment manifestations.

## Department of Ophthalmology

Head Physician, Jiří Záhlava, MD, PhD

### Activities of the Department

- Outpatient medical and preventive ophthalmological care for patients and those who are candidates for eye surgery
- Consulting examinations provided to both outpatients and inpatients from different hospital departments (primarily Neurology, Neurosurgery, Cardiology, Anesthesiology and Reanimation and Internal Medicine)
- Specialized examinations of patients referred from external ophthalmologists and other specialists
- Outpatient surgery - cataract surgery and surgery of the eyelids and their surroundings
- Surgeries with hospitalization are performed exceptionally in patients with more distant residence and in seriously ill patients

### Organizational units of the Department

The Department of Ophthalmology consists of 3 outpatient units and an operating room. The Department of Ophthalmology does not have an inpatient section and if necessary, patients are hospitalized in the Department of ENT or in the Department of Internal Medicine.

### Procedures

Outpatient examinations (represented by codes 75 021, 75 022 and 75 023)	5,124
Patient contacts other (represented by codes 09 511 and 09 513)	1,357
Total surgeries	672
Number of cataract surgeries	458
Blepharoplasty	105
Blepharoplasty - other	109

### Staff data

Number of physicians	4
Number of physician (FTE)	2.6
Number of general nursing staff	5
Number of general nursing staff (FTE)	4.6
Number of auxiliary medical staff	1
Number of auxiliary medical staff (FTE)	1.0
Number of technical staff	1
Number of technical staff (FTE)	0.8
Total number of employees	11
Total number of FTEs	9.0

### Changes in 2023

- Due to the termination of the employment of the current Head of the Department at the end of 2022, keratoplasty and astigmatism corrections were discontinued, the number of refractive procedures (extraction of clear lenses with replacement with monofocal or multifocal artificial intraocular lenses) were significantly reduced and the number of cataract surgeries was reduced.
- MUDr. Jiří Záhlava, CSc. became the new head of the Department of Ophthalmology at the beginning of 2023. In connection with his arrival in the autumn of 2022, surgical instrumentation for blepharoplasty was acquired, which has been performed in increasing numbers since then.
- The outdated operating table was replaced with a new one.
- Following the downsizing of the Department of Ophthalmology by 2 rooms a few years ago, significant structural modifications were made to the outpatient wing in 2023 to improve the working conditions of the staff and rationalise the organization of work.

### Development perspective for 2024

- A partial, gradual and socially empathetic change in the spectrum of outpatients to meet the needs of Na Homolce Hospital and the Department of Ophthalmology as a surgical discipline.
- Meaningful use of the operating room for 3 days a week according to the current staffing of the Department of Ophthalmology, the remaining 2 days to be used by other departments.
- Recruitment of a part-time ophthalmologist to make better use of the space and equipment in the outpatient unit and operating room.
- Participation in seminars and congresses under the auspices of the Czech Ophthalmological Society and other partner professional associations.
- Retrofitting of the newly built premises of the outpatient wing for their better use, improvement of working conditions of the staff and rationalization of work organization.
- Putting out a tender for the perimeter due to its increasing failure rate, its importance for the needs of diagnosis and treatment not only of the Department of Ophthalmology, but also of neurology and neurosurgery, and last but not least its relatively good return.
- Putting out a tender for a device for the examination and documentation of the ocular background.

## Department of Psychiatry

Head Physician, Petra Kleinová, MD

### Activities of the Department

The Department provides diagnostic, therapeutic and preventive psychiatric care to the adult patients of the polyclinics, patients of the department for foreign nationals, patients using other hospital programs, and consulting services in the hospital. It does not have an inpatient unit. The Department cooperates in an interdisciplinary manner with a company general practitioner, physicians in all other fields, inter alia within the program of comprehensive pain management, assesses and refers patients with severe forms of obsessive-compulsive disorder to the Department of Stereotactic and Radiation Neurosurgery, which is the only facility that performs stereotactic neurosurgical procedures with such patients.

### Operational data

- 1 outpatient clinic
- 1 physician FTE, 2 physicians with 0.8 and 0.2 FTEs
- 1 nurse with 0.5 FTE
- total number of examinations 1,840 (of which 33 consulting examinations within NHH) + interviews with family 50 + telephone consultations 1,315

### Evaluation of clinical activities

With respect to the limited capacity represented only by one psychiatric position, the extent of clinical activities of the Department remained without changes. The focus is on comprehensive diagnostic, therapeutic and preventive psychiatric care, respecting hospital priorities. The patients who cannot be admitted for treatment due to the lack of capacity are referred to the care of other departments of psychiatry. The physicians cooperate with other inpatient departments in Prague and outside Prague where patients indicated for hospitalization are referred to, as well as with community service centers - mental health centers, which receive patients with severe mental disorders and impaired functional abilities. In some cases, the indicated patients are referred to the psychotherapeutic care.

### Membership of professional associations and educational activities:

The physicians are members of the Psychiatric Society of J. E. Purkyně, the Czech Neuropsychopharmacological Society and the Society for Biological Psychiatry, MUDr. Skopová is a member of the Czech Medical Association's Scientific Council for Psychiatry. MUDr. Kleinová, a physician with 0.8 FTE, also works at the Department of Neurology at the 1st Faculty of Medicine Charles University in Prague and General University Hospital in Prague, where she focuses on neuropsychiatric problems of extrapyramidal disorders and is also certified in Gerontopsychiatry.

### Development perspectives for 2024

Na Homolce Hospital is a highly specialized hospital where psychiatry, as one of the basic fields of current medicine, is only a complementary discipline ensuring a comprehensive range of provided health-care services. No further development is possible under the current staffing conditions i.e. with only one physician FTE. With the current staffing and patient load, there is no room for scientific work or teaching. Therefore, the aim is to maintain the current high quality of care provided and economic results, while the demands for psychiatric services and increase in the number of patients generally increase.

## Department of Clinical Psychology

Head of Department, Prof. Lenka Krámská, PhD

### Activities of the Department

The Department of Clinical Psychology has no inpatient unit. It has three offices – offices of psychologists who examine and provide psychodiagnostic and psychotherapeutic care on a daily basis in accordance with the specialization in the given program and in cooperation with the target department (mainly Neurosurgery, Neurology, Stereotactic and Radiation Neurosurgery, Internal Medicine, Surgery, Oncology, etc.) according to the requirements of the attending physicians. They also provide consulting services to other departments of Na Homolce hospital. The clinical psychologist provides psychodiagnostic and psychotherapeutic care for outpatient children at the Children's Department in the office of consultants.

Specialized psychological care includes pre-operative psychological preparation before complicated procedures, help in coping with the impact of serious diseases, and neuropsychological diagnostics aimed at the identification of intellectual and cognitive abilities or assessment of personality psychopathology. Neuropsychological diagnostics can rule out some medical interventions or refer the patient for special procedures, such as epilepsy surgery, neurostimulator implants, some bariatric surgery procedures, allocation of an electric wheelchair etc., for which special psychological or neuropsychological assessment is required by health insurance companies.

### Main services

- Neuroprogram – Specialized neuropsychological diagnostics and psychotherapy in patients with neurological diseases (epilepsy surgery program, neurosurgical treatment of tumors, cerebrovascular diseases, cognitive rehabilitation, cooperation with the Department of Neurosurgery, e.g. in awake brain surgeries, cognitive rehabilitation of patients with neurocognitive deficit, cooperation with the Department of Stereotactic and Radiation Neurosurgery in the examination of patients with epilepsy, obsessive-compulsive disorder before and after interventions, etc.).
- Cardiovascular program – Specialized psychological diagnostics and psychotherapy in patients with cardiovascular diseases (cardiac surgery, demanding vascular reconstructions, acute myocardial infarction, neurostimulator implantation for refractory angina pectoris, etc.).
- Internal medicine program – Specialized psychodiagnostic and psychotherapeutic care in the field of obesitology and bariatrics, as well as diabetology, endocrinology, oncology, pneumology and gastroenterology; consultations, psychosomatic consulting center.
- Crisis intervention in acute responses to unfavourable diagnosis, psychological preparation for demanding procedures, assistance in coping with psychological impacts of diseases (Leksell Gamma Knife, oncology, etc.).
- Cooperation with the NHH Palliative Care Team – At the request of the attending physicians or nurses, we cooperate with a multidisciplinary team and help patients solve psychological problems and focus on improving their quality of life.
- Pain management consulting center – Psychological examination and subsequent supporting psychological care provided to patients with long-term or chronic pain before implant surgery.
- Psychosomatic consulting center – Psychological treatment of patients with psychosomatic disorders (e.g. high blood pressure, ulcer disease, diabetes, various functional disorders, etc.) requiring a professional psychological intervention.
- Psychodiagnosics and psychotherapy in children with various psychosomatic and educational problems within comprehensive care provided to pediatric patients.

- Psychological examination of patients required by different directives and regulations of the Ministry of Health and General Health Insurance Company – prior to implantation of neurostimulator, programmable pumps, before providing a patient with an electric wheelchair, C-leg prosthesis (micro-processor controlled joint), before returning a driving license to patients, etc.

### Complementary services

- Psychological examination of drivers pursuant to Act No. 361/2000 Coll. performed by a psychologist accredited by the Ministry of Transport, often required by the GPs or NHH employees.
- Psychological examination of applicants for a firearms license.

### Research activities

- Research follow-up of patients (e.g. with epilepsy, PNES, after ischemic stroke, etc.) in cooperation with the Epilepsy Center and Departments of Neurology, Neurosurgery and Vascular Surgery.
- Cooperation with the Department of Radiodiagnostics in developing medical memory examination paradigm by means of functional MRI with a focus on higher mental functions (memory, speech, etc.).
- Cooperation with the Department of Stereotactic and Radiation Neurosurgery in examination of patients with epilepsy, obsessive-compulsive disorder, etc. before and after surgery.
- Cooperation with the Department of Neurosurgery in awake brain surgeries, monitoring of patients with EC-IC bypasses, elective aneurysm, etc. before and after surgery.
- Throughout the year 2023, cooperation with the Department of Clinical Otorhinolaryngology and Head and Neck Surgery of the 1st Faculty of Medicine Charles University, Motol University Hospital continued (doc. MUDr. Jan Bouček, PhD., as. MUDr. Zdeněk Fík, PhD.) on the psychological investigation of applicants for cochlear implants. Following the preparation of the psychodiagnostic test battery, routine investigations of these applicants began in July 2021 and this cooperation will also continue in 2023. Starting in the fall of 2022, preparation began for a post-cochlear implant patient feedback survey, specifically a quality of life survey one year after surgery, and this survey continued throughout 2023.
- Preparation of neuropsychological tests for the detection of simulation (Structured Inventory of Milingered Symptomatology-SIMS and RBANS) into English for the Testcenter.
- Development of research cooperation with the Faculty of Education Charles University and the 1st Faculty of Medicine Charles University – differential diagnostic and methodological research questions.

### Operational data

#### Number of Psychologists

With postgraduate certificate	3
Without postgraduate certificate	2

#### Number of psychological interventions performed in inpatients

Specific psychological intervention (30 min.)	155
Targeted psychological assessment (60 min.)	635
Crisis intervention (30 min.)	2
Psychotherapy with demanding psychotherapeutic intervention (90 min.)	8
Emergency psychotherapy (30 min.)	26

### Number of outpatient interventions

Individual systemic psychotherapy (30 min.)	1,657
Comprehensive pediatric psychological assessment (60 min.)	140
Targeted pediatric psychological assessment (60 min.)	80
Targeted psychological assessment (60 min.)	1,962
Follow-up psychological assessment (30 min.)	6
Specific psychological intervention (30 min.)	14
Psychodiagnostics with a complicated psychotherapeutic intervention (90 min.)	23
Crisis intervention (30 min.)	572

### Number of points achieved

Total	2,990,685
Of which outpatient	2,469,234

However, behind these figures, one must see specific human beings and fates that would, without the psychological intervention, tolerate hospitalization, surgical procedures and other major life events with significantly more difficulties. In addition to these reported interventions for health insurance companies, it is necessary to state the outpatient examination of 30 clients who were examined for the purpose of traffic psychological assessment of the skills to drive motor vehicles, and to hold a firearm. Reimbursements of these procedures were made in cash according to the Decree of the Czech Ministry of Health No. 206/1997 Coll. through the NHH cash office. The total amount was CZK 46,000.

## Educational activities and membership of professional associations

- By the decision of the Ministry of Health dated 10/20/2021, the accreditation Psychologist in Health Care - Clinical Psychology was extended to the Department of Clinical Psychology for 10 trainees (for the theoretical-practical part) with validity from 11/01/2021 to 10/31/2026.
- By the decision of the Ministry of Health of 03/18/2022, the accreditation for the field of Psychologist in Health Care - Psychotherapy was granted to the Department of Clinical Psychology with validity from 04/01/2022 (for the theoretical and practical part).
- There are specialized internships as part of the undergraduate study programs organized in the Department (for the Faculty of Arts and Teaching School, Charles University - 20 students), supervision of diploma and master's degree theses, as well as postgraduate study (pre-certification internships in clinical psychology - a total of 3 pre-certification visiting students, 6 Ph.D. students). In 2023, training of psychologists in pre-certification preparation was carried out in the Department. Two internal trainees and five external trainees from other healthcare facilities were involved in undergraduate preparation at the Department in 2023.
- Prof. PhDr. L. Krámská, Ph.D., develops research and pedagogical activities at the Department of Clinical Psychology and the activities of the Czech Neuropsychological Society which she founded with her colleagues in 2011 and obtained accreditation by the Czech Ministry of Health for a certified course in clinical neuropsychology. She is a member of the disciplinary board and supervisor of the doctoral program of clinical psychology and medical psychology at the Faculty of Arts and the 1st Faculty of Medicine Charles University. She is a member of the Scientific Committee in the International Neuropsychological Society (INS) and the Federation of European Societies for Neuropsychology Committee for the Czech Republic. In 2015-2017, she was a member of the Clinical Neuropsychology Task Force of the European Federation of Psychological Societies in Brussels, to represent the Czech Republic. She participated in the translation of neuropsychological batteries NAB and RBANS and SIMS into the Czech language for Hogrefe Test Center. Prof. Krámská was appointed professor of psychology in June 2023.



- In December 2023, the head of the Department of Clinical Psychology participated in a fellowship at a prestigious neuropsychological institute in Miami (Prof. B. Levin, University of Miami, Miller School of Medicine) and presented a paper with colleagues at the American Epilepsy Society Meeting in Orlando.
- PhDr. M. Kořán, CSc., has long been a member of the Board of the Union of Psychological Societies of the Czech Republic and Vice-Chairman of the Association of Traffic Psychologists of the Czech Republic. He is a lecturer for postgraduate courses on transport psychology at the Faculty of Arts, Palacký University in Olomouc, Masaryk University Brno. Together with Prof. PhDr. L. Krámská, Ph.D., he supervises interns within the framework of accredited studies. Since autumn 2023, he has been involved in the drafting of documents for the preparation of Decree No. 277/2004 Coll., on the Medical Fitness to Drive Motor Vehicles for Persons Living With Dementia (Measure 1.1.12 of the National Action Plan for Alzheimer's Disease and Similar Diseases 2020-2030), which is being dealt with at the Ministry of Health. He provides lectures at workshops within specialized education in clinical psychology at Na Homolce Hospital. He is a media commenter in the field of transport psychology in the public media (at least 5 appearances on CNN Prima News). In the spring and fall of 2023, as a volunteer psychologist, he participated in two week-long recovery stays for cancer patients organized by the self-help organization ARCUS - onko centrum, z. s. In the summer, he submitted 2 chapters on the issue of psychological care after car accidents to the press for two professional publications to be published in the spring of 2024.
- Despite the limitations imposed by the epidemiological situation, PhDr. Lenka Chvátlová actively participated in the work of the Department in the field of psychodiagnostics and psychotherapy of child clients at Na Homolce Hospital. In 2021, she began a training: "Relational psychotherapy in children and adolescents", she continues in the supervision training of the CSPAP, continues in the CIP training (catatonic imaginative psychotherapy), participates in professional seminars and supervision of the child psychology clinic at the Institute for Postgraduate Medical Education.
- In the year 2023, the staff of the Department gave a total of 6 lectures and 3 posters at international congresses, 3 lectures at specialist seminars of the Department of Clinical Psychology, as well as 4 lectures at the postgraduate course at the Faculty of Arts Palacký University and the Faculty of Arts Charles University in Prague. They also published 2 articles in foreign peer-reviewed journals with impact factor and 5 chapters in a monograph. They are actively involved in popularization activities in various media in the field of neuropsychology and traffic psychology.

### Development perspectives for 2024

As in previous years, the Department will continue to provide high-quality psychodiagnostic and psychotherapeutic care to both inpatients and outpatients at Na Homolce Hospital (where necessary also to hospital employees) and to other healthcare facilities. An important task will be to train the new psychologists who will join the Department of Clinical Psychology in the spring of 2024 so that they can be involved as soon as possible in most of the tasks in the Department of Clinical Psychology. Further, it will continue to participate in training within the postgraduate track (theoretical-practical and practical programs in clinical psychology and psychotherapy) and cooperate with the Faculty of Education Charles University, the 1st Faculty of Medicine Charles University and the University of New York in Prague in undergraduate and postgraduate education, to organize study visits within postgraduate education in clinical psychology. The Department also continues to implement a specialized educational program in clinical psychology in cooperation with the Accreditation Commission of the Ministry of Health in the further education of postgraduate students. The cooperation with the Department of Otorhinolaryngology and Head and Neck Surgery at the 1st Faculty of Medicine Charles University, Motol University Hospital will continue on the psychological investigation of applicants for cochlear implantation. The Department will continue to work on the standardisation of neuropsychological methods and procedures for the Na Homolce Hospital neuroprogram (NHH grant for Diagnostics and treatment of patients with PNES diagnosis - psychogenic non-epileptic seizures) and develop psychotherapeutic care and cognitive rehabilitation in patients with neurocognitive deficits, including collaboration on the development of a psychoeducational handbook for PNES patients. The Department will continue to develop international cooperation and activities with professional associations and institutions in clinical psychology, health psychology, psychosomatics and neuropsychology.

## Dental outpatient unit

Head Physician, Petr Kolčava, MD

### Activities of the Department

- Provision of outpatient dental care
- Provision of preventive outpatient dental care
- Provision of acute outpatient dental care on duty
- Provision of consulting services to patients from other departments of the hospital

### Operational data

- In 2023, the above given range of outpatient dental care was provided by one full-time physician and one 0.2 FTE physician with a contract for work. The care was provided to outpatients and inpatients of the polyclinics, foreign nationals, contractual partners of Na Homolce Hospital, and hospitalized patients.
- In 2023, the Department had two dental offices. One dental office is used by one physician and a nurse, the other by a physician with reduced working hours without a nurse.
- In 2023, a total of 2,372 patients were examined and treated.

### Evaluation of clinical activities

The number of interventions still rather high which was achieved particularly due to highly efficient organization of work, immediate phone contact with patients and filling of time slots vacated by absent or late patients and, partially, extension of working hours, i.e. by treating painful conditions before the official working hours.

In spite of all the constraints resulting from the reconstruction of the building, excellent economic results were achieved, exceeding the period before the pandemic of Covid.

### Changes and events in 2023

The Department limited cooperation with the Department of Dental Surgery in the treatment of patients with dental implants. An increased number of patients with Class I defects according to Voldřich were treated with adhesive fixed replacements, the so-called Maryland bridge and inlay bridge. The number of patient treated with conditionally removable replacements and all-ceramic restorations increased as well. The use of so-called locators has been extended to increase the retention of lower total replacements.

From October to the end of 2023, the operation of the outpatient unit was severely limited by the ongoing reconstruction of the building.

In 2023, the operator of the dental-surgical outpatient unit was changed to Denta clinic s.r.o., a new operator, whose all operational, personnel and economic matters are entirely under the responsibility of the Deputy Minister of Treatment and Preventive Care.

In August last year, the operation of the RVG was terminated for technical reasons. A tender was repeatedly put out by the Department of Public Contracts - repeatedly with negative results.

In December, after completing an internship at the Institute of Medical Sciences, MUDr. Kolčava Petr defended his license for the certificate of practical dentistry.

### Development perspectives for 2024

A priority in 2024 will be to supplement the part-time FTE of the physician to the full-time also due to consideration of a possible reduction in the current head physician's hours, and to recruit a dental hygienist. In addition, we will continue our collaboration with dental surgery on the basis of a new specification of scope and competences. In cooperation with the prosthetic laboratory, the use of the Silensor anti-snoring system will be increased in selected patients, as well as dental guards to prevent bruxism. Indications will be extended for all-ceramic replacements of veneer-type and the capacity will be increased for the production of full artificial dentures using locators in order to increase their retention, the production of removable replacements made of flexible resin will be increased. A tender for the acquisition of RVG equipment will be put out again and the investment requirements for the renewal of some equipment will be specified. Although dental care is a complementary service in the system of Na Homolce Hospital, the Department of Dentistry will make every effort to maintain the comprehensive range and high quality of the services provided as far as possible.



## SUMMARY OF ACTIVITIES OF DEPARTMENTS PROVIDING COMPLEMENTARY SERVICES

## Department of Radiodiagnostics

Head of Department, Prof. Josef Vymazal, MD, DSc.

### Activities of the Department

Also in 2023, the Department of Radiodiagnostics provided services both to its own hospital and to other medical facilities, including 24-hour support, even for magnetic resonance imaging. It is the continuous availability of MRI examinations at weekends and at night that is often used by workplaces that are equipped with this technology but do not provide continuous service.

Our Department provides diagnostic examinations in the entire range of the field of radiodiagnostics with a special focus on diseases of the nervous, musculoskeletal and cardiovascular systems, as well as on vascular and non-vascular interventional therapeutic procedures. Diagnostics and interventions continue to be actively developed.

#### Vascular methods

Our Angiography Department is equipped with two modern biplane angiography devices with "flat-panel" detectors and rotational AG. We provide comprehensive diagnostic and therapeutic care for vascular diseases in the whole body, excluding cardiac issues. The Department operates on a 24/7 basis. In terms of the number and spectrum of performed procedures, we rank among the largest centers of a similar nature in the Czech Republic.

The core program of our Department is interventional work within the Comprehensive Cerebrovascular Center - here we provide a continuous service for endovascular treatment of ischemic strokes. The number of endovascularly treated patients with iCMP ranks us among the leading centers in the Czech Republic. The quality of care provided is interdisciplinary monitored both within the hospital and nationally, and is traditionally at a very high level. We also perform complicated and complex neuroendovascular procedures in the treatment of pathologies of the cerebral and spinal arteries, especially in the treatment of cerebral aneurysms and dural shunts; in collaboration with Neurosurgery and Leksell Gamma Knife we treat pial and dural malformations. We use the latest methods and instrumentation available for all these procedures.

In a team with vascular surgeons, we endovascularly treat aortic and pelvic artery aneurysms by implanting stent grafts. We are the largest centre in the Czech Republic in terms of the number of SGs implanted. Within the peripheral arteries, the main focus of our work is the treatment of patients with chronic lower limb ischemia, but we also deal with more complex and less common pathologies of the peripheral arteries such as aneurysms, malformations, shunts, etc. We also treat acute life-threatening bleeding from peripheral arteries by endovascular means if this procedure is indicated. We regularly attend domestic and international training events, where our participation is often active. Our Department follows the latest technological trends in this field and reasonably chooses new technologies and materials for its own application.

#### CT scan and CT guided non-vascular intervention

For diagnostic purposes, we equipped our Department with a Somatom Force CT scanner in 2022, which meets the most demanding requirements for CT scans across medical disciplines, including demanding cardiac scans, the number of which is increasing every year. The new CT device also reduces the radiation burden on the patient in many of its indications. It is the CT scan that is the main source of radiation burden on the population of developed countries.

In agreement with global trends, we tend to replace a CT scan with MRI in indicated cases, where there is no radiation exposure at all. In this regard, we provide education both among the referring physicians of our hospital and at professional congresses and seminars for other referring specialists.

As already mentioned, cardiac CT scans, including CT coronary angiography, are an important part of our CT portfolio. The number of examined patients with a congenital heart defect using CT has also been increasing. We often combine CT scans with MRI scans in these patients as well. In acute strokes, we perform CT perfusion imaging of the entire brain in indicated cases, and we always perform CT angiography in suspected cases.

Intervention area is dominated by CT-guided nerve root injections and vertebroplasty. Interest in these procedures is growing and our hospital is traditionally the most active center in the country in this segment of care. A unique hybrid CT-AG system is dedicated to interventional methods.

### **Magnetic resonance imaging (MRI) examination**

Magnetic resonance imaging is one of the main pillars of our diagnostic program. We are equipped with four MRI instruments, two with an external magnetic field strength of 1.5 Tesla, two with a field strength of 3 Tesla. We perform all types of MRI examinations, with the exception of fetal MRI. In addition to basic diagnostics, advanced MRI methods are still routinely used on MRI devices, namely MRI spectroscopic examination using SVS and CSI techniques, diffusion imaging, diffusion tensor imaging for white matter tractography. Functional MR BOLD imaging for pre-operative planning, neuronavigation and deep brain stimulation is quite routine; beyond clinical routine use, research using advanced MR techniques is ongoing, with a focus on quantification of scalar MR parameters with prestigious publications and active participation in local and international congresses in Europe and overseas. In recent years, MRI research has focused, among other things, on patients with cerebral glioblastoma, where quantification of Brown's molecular motion diffusion and proton relaxation times appears to be a promising predictor of disease progression.

For several years now, examination by perioperative MRI has been performed on a regular basis, using the equipment installed in the neurosurgery operating room. Our hospital belongs to the very few in the Czech Republic which are able to perform such examinations. This significantly increases the radical nature of neurosurgery interventions and patient comfort.

The cardiac MRI program continues to evolve significantly, already including phase contrast sequences as standard to image and quantify flow, as well as the aforementioned mapping. We expect a further increase in the number of patients with congenital and acquired heart disease. Thanks to the new software, we have significantly improved the speed and accuracy of quantification of the evaluated hearts and large vessels.

The MR department has traditionally been involved in research tasks supported by both internal grants and grants from the Agency for Health Research (AHR).

### **Mammography**

Na Homolce Hospital is part of a network of accredited screening centers. It is equipped with a Planned Nuance Clarity mammography machine with direct digitalization and tomosynthesis capability. Every mammography examination undergoes a second reading. In addition to mammography, we perform both screening and diagnostic sonographic examinations. We perform biopsies and marking of lesions under ultrasound.

Patients with unclear mammography and ultrasound findings are referred for an MRI breast examination in indicated cases, which are also performed in the Department.

All radioscopic image documentation is digitally stored in the hospital’s information system and is immediately available to physicians. All operations of the Department of Radiodiagnostics have been fully digitalized, i.e. no films have been used since 2009. The hospital also uses a well-proven ePACS system, interconnecting imaging records of most hospitals in the country.

Since 2011, the Department has been using only electronic request forms on a regular basis and external request forms are also transferred to electronic format. The system of electronic request forms for all types of radiodiagnostic examinations has been in use in the hospital for several years now.

## Operational data

### Technical equipment

- Angiography unit: 1X Artis Q biplane, 1x Siemens Axiom Artis biplane
- CT unit: 1x Siemens Somatom Force, 1x Siemens Somatom Definition AS Plus
- MRI unit: 1x Magnetom Avanto FIT 1.5 T, 1x Magnetom Vida 3 T, 1x Siemens Skyra 3 T, 1x GE Signa HDx (neurosurgery operating rooms) 1.5 T
- Ultrasound unit: 1x Toshiba Aplio, 1x GE Logiq E10R2, 1x GE Logiq E9, 1x Siemens Acuson Juniper, 1x Samsung RS85
- Mammography: 1x Planmed Nuance Clarity
- Basic equipment: 1 fluoroscopic and 2 fluorographic units, mobile X-ray equipment, orthopantomograph, PACS workstations, scanners, printers, data archives

### Basic staff data

Number of physicians	32
Number of radiodiagnostic laboratory technicians	31
Number of general nursing staff	10
Number of administrative staff	10
Number of auxiliary medical staff	2

### Specialized intervention and treatment procedures

PTA (with or without stent implantation)	481 PTA, 132 stents
Endovascular treatment of cerebral aneurysms (coils, stents)	49
Recanalization of cerebral arteries in acute stroke	130
PTA/stent of extracranial brain-supplying arteries	47
PTA/stent of intracranial brain-supplying arteries	12
Embolisation in neurological area (cerebral, spinal AVM)	11
Tumour embolisation	5
Stent grafts	100
CT guided intervention in total	1,953
of which: targeted nerve root and facet injections	1,480
vertebroplasty + kyphoplasty	241
radiofrequency ablation	15
CT guided biopsies and drainages	217

## Overview of selected radiodiagnostic examinations

Computer tomography	19,314
Magnetic resonance	19,052
Angiography	1,448
Ultrasound examination	12,172
Mammography	12,150
of which screening	10,300
Ultrasound examination within mamma diagnostics	2,812
Sentinel node biopsy	125
Fluorography, fluoroscopy + dental X-ray	28,338
Total number of radiodiagnostic examinations	95,411

## Plans for 2024

- Clinical routine implementation of modern diagnostic procedures on the new Vida 3 Tesla MR machine, e.g. MR fingerprinting, where the relevant software has already been acquired.
- Application of other modern CT methods on the new Somatom Force machine.
- Continued active participation in the mammography screening and early lung cancer detection program.
- Extension of the screening portfolio to prostate screening.
- In cooperation with the ICT department, further expansion of the applications of the new hospital information system.
- The Department will actively support the hospital's cyber security.
- The Department will continue to develop diagnostic, interventional and research activities, including the possible involvement of artificial intelligence.
- Installation of the new Philips Azurion biplanar AG device for neurointerventional procedures.



## Department of Nuclear Medicine - PET Center

Head of Department, Assoc. Prof. Otakar Bělohlávek, MD, PhD

### Activities of the Department

- PET/CT diagnostics
- scintigraphic imaging including SPECT

### Organizational units of the Department

- Nuclear Medicine outpatient unit
- Radiopharmaceutical laboratory

### Basic data

The Department provides complementary services within the hospital, exclusively to outpatients.

Staff (as of December 12/31/ 2023)

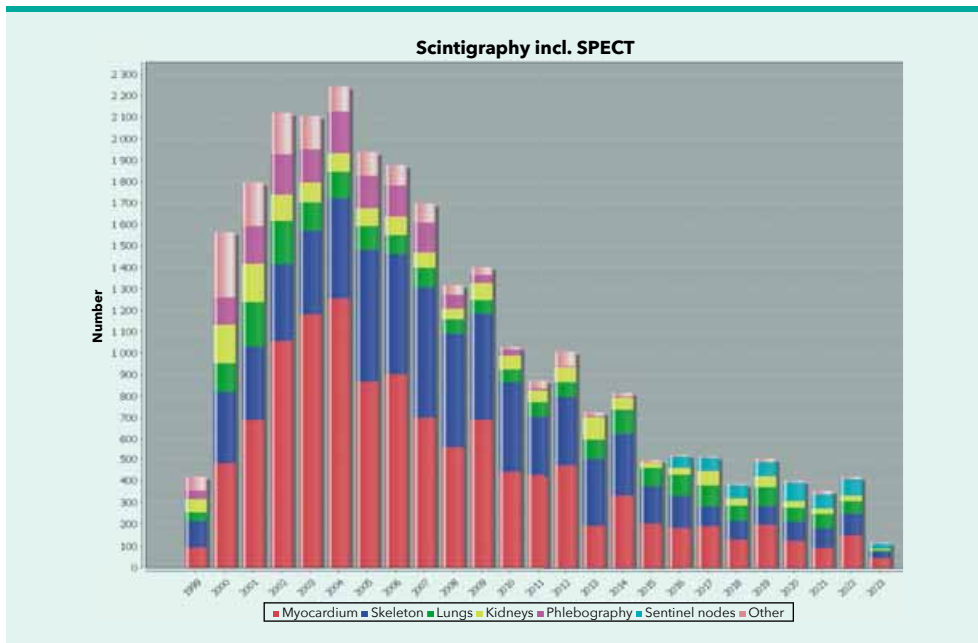
Position	Number of persons	No. of jobs
Assistant (technical-administrative employee)	3	3.0
Pharmaceutical assistant	1	Overtime work of an employee of the Department of Clinical Biochemistry, Hematology and Immunology
Physician	10 (+2)	9.0 (+2x 0.5)
Specialist laboratory technician, preparation of medicines	1	Overtime work of an employee of the Department of Clinical Biochemistry, Hematology and Immunology
Radiological assistant	9	9.0
Orderly	1	1.0
General nurse	4	4.0

In addition, two physicians, permanent employees of RDG, each working 0.5 hours, were designated to work at the Department of Nuclear Medicine. The services of the radiological physicist were provided by the Department of Medical Physics.

## Performance overview

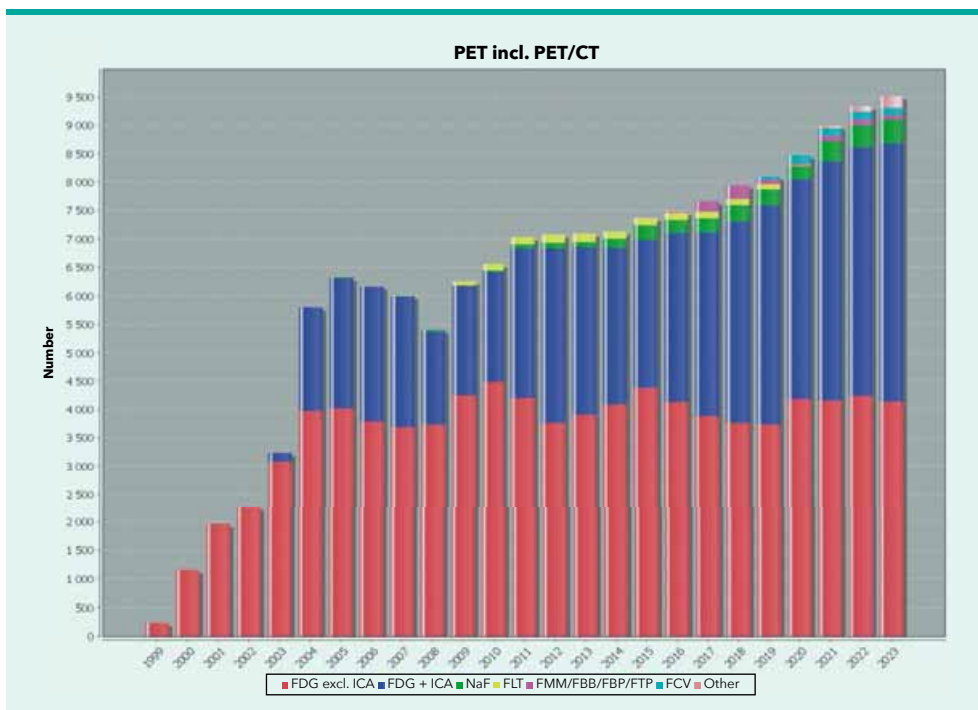
### Scintigraphy

Number of examinations: 120 (decrease by 71.8% compared to the previous year). All examinations were carried out on a Siemens E.CAM two-detector camera until March 6, 2023; thereafter the operation was stopped.

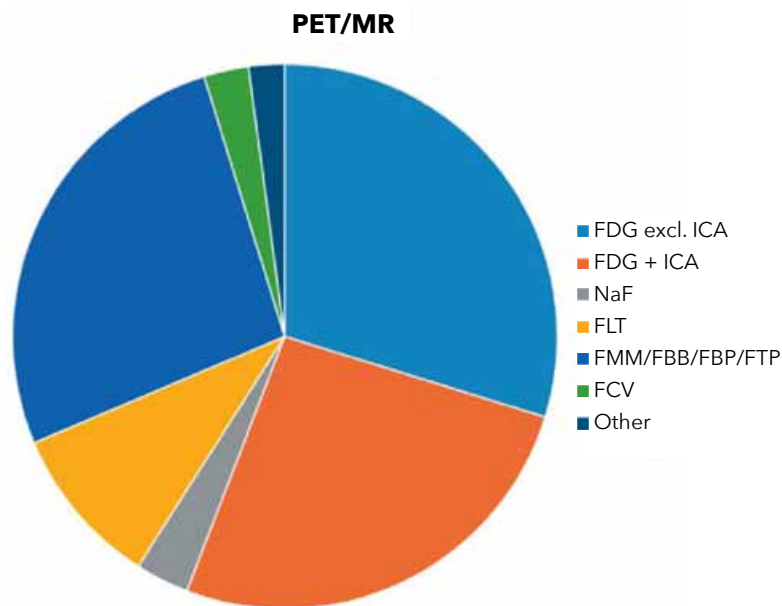


### Positron emission tomography

Number of hybrid PET/CT scans: 9,517 (an increase of 1.9% as compared to the preceding year). All examinations were performed using state-of-the-art hybrid Siemens Biograph PET/CT scanners.



On 08/10/2023, the first hybrid PET/MR scan was performed on the new Siemens Biograph mMR scanner. By the end of 2023, 187 examinations have been performed in the start-up operation, including 3 plain MRIs, 25 hybrid PET/MRs and 159 hybrid PET/CT/MRs, i.e. PET/MRs following a PET/CT examination with a single administration of radiopharmaceutical drug.



### Activity evaluation

- In the first half of the year, the operation of the Department was affected by the ongoing reconstruction and extension of the PET/MR unit and took place in cramped conditions. The second half of the year was influenced by work related to energy-saving measures and increasing cyber security.
- Despite this, the key PET/CT diagnostics have managed to increase their already exceptionally high productivity by almost 2% year-on-year and have once again managed to slightly surpass the historical high of 9,517 examinations from the previous year.
- In the first half of the year, intensive training of selected physicians and radiological assistants at the MRI department of Na Homolce Hospital and University Hospital Plzeň took place. The staffing situation at the Department was stable, however, it was not possible to fully fill the increased number of physicians and radiological assistants needed for the new PET/MR capacity. Since Q2/2023, 2 physicians from the Department of Nuclear Medicine with erudition in MR diagnostics started to rotate at the Department in order to deepen the cooperation between the two Departments, to learn PET/CT diagnostics and to help with MR diagnostics in hybrid PET/MR examinations.
- On June 28, 2023, a new Siemens Biograph mMR hybrid PET/MR scanner was handed over for use and on July 14 the new department was inaugurated in the presence of the Minister of Health and other significant persons. The PET/MR scanner has started to be used primarily in combination with PET/CT to offer comprehensive malignant tumour staging, i.e. to provide a whole-body overview to determine locoregional nodal involvement and distant metastases using PET/CT, complemented by refinement of the extent of the primary tumour using PET/MR, all from a single injection of the radiopharmaceutical drug. This solution is patient-friendly and the least burdensome for the health insurance system, even though it is extremely demanding in terms of work organization.
- With regard to the ongoing reconstruction, the clean rooms necessary for individual preparation of radiopharmaceuticals for scintigraphic examinations had to be closed from March to September. As a consequence, scintigraphic operation was also discontinued; it was not resumed until the end of 2023 due to minimal interest of clinicians in scintigraphic examinations, unprofitability of the opera-

tion, terminated scanner service support and staff overload due to the installation of PET/MR and the introduction of numerous individual preparation of two new radiopharmaceuticals for PET. For Na Homolce Hospital patients, the necessary scintigraphic examinations were arranged at the nearby Motol University Hospital.

- In the radiopharmaceutical laboratory, the shielding in the laminar box was modified to accommodate the  $^{68}\text{Ge}/^{68}\text{Ga}$  generator and instrumentation for individual preparation of radiopharmaceuticals for PET was added. The local preparation of two receptor radiopharmaceuticals started on November 1, 2023:  $^{68}\text{Ga}$ -PSMA-11 and  $^{68}\text{Ga}$ -DOTATOC. This has significantly opened up new diagnostic and therapeutic possibilities for patients with prostate cancer and rare neuroendocrine tumours.
- Also in 2023, a number of tenders were held, especially for the supply of radiopharmaceuticals. The proportion of the items based on the contract was 99.85% of the total financial volume of direct purchases at the Department of Nuclear Medicine; the negligible remainder consisted of low-cost, price-regulated radiopharmaceuticals for scintigraphy, which are unique in the market.
- The Department has successfully passed the surveillance audit of the quality management system according to ISO 9001:2015 and as part of the hospital followed the SAK accreditation standards. The inspection of the State Institute for Drug Control found no violation of legal regulations.

### Educational and other specialized activities

- Study visits for a number of experts are organized in the Department and consultation services are provided as part of the model project of the International Atomic Energy Agency (IAEA).
- Regular practical training of radiological assistants for the FBMI CTU in Kladno and clinical practice for Radiological Technology and Radiological Physics CTU takes place at the department.
- 101 examinations were performed for 15 different clinical trials and several additional studies were contracted.

### Development perspectives for 2024

- The plan is to make use of all technologies installed in the Department in the scope defined by the reimbursements received from healthcare insurance companies. In addition to this assignment, examinations for clinical trials will continue. Emphasis will be put on the quality and efficiency of the services provided.
- All backlogs related to energy-saving measures and cybersecurity enhancements should be addressed in the first half of the year.
- A one-week shutdown of the Department is planned for the end of August to install new equipment in room J226 for the collection and measurement of radiopharmaceuticals, to fit worn door frames and screen doors and to paint the entire department.
- An open day is planned for early September to mark the completion of the comprehensive reconstruction of the PET Center and the 25th anniversary of the introduction of PET scanning into clinical practice at Na Homolce Hospital and in the Czech Republic.
- Plans are in place for the ongoing implementation of tenders for suppliers of radiopharmaceuticals.
- Plans are in place to recruit one radiology assistant or nurse, one physician knowledgeable in MR diagnostics and to support the preparation of radiopharmaceuticals with overtime work by an additional expert in laboratory methods and drug preparation.
- A gradual transfer of the functionality of the QuaMan radiology information system to the Hood hospital system is foreseen according to the ICT capacity.

## Department of Clinical Biochemistry, Hematology and Immunology

Head of Department, Assoc. Prof. Miroslav Průcha, MD, PhD

### Sections of the Department

- Biochemistry
- IA Laboratory
- Hematology
- Blood bank
- Immunology
- Laboratory of Molecular Diagnostics

### Staff (as of December 12/31/ 2023)

(including partial FTEs and contracts for work)

Number of physicians	9
Number of university graduates - paramedic staff	10
Number of medical staff	
Laboratory technician	31
Nurse	7
Orderly	5
Number of other staff	4
Total number of employees	67

### Activities of the Department

- The Department of Clinical Biochemistry, Hematology and Immunology performs routine and specialized examinations of laboratory parameters within Na Homolce Hospital and for contracted medical facilities in the following fields: clinical biochemistry and immunoassay, clinical hematology and blood transfusion service, clinical immunology and allergology, molecular genetic diagnostics and clinical pharmacology (including pharmacokinetic interpretation of measured drug concentrations). Collection of material from contracted healthcare facilities is secured.
- In critically ill patients, examination of selected parameters is performed directly at the bedside (POCT - point of care testing) and CRP examination in the company physician's surgery.
- The blood bank ensures the supply of blood and blood derivatives to hospital clinical departments.
- The Department of Clinical Biochemistry, Hematology and Immunology participates with great success in the control cycles of the External quality assessment program.
- The laboratory obtained accreditation by Český institut pro akreditaci, o. p. s., in accordance with ČSN EN ISO 15189:2013.
- The physicians and university staff from the Department of Clinical Biochemistry, Hematology and Immunology provide advisory and consulting services in the relevant fields.
- The Department ensures the activities of the outpatient unit for disorders of lipid metabolism, hematological outpatient unit and the outpatient unit of immunology and allergology.
- The laboratory participates in clinical research projects.

## Changes in 2023

- In the section of biochemistry, a Beckman Coulter automated line with a conveyor, an in-feed and out-feed module and a refrigerated warehouse was put into operation in October 2022. In January 2023, the planned transfer of selected immunochemical methods from the IA section of the laboratory to the central analytical line and the commissioning of the AutoMate aliquot module. At the same time, the reception of biological material for the IA laboratory section was merged with the central reception of the Department of Clinical Biochemistry, Hematology and Immunology. Therefore, from January 25, 2023, the IA laboratory no longer receives samples separately. A total of 21 methods have been transferred, of which 10 methods are accredited.
- Changes have occurred in the material reception section, where the contracts of four orderlies were terminated in January 2023 and their positions were replaced by medical laboratory technicians. Sample receipt and review is now carried out by two medical laboratory technicians, with a third technician assisting in the morning peak hours (as part of the rotation of staff from each section). In the morning peak, the proportion of statim samples is still around 70%. Thus, there is a sudden increase in response time (TAT) and failure to achieve a TAT below 60 minutes, which was one of the expected benefits of AAS. As of September 2023, specific staff are designated by the Lead Analyst to be responsible for the ongoing release of laboratory results on a given day. This should speed up the release of results, shorten the TAT even in routine mode, and clinicians will not need to redundantly order lab tests in the urgent mode. Reducing the number of “urgent” samples will also speed up their clearance. We also plan to map the current workflow together with Beckman Coulter using the so-called digital twin and then adjust and optimize the AAS settings based on the data obtained.
- Daily operational records (temperature monitoring, maintenance records, records on department disinfection, etc.) were kept in the hospital-wide EFAS system in several sections. This is a further advance in the drive to maximize the digitization of records without the need for paper forms. The remaining sections will be transferred to EFAS during 2024. EFAS was also designed as the default program for instrumentation management and the instrument lists are now maintained exclusively in EFAS.
- During the year 2023, the individual NHH departments were gradually switched over to the new hospital information system HOOD (including the request system). Implementation of the new NIS has been completed across the hospital.
- In the second half of 2023, the Department of Clinical Biochemistry, Hematology and Immunology workplaces gradually underwent window replacement and other reconstruction work (replacement of ceiling ceilings, replacement of lighting, replacement of floor coverings in offices). The reconstruction of the Departments' sanitary facilities was postponed for capacity reasons. All of this construction work required the cooperation of the Department of Clinical Biochemistry, Hematology and Immunology staff, adjustments to operations and a deterioration in working conditions. The staff had to cope with more noise, dust, movement of laboratory equipment and movement of construction workers in the department. In December, an adverse event occurred in the IA section of the laboratory in connection with the ongoing window replacement. The heating elements cracked and the laboratory was flooded. Further construction works will be completed gradually during 2024. This mainly involves the replacement of floor coverings, cleaning of building openings and painting.
- Accreditation by the CAI (Czech Accreditation Institute):  
INTERNAL AUDITS  
In the period from January to December 2023, 5 internal audits out of 8 planned were performed at the Department of Clinical Biochemistry, Hematology and Immunology. Due to extensive ongoing construction works at the Department in the second half of 2023, it was difficult to carry out audits during the reconstruction period, where laboratory activities were carried out in a temporary mode and under difficult working conditions. Audits at departments where they were not carried out in 2023 will be carried out in early 2024. These are mostly sections where a CAI surveillance visit took place in February (or March) 2023. The internal audits resulted in 10 cards of non-conformities that were resolved during the year, and recommendations were defined, most of which have been accepted and fully or partially implemented in practice.

**REVIEW BY EXTERNAL ORGANIZATIONS - CAI**

In February 2023, a regular surveillance visit of the CAI took place in the LMD section and an extraordinary surveillance visit of the CAI in the hematology section focused on the assessment of accredited methods after the replacement of the ACL TOP 550 CTS analysers (coagulometers).

In March 2023, the immunology section received an extraordinary surveillance visit from the CAI to replace the microscope and semi-automated ELISA reader.

In March 2023, an extraordinary surveillance visit to the biochemistry section of the CAI was carried out, focusing on the transfer of biochemical and immunoassay methods to the central line. The regular surveillance visit to the IA laboratory section was addressed during this emergency visit as all accredited IA laboratory methods were moved to the biochemistry section.

Audit conclusion: The entity meets the criteria assessed. Certificate of accreditation No. 136/2023 of March 27, 2023 was issued.

- In 2023, laboratories of the Department of Clinical Biochemistry, Hematology and Immunology participated in the External Quality Assessment Program organized by SEKK, Instand amd RfB. The Quality Assessment Program covers the full range of methods applied for accreditation.
  - In the first half of 2023, the laboratory participated in the analysis of a total of 955 control samples with an overall success rate of 97.49%.
  - In the second half of 2023, the laboratory participated in the analysis of a total of 763 control samples with an overall success rate of 99.48%.
  - Unsuccessful results were addressed.
- Personnel changes in the Department of Clinical Biochemistry, Hematology and Immunology Management in 2023:
  - There were no changes in the staffing of key functions in 2023.
  - As of 01/01/2023, RNDr. Zdeněk Tokár has been appointed Deputy Quality Manager .
  - As of 05/15/2023, he has been appointed Senior Analyst .

**Biochemistry**

- Changes in medical equipment
  - Installation of a new Easylyte Calcium analyser for measuring ionised calcium (June 2023).
  - Deinstallation of the Immage 800 analyser (July 2023).
  - POCT: installation of a new glucometer in the preoperative care department - Department of Surgery.
- Cancelled and newly introduced methods
  - A new Soluble Transferrin Receptor and a new computational method sTfr/log ferritin index for the diagnosis of iron deficiency anemia, especially in patients with chronic disease (May 2023).
  - Transfer of Lipoprotein (a), Apolipoprotein B and Apolipoprotein A1 methods from the Immage 800 analyzer to the DxC 700 AU analyzer, which is part of the automated line (July 2023).
  - Conversion of the ferritin and cortisol methods from the Centaur XPT analyzer to the Dxl 800 analyzer, which is also part of the automated line (July 2023).
  - Transfer of the remaining methods from the Centaur XPT analyzer: antibiotics vancomycin and gentamicin, antiepileptic drugs valproate and carbamazepine to the DxC 700 AU analyzer. At the same time, the method for the determination of active vitamin B12 was transferred to the Alinity i analyzer. (December 2023).
  - Abolition of the lipoprotein electrophoresis method (December 2023).
- Staffing changes in the management
  - No changes.

**IA Laboratory**

- Changes in instrumentation, cancelled and newly introduced methods
  - Following the transfer of methods to the central line, the loan contracts for Centaur XPT and Access2 analyzers were terminated. Both analyzers were returned to the suppliers in Q1.

- In October 2023, a new Maglumi 800 analyzer from Snibe was installed.
- In January 2023, a large part of the immunochemical methods were transferred to the central analytical line. The transfer concerned 21 methods: TSH, T3, T4, FT3, FT4, aTPO, ahTG, LH, FSH, oestradiol, prolactin, progesterone, testosterone, PTH, vitamin D2, PSA, free PSA, AFP, CEA, CA 125, CA 19-9 (bolded tests are accredited methods).
- As of June 2023, the screening for congenital developmental defects on the Kryptor analyzer has been cancelled due to low sample numbers and therefore the inability to perform a proper statistical risk assessment. These methods are PAPP-A, free beta HCG, AFP, PIGF.
- In October 2023, new tests for bone metabolism markers P1NP and CTx were introduced on the Maglumi 800 analyzer.
- Staffing changes in the management
  - Without changes

### Hematology

- Changes in instrumentation, cancelled and newly introduced methods
  - March 2023 - new cooled centrifuge installed
  - Cancelled methods: FDP, euglobulin lysis, citrate platelet testing (fully replaced by ThromboExact testing).
  - Newly introduced methods: erythropoiesis parameters newly reported on the results sheets - IRF (Young reticulocyte fraction), Ret-He (Hemoglobin in reticulocyte), Delta-He (Difference of hemoglobin in reticulocytes and erythrocytes) /January 2023/, factor II, Factor IX, Factor X, Factor XI and Factor XII, lupus anticoagulants /April 2023/, screening method for HIT detection (heparin-induced thrombocytopenia) /May 2023/.
- Staffing changes in the management
  - No changes.

### Immunology

- Changes in instrumentation, newly introduced methods
  - Instrumentation without changes.
  - Newly introduced methods: ASCA IgA and ASCA IgG (November 2023).
- Staffing changes in the management
  - As of 01/02/2023, Mgr. Jarmila Kempeová was appointed as the head laboratory technician .

### Blood bank

- Changes in medical equipment
  - June 2023 installation of a new freezer for plasma LAF 700 NEW -40 °C, Arctiko.
- Staffing changes in the management
  - No changes.

### Laboratory of Molecular Diagnostics

- Changes in medical equipment
  - HybriSpot12 (Vitro group) - the loan continues.
- Newly introduced methods:
  - Detection of 16S rDNA of Mycoplasma pneumoniae.
  - Detection of multidrug-resistant pathogens by multiplex PCR and reverse hybridization
- Staffing changes in the management
  - No changes.



## Economic results for 2023

The Department of Clinical Biochemistry, Hematology and Immunology's performance is summarized in the following tables. The last table shows a comparison of point production with previous years.

### Performance for the period 01/01/2023-12/31/ 2023

Costs				
Costs entering the evaluation	Plan - period	Actual - period	Performance in %	Difference Actual/ Plan
Total costs entering the evaluation	129,034,504	129,257,901	100%	223,397
Costs entering the evaluation	Plan - period	Actual - period	Performance in %	Difference Actual/ Plan
Total costs not included in the evaluation	23,282,136	20,533,258	88%	-2,748,878
Total costs - direct	147,017,115	145,752,245	99%	-1,264,870
Total costs - in-house	5,299,525	4,038,914	76%	-1,260,611
Total costs	152,316,640	149,791,159	98%	-2,525,481

Production				
Period 01/01/2023-12/31/ 2023	Plan - period	Actual - period	Performance in %	Difference Actual/ Plan
Total points for outpatient care	73,207,752	74,321,021	102%	1,113,269
Total points for outpatient care - not a General Health Insurance Company, domestic	54,035,348	57,716,978	107%	3,681,630

### All points reported for 2023

	Budget	Budget to date	Reality
Total	0	0	208,865,398
41 Department of Clinical Biochemistry, Hematology and Immunology	0	0	208,865,398
4140 Outpatient clinic	0	0	3,546,993
4141 Sampling point	0	0	2,382,260
4171 Biochemistry	0	0	92,521,678
4172 Transfusion	0	0	5,047,897
4173 Haematology	0	0	26,833,585
4174 Immunology	0	0	40,056,789
4175 Liquorology	0	0	0
4176 Laboratory of molecular diagnostics / genetics	0	0	5,703,748
4 177 RIA methods	0	0	32,772,439

## Comparison of point production with previous years

	2017	2018	2019	2020	2021	2022	2023
Outpatient Unit	1,289,192	1,245,430	1,233,129	1,864,141	2,433,635	3,301,519	3,546,993
Sampling point	-	-	-	448,884	2,184,083	2,217,663	2,382,260
Biochemistry	65,857,013	68,306,142	70,008,298	72,611,007	75,764,972	74,720,308	92,521,678
Hematology	20,457,921	20,250,766	21,377,402	20,043,854	22,987,006	22,818,489	26,833,585
Blood bank	4,984,251	4,998,718	6,106,026	8,330,629	5,103,621	5,317,321	5,047,897
Immunology	39,902,995	36,093,256	36,664,333	38,692,073	30,602,258	40,755,885	40,056,798
Immunoassay laboratory	-	-	31,568,064	29,932,009	29,547,867	30,962,526	32,772,439
Laboratory of Molecular Diagnostics	34,105,350	12,293,450	1,091,981	6,852,105	4,915,947	4,696,324	5,703,748
<b>Total</b>	<b>166,596,722</b>	<b>143,187,762</b>	<b>177,874,233</b>	<b>176,774,702</b>	<b>173,539,389</b>	<b>184,790,035</b>	<b>208,865,398</b>

## Outlook for 2024

- Due to the validity of the new standard 15189:2023, a new version of the Quality Manual will be published in January 2024 to reflect the different structure of the new standard. The Department of Clinical Biochemistry, Hematology and Immunology will be re-accredited according to the new standard 15189:2023.
- Preparations for the introduction of electronic requests for laboratory tests. This trend is in line with NHH's "paperless hospital" policy.
- Prepare for the re-accreditation audit of the CAI, ensure the extension of the Department of Clinical Biochemistry, Hematology and Immunology accreditation.
- Continue fulfilling research projects within research and science support at Na Homolce Hospital.
- Expand the diagnostic spectrum of examinations with an emphasis on molecular genetics.

## Educational and other specialized activities

- Training and reference service activities:
  - we are accredited by the Ministry of Health, which allows us to conduct our own specialized training in the field of clinical biochemistry according to the Bulletin of the Ministry of Health (2022-2027)
  - participation in teaching at the Institute of Medicinal Chemistry and Clinical Biochemistry, 2nd Faculty of Medicine Charles University
  - internship of students of secondary schools and universities, especially from the Higher Vocational School and Medical School, Alšovo nábřeží, Prague 1
- Membership of individual staff members in professional associations: Czech Medical Association of J. E. Purkyně, Czech Society of Clinical Biochemistry, Czech Hematological Society, Czech Society for Transfusion Medicine, Czech Society on Thrombosis and Hemostasis, Czech Society for Atherosclerosis, Czech Society of Allergology and Clinical Immunology, Czech Society of Intensive Care Medicine, Czech Immunological Society, European Atherosclerotic Society
- Membership of editorial boards of peer-reviewed journals: Transfusion and Haematology Today (MUDr. Pagáčová)

## Department of Clinical Microbiology and Antibiotic Center

Head of Department, Jan Kubele, MD

### Staff

Physician with specialized competence in medical microbiology	3
Physician in preparation for specialised competence	1
Physician with specialised competence in infectious medicine	1 (contract consultant)
University professional in laboratory methods	2
Medical Laboratory Specialist	10
Medical laboratory technician	6
Orderly	3
Assistant	1

### Clients

- Na Homolce Hospital
- External clients

Number of external healthcare facilities and surgeries

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Number of facilities	95	97	89	76	77	74	55	64	54	49	50

### Laboratory diagnostics

Objednávky mikrobiologických vyšetření pro Nemocnici Na Homolce

Year	Bacteriology	Serology	Number of serology methods performed	Genetic testing (extrahuman genome, COVID)	Smears from the environment	Total
2013	71,966	14,169		130	NA	86,265
2014	57,130	11,474		117	NA	68,721
2015	55,921	10,949		163	NA	67,033
2016	57,478	10,368		227	NA	68,070
2017	59,250	10,754		260	1,912	72,176
2018	59,358	13,031		273	2,586	75,248
2019	58,185	11,608		378	2,254	72,245
2020	50,823	10,885		13,720	1,947	77,375
2021	55,964	15,916		14,658	1,893	86,538
2022	60,705	11,957	45,565	22,904	1,947	97,513
2023	56,424	11,362	49,512	19,702	5,798	93,286

## SUMMARY OF ACTIVITIES OF DEPARTMENTS PROVIDING COMPLEMENTARY SERVICES

### Requests for microbiology examinations for external clients

Year	Bacteriology	Serology	Genetic testing (extrahuman genome, COVID)	Total
2013	23,218	3,261	0	26,479
2014	17,353	2,376	0	19,729
2015	15,738	2,447	0	18,185
2016	15,509	2,391	0	17,900
2017	13,012	2,216	0	15,228
2018	11,631	1,964	2	13,597
2019	10,819	1,684	7	12,510
2020	7,215	1,262	72	8,627
2021	6,190	1,792	35	8,017
2022	7,854	3,410	226	11,490
2023	7,642	6,878	549	14,596

### Requests for microbiological tests - total

Year	Bacteriology	Serology	Genetic testing (extrahuman genome, COVID)	Smears from the environment	Total
2013	95,189	17,451	130	NA	112,640
2014	74,502	13,935	117	NA	88,437
2015	71,659	13,403	163	NA	85,062
2016	72,994	12,770	227	NA	85,764
2017	72,263	12,772	260	1912	87,144
2018	71,010	15,024	275	2,586	88,620
2019	69,382	13,292	385	2,254	84,928
2020	58,038	12,147	13,792	1,947	85,924
2021	62,154	17,708	14,693	1,893	96,448
2022	68,557	15,367	22,904	1,947	108,775
2023	64,066	18,240	20,251	5,798	108,355

## Antibiotic Center

### Consultations provided to inpatients of Na Homolce Hospital

Year	Number of consultations	Bedside consultation / week (selected ICU 3 times a week)	Patients consulted (total number)	Average number of consultations per patient
2013	10,021	55	3,004	3.4
2014	10,215	54	2,478	4.1
2015	10,599	54	2,654	4.0
2016	11,388	58	2,798	4.1
2017	10,885	55	2,879	3.8

2018	11,027	58	2,971	3.7
2019	11,038	56	3,146	3.5
2020	10,608	57	2,782	3.8
2021	10,113	64	2,659	3.8
2022	9,590	73	2,490	3.9
2023	10,017	75	2,522	4.0

## Public activities

- The National Reference Centre for Infections Associated with Healthcare of the National Institute of Public Health: The Department cooperates with the center and plans to be a reference point for the components of the hospital's antibiotic policy, especially surveillance of nosocomial infections. The Department is now accredited by the Ministry of Health for professional reference activities.
- Central Coordination Group of the National Antibiotic Program (CCG NAP). The Senior Consultant a member of the advisory body to the Minister of Health and the documents for the tools of the antibiotic program of hospitals are being prepared.
- Working group for antibiotic resistance monitoring: the Department is part of the network of antibiotic resistance monitoring laboratories in the Czech Republic.
- National Reference Laboratories of the NIPH: the Department cooperates and participates in national surveillance.

## Detailed information on activities and services of the Department of Clinical Microbiology and Antibiotic Center

### Laboratory diagnostics

- During 2023, the implementation of all tools and user customization of the Laboratory Information System (LIS) continued in collaboration with the IT department and the follow-up to the NIS (Hood) implementation. Furthermore, the cooperation with the Department of Medical Genetics was deepened, including the recording of results in the new LIS. Newly, results from most external laboratories are available to consulting physicians via electronic communication.  
In terms of operations, it was important to manage the reconstruction of the laboratory for hospital samples, especially the replacement of all department windows during uninterrupted operation.
- Improvement and development of LIS enables more effective use of data to assess trends and indicative behaviour in NHH. The aim is to improve quality, standardization and process control. Early identification of MALDI TOFF and detection of resistance phenotypes can gradually improve and increase the effectiveness of antibiotic therapy for serious conditions. Thanks to the extended standard working hours on weekdays (until 6 pm) and the 24-hour telephone consultation service, the attending physician can receive essential information on patient therapy and infection prevention and control.
- Diagnosis of respiratory diseases is further standardized, including indications and interpretations, after the addition of a respiratory agent detection panel.  
Cooperation with a specialized mycological laboratory (and the National Reference Laboratory for Antifungals) is functional. We participate in the surveillance of yeast infections of the bloodstream.
- In cooperation with colleagues from Na Homolce Hospital, the examination offer of the Department of Clinical Microbiology and Antibiotic Center is being standardized and uniquely identified according to organ diagnostics. The introduction of electronic requests forms is planned and the computerisation of surveillance of healthcare associated infections has already begun.
- In collaboration with the Infection Control Team, screening for multidrug-resistant bacteria and a reporting system for carbapenem-resistant gram-negative rods (CRE), including improved identification of carbapenemase-producing Enterobacteriaceae (CPE), was also set up. As part of the rapid screen-

ing, direct PCR diagnostics of resistance genotypes was introduced to enable efficient early isolation of patients with epidemiologically high-risk resistance phenotypes. Screening for methicillin-resistant staphylococci (MRSA) was improved. Screening was introduced during the migration wave from Ukraine.

- A tender has been launched for the automated implementation of MIC testing for clinically relevant isolates and multidrug-resistant microorganisms, which will allow for more accurate assessment of susceptibility phenotypes and the possibility of targeted and individualized therapy.
- A unified algorithm for investigating the major mechanisms of resistance of gram-negative rods, including susceptibility testing to basic and backup antibiotics, has been developed. The Department of Clinical Microbiology and Antibiotic Center continues to cooperate with the Laboratory of Molecular Diagnostics of the NHH in this area.
- Planned serological diagnostics of toxoplasmosis and rubella were introduced on the biochemical analyzer.  
Diagnostics of *Helicobacter pylori* antigen in stool was introduced.
- The overall success rate of the EQE (external quality assessment) is 98.4%, the EQE covers the entire range of methods within the scope of accreditation.

### Antibiotic Center

- The number of consultations and patients consulted in 2023 was higher compared to the previous year and there were more consultations for patients in intensive care.
- Mixed and complicated infections were dealt with more frequently, with a particular increase in the number of surgical site associated infections following complicated GIT operations. The consultancy service continues to be provided to external clients.
- As a consequence of the worsened epidemiological situation after the covid-19 pandemic and migration during the war in Ukraine, cases of colonization with multidrug-resistant pathogens have become more frequent. In particular, the number of cases involving carbapenem-resistant Enterobacteriaceae, vancomycin-resistant enterococci and, more recently, linezolid-resistant strains is increasing. In collaboration with the Department of Hospital Pharmacy, unavailable reserve drugs were requested and the positive ATB list was updated.
- In the overall analysis, the above changes are already reflected in the proportion of resistant infectious agents arising in NHH. Cases caused by MRSA are an exception. Most cases caused by multidrug-resistant agents are evaluated as imports from other health care facilities.
- Close collaboration with the Department of Clinical Pharmacy was supported by individualization and monitoring of ATB therapy. Rules for the use of reserve ATBs registered in the Czech Republic (fidaxomicin, ceftazidime/avibactam, fosfomicin and daptomycin) in the treatment of complicated infections were set. Preparation of recommendations for indications of betalactam ATBs was started.

### Infection prevention and control

- In 2023, the hospital addressed the continued incidence of covid-19 and the increased incidence of other viral and bacterial community viral illnesses (streptococcal disease, influenza, rise in vaccine-preventable diseases). Collaboration with infection control team nurses included a review of the diagnostic and follow-up isolation and quarantine agenda for NHH patients and staff.
- Cultivation screening of patients was modified with a focus on greater efficiency.
- In 2023, NHH again joined the European point prevalence study organized by the ECDC. The last study was conducted in 2017. Aimed at collecting information on the incidence of healthcare-associated infections, the results of the study provide a range of valuable information on infection prevention and control in the participating countries. NHH was also selected as the reference hospital in which the validation study was conducted.
- Some partial results of the work on infection prevention and control and experience in this field were actively presented at the Congress of Clinical Microbiology and Infectious Medicine. Both presentations were very well received by the audience.
- Expert support is continuously provided for the pandemic and Infection Control Team meetings by monitoring the epidemiological situation, respiratory viral infections season and other community agents.

- We managed to analyse and update the recommendations for proper hemoculture collection to reduce the collection of single hemocultures. As a result, the percentage dropped from 10 to 6 per cent of total collections.
- In 2023, there was an increased overall incidence of nosocomial bloodstream infections compared to 2015-2019. Compared to the peak years of the Covid-19 pandemic, there was a decline. The trend is further below 2 cases per 1,000 treatment days.
- The assessment of trends in each category is subject to ongoing analysis using the same methodology. Trends are regularly reported by the Infection Control Team to the appropriate departments and appropriate measures are taken. The number of primary catheter-related nosocomial infections of the bloodstream continues to increase, with secondary infections showing this trend, particularly in the segment of surgical site infections. This is partly related to expanded surgery and a higher number of higher-risk procedures in the Department of General Surgery.
- The number of patients colonized or infected by MRSA decreased compared to the previous year, the number of MRSA transmissions during hospitalization at Na Homolce Hospital also decreased and is generally low. The number of infections caused by *Clostridioides difficile* was stable and dominated by imported cases. The incidence of intercepted colonization or infection caused by CPE is gradually increasing in line with the national trend, but continues to be sporadic in NHH. This is a testament to the quality implementation of infection control, nursing and barrier care processes.

### Operational and economic parameters

- Other specialist in healthcare was recruited for the position of biologist and physician in preparation for specialized competence in medical microbiology. The aim is also to fill the position of senior physician in the field of infection prevention and control.
- Despite the difficult conditions of the ongoing reconstruction of NHH building and the laboratories of the Department of Clinical Microbiology and Antibiotic Center, the Department continued its activities unchanged.
- Cooperation with a certified infectologist continues, who provides NHH with his/her consultancy services whenever possible.
- There has been a change of personnel in the position of senior laboratory technician, who has been entrusted with the function since January 1, 2023. She was subsequently appointed to the office as of April 1.
- The implementation of the LIS was accompanied by a gradual revision of reporting and the possibility of better control of the allocated funds. Progressive tenders further reduce costs.
- The audits and standardization of indications will enable a more efficient offer of examinations provided.
- A new apparatus for anaerobic cultivation of material samples and two new microscopes were installed, one of which is equipped with a camera for taking pictures of microscopic mounts.

### Certification and accreditation

- The Department received accreditation under the requirements of the ČSN EN ISO 15189:2013 standard and holds an accreditation certificate for examinations in the field of clinical microbiology. In 2023, there was a regular surveillance visit by CAI staff incorporating flexibility in standard methods, and no non-compliance or opportunity for improvement was issued. In December 2024, re-accreditation will take place in conjunction with the transition to the new standard ČSN EN ISO 15189: 2022.

### External activities

- The Department cooperates with the National Reference Center for Infections associated with healthcare within the National Institute of Public Health. In 2023, this included collaboration on the development of the planned European Point Prevalence Study (PPS), recommended infection prevention and control practices, and with the local WHO office and national recommendations for surveillance of nosocomial bloodstream infections. The staff of the Department participates actively in professional courses and expert groups of the European Center for Disease Control and Prevention (ECDC, ARHAI).

- Methodological preparation of electronic surveillance of bloodstream infections in the ECDC project "Design and Implementation of Multinational Surveillance Systems Using Routinely Collected Electronic Health Records in EU/EEA. (FWC - ECDC/2022/03) - Electronic Health Record (EHR)-based Bloodstream Infections (BSI)" and "BSI - Antimicrobial Resistance Surveillance".
- The Department participates in the training of infection control nurses and physicians organized by the National Reference Center for Healthcare-Associated Infections, National Institute of Public Health, NRC HAI NIPH.
- The Department cooperates with the National Reference Laboratory for Antibiotics of the National Institute of Public Health and in 2023 it again participated in the Respiratory Study.
- The Department participates in the EARS-Net (European Antimicrobial Resistance Surveillance Network) and HAI-Net (Healthcare-Associated Infections Surveillance Network) programs, which are organized by the ECDC. The Department participates in the Euro-GASP program, as well as in the surveillance program for *Gonococcus* antimicrobial resistance organized by the European Center for Disease Prevention and Control (ECDC, Stockholm).
- The Department cooperates with newly formed reference laboratories for mycotic agents.
- The Department cooperates with several higher vocational schools and a cooperation with University of Chemistry and Technology Prague is prepared in providing teaching and supervising expert work. At NHH, two students are preparing for their PhD thesis and collaborating on internal grants.
- The staff of the Department is actively involved in lecturing activities of professional associations and teaching courses of undergraduate and postgraduate education.

### Research activities, Staff Publications for 2023:

- Leadership of an internal grant focused on the diagnosis and evaluation of multidrug-resistant gram-negative bacteria and collaboration on other NHH internal grants. Preparation of an internal grant to evaluate and improve genetic diagnosis of respiratory diseases.
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## Department of Pathology

Head of Department, Martin Syruček, MD

### Activities of the Department

The Department carries out all bioptic and cytological diagnostics within Na Homolce Hospital and, in cooperation with other laboratories providing complementary services, provides some bioptic and cytological diagnoses to selected private and state healthcare facilities in Prague. In recent years, we have also been providing a consultation service (second reading) of diagnostically difficult neuropathological biopsy cases for the departments of pathology in the Czech Republic and Moravia. The scope of our work also includes necroptic (autopsy) activities, including organizational services when delivering bodies to the funeral service. The Department organizes clinical pathology workshops with the analysis of selected autopsies and biopsies for individual clinical departments in order to increase the quality of the medical care provided.

### Organizational units of the Department

The Department performs its activities as a whole and is not comprised of individual organizational units or cost centers. The newly reconstructed premises are, however, divided into a histology and cytology laboratory and a special methods laboratory (immunohistochemistry).

### Basic data

Staff:

- 4 independently operating physicians working full-time and one physician with 0.5 FTE and one physician with 0.8 FTE
- 6 full-time and 2 part-time laboratory assistants
- 1 autopsy technician working full-time
- 2 secretaries (assistants) working full-time
- 1 quality manager in charge of the requirements of the Department in connection with SAK accreditation processes and ISO 15189

### Premises

The division and equipment of the Department of Pathology comply with the requirements of ISO 15189. They include:

- administrative section with 6 offices for physicians, one office for the senior laboratory technician and quality manager, administrative offices, rooms for employees, changing rooms, storerooms for preparations and workshop rooms,
- the autopsy unit with a dissection room, preparation rooms and cooling equipment with 20 units for the deceased (these premises are separated by a sanitary filter),
- laboratory premises (also separated by a sanitary filter) with 6 rooms – histology laboratory, cytology laboratory, special methods laboratory, laboratory for cutting materials fixed in formol-saline, laboratory for cutting materials using microtomes, and a cytology screening room.

## Performance overview

### Biopsy diagnostics

	2009	2011	2012	2016	2017	2019	2020	2021	2022	2023
Numbers of sections	58,429	61,631	65,890	61,401	64,155	62,244	57,366	57,415	55,993	62,889

### Cytological diagnostics

	2009	2012	2016	2017	2019	2020	2021	2022	2023
Number of examinations	2,738	2,205	2,249	2,152	2,155	2,091	1,687	2,091	2,435
Numbers of sections	6,214	4,932	5,191	4,589	4,044	4,158	2,596	4,158	2,437
BAL (bronchoalveolar lavage)	187	162	114	123	200	174	137	174	205

In 2023, the number of biopsy examinations increased by about 15% and the number of bronchoalveolar lavages increased significantly compared to previous years. In 2023, the Department laboratory increased the number of immunohistochemistry examinations, due to the complicated diagnostics of the tested samples and the necessity to increase the accuracy of tumour lesion classification.

### Autopsy activities

	2009	2014	2016	2017	2018	2019	2020	2021	2022	2023
Number of deceased	270	225	233	226	239	240	240	274	225	233
Number of autopsies	154	123	136	121	122	121	93	118	84	70

The autopsy rate for 2023 amounts to 33%.

### Workshops

In 2023, the physicians of the Department attended 123 clinicopathologic conferences, where 11 autopsies and 908 biopsy cases were discussed.

	2005	2009	2015	2017	2018	2019	2020	2022	2023
Number of workshops	127	85	95	114	139	126	120	123	121
Number of necropsy cases	65	20	21	26	18	17	12	11	5
Number of biopsy cases	377	684	753	692	901	775	887	908	5

For many years, in addition to clinical and pathological workshops, we organize regular weekly multidisciplinary mammology workshops with the attendance of a surgeon, radiologist and oncologist, focused on the analysis of biopsy examinations based on the clinical picture, together with analysis of therapeutic and prognostic outlooks. Workshops are also organized once a week or once every two weeks in cooperation with the Department of ENT and clinical and pathological oncology workshops with the Department of General Surgery take place once a week. We regularly participate in weekly neuro-oncology seminars with head physicians of the neurosciences, oncologists of the Motol University Hospital and physicians of Na Bulovce University Hospital, or with physicians of the Proton Center and with physicians of the Department of Radiodiagnostics, where all biopsy cases for the past period are discussed in a seminar manner. Seminars with other disciplines are held according to current needs about twice a year, clinical-pathological seminars with the Department of Cardiac Surgery are held quite irregularly. These workshops are part of the further training program of clinical departments, aimed at increasing the quality required under the accreditation standards.

## Significant changes and events

- External quality assessment: Since 2011, the pathology laboratory has participated in external quality assessment in cooperation with the contractual company, SEKK spol. s.r.o. The Department of Pathology obtained the certificate. Further assessment is performed by means of sent consultations and interlaboratory comparisons.
- As part of the Center for Neuro-Oncology section of the Czech Society for Oncology of the Czech Medical Association of J. E. Purkyně, the Department performs biobanking of brain tumours for research purposes.
- The Department of Pathology has the accreditation for the teaching program of medical specialities in the field of pathology from the Czech Ministry of Health.
- The Department of Pathology considers the transition of the normal operations of the Department to the new information system in both biopsy and necropsy operations to be a relatively significant change.

## Development perspectives for 2024

- We will maintain and further improve the standard of bioptic diagnostics and clinical and pathological workshops.
- The range of immunohistochemical antibodies has been extended according to the needs of individual hospital departments.
- We perform most of the immunohistochemical staining on a semi-automated device, which leads to improved and faster diagnosis of both tumour and non-tumour lesions.
- CAI ISO accreditation: in March 2024, the Czech Accreditation Institute will conduct a re-accreditation as part of the extension of the accreditation, which is necessary to ensure the proper operation of the Department of Pathology.
- SAK accreditation: the Department of Pathology as part of Na Homolce Hospital successfully participated in the SAK accreditation procedure in 2023, which is valid for the next years.
- The Department of Pathology participates in a number of grant projects.

## Section for Nursing Care

The Section for Nursing Care focuses on the methodical management and professional management of nursing care in Na Homolce Hospital. The Section includes the quality management department, nutritional therapy department, central sterilization, health and social care, documentation department, hospital hygiene and hospital chaplains.

Also in 2023, we focused our activities on supporting the education of medical staff, introducing and improving new nursing procedures, improving the quality of the nursing process, prevention and health promotion.

We have advanced the implementation of the new NIS/HOOD across NHH disciplines, which includes electronic nursing documentation. We continue to improve and adapt the nursing documentation based on our experience in practice.

Thanks to this information system, we not only meet the requirements of national standards and legislation, but we can better obtain, process and evaluate data that serve as quality indicators for nursing research, statistics, etc.

We continue to cooperate with the 3rd Faculty of Medicine Charles University and other medical schools. We have a teaching and training center for the quality preparation of students. The students' professional practice then continues in the departments where they are professionally guided by our trained mentors.

We are also pleased with the constant interest of medical school students from all over the Czech Republic in the Open Days at our hospital. The program is always prepared according to the requirements and wishes of the school in such a way as to be most beneficial and at the same time not to disrupt the running of individual departments.

Of course, we also place emphasis on supporting lifelong learning paramedic staff. We actively prepare and offer educational seminars and courses that deepen their knowledge and skills. We organize training events within our hospital or use external educational institutions.

### **This year we focused on the following activities:**

- Coaching of paramedic staff / section nurse – long-term project from 2022. Focused on specific communication skills, development of management skills and knowledge of group processes in practice.
- PICC A MIDLINE project – start of a new team under the auspices of the Department of Anesthesiology and Reanimation.
- E-learning training:
  1. Blood derivatives – principles and rules when administering blood
  2. How to collect biological material correctly
- Course in the development of palliative care – communication.
- Course “Approach to the aggressive patient”.

The palliative care team is another indispensable element in our hospital. Mutual teamwork and active education of the staff brings a new direction in nursing care. The medical staff strives to provide quality care to all patients, taking into account their bio-psycho-social and spiritual needs.

We do not forget about the important part of the patient treatment in the field of nutritional therapy. Our hospital is taking steps to increase dietary diversity. We have also expanded our counselling activities in the form of a nutritional unit, which helps our patients with, among other things, the promotion of healthy eating.

We are constantly striving to improve patient care with the help of quality, erudite nurses. We try to positively motivate the staff of the non-medical health professions not only through friendly communication, but also through employee bonuses, and we do not forget to thank them on the occasion of World International Nurses' Day.

Our activities are also aimed at promoting public health, which is declared in the Health 2030 Strategic Framework and sets the direction for the development of health care in the Czech Republic for the next decade.

Our events are aimed at promoting the health of the public and our employees.

It is worth mentioning:

- Health Day - "Healthy lungs and digestive tract"
- Hand Hygiene Day
- International Nurses Day
- Stroke Awareness Day
- Stop decubitus

All of our steps and activities in nursing care are directed towards meeting nursing goals, maintaining and increasing quality standards and providing safe, quality care. In this spirit, we prepared for the SAK 2023 accreditation audit, which we defended with a very good result.

Our common goal is to continuously monitor all social trends and strive to be a competitive healthcare facility that responds flexibly and effectively to changes or new threats to public health.

Our common goal: a satisfied employee - a satisfied patient - a satisfied hospital.

## Department of Biomedical Engineering

Head of Department, Miroslav Halíč, MSc

### Activities of the Department

The main task of the Department is to ensure the operation and servicing of medical equipment and measuring instruments at Na Homolce Hospital. Other activities include monitoring new trends in biomedicine and of technical documents for tenders for new medical device equipment. The Department also prepares applications to commission for the assessment of the deployment of medical instrument funds from the Czech Ministry of Health and applications for grants. The Department of Biomedical Engineering at Na Homolce Hospital is an accredited facility of the Czech Ministry of Health for postgraduate teaching of the Institute for Further Training in Healthcare, including specialisations in biomedical engineering in the Czech Republic.

#### Prevention and Maintenance Section

It provides preventive safety checks of medical equipment, as provided for by Act No. 375/2022 Coll., on Medical Devices and In Vitro Diagnostic Medical Devices, as amended, as well as SAK standards. It carries out regular internal maintenance, ensures timely prevention and servicing by external equipment providers and keeps documentation on all medical devices. It also provides professional assistance in introduction of new medical technology, monitors progress in medical technology, provides navigation systems for neurosurgery and autotransfusion for vascular surgery. It also cooperates with clinical departments in the preparation of technical specifications for public contracts and checks the tender documentation and tenders for the Department of Procurement and Public Contracts. It takes over the gained medical equipment and provides instruction to the personnel operating the medical equipment. The Department is managed by Ing. Sabina Svobodová.

#### Metrology Section

This section makes sure that the metrology standards at Na Homolce Hospital comply with Act No. 505/1990 Coll., on Metrology, as amended, and the related metrology regulations. The above legislation requirements are an essential part of the Metrology Order directive, which stipulates the responsibilities, rights and obligations of employees in the use of measuring instruments and metrology safety with regard to the accuracy and reliability of the measurements of all measuring instruments in all activities of the hospital. The Metrology Section carries out general maintenance and internal calibration of instruments measuring temperature, pressure, humidity and time and ensures the external calibration of etalons and working instruments measuring weight, length and time. It also organizes external official verification of devices measuring temperature and weight and eye tonometers. The Authorized Metrology Center is an essential part of the Metrology Section and provides official verification of the measuring instruments for indirect measurement of pressure - tonometers, within the scope of Decision No. 61/2000 and Authorisation Conditions, Ref. No. 930/00/20 of the Office for Standards, Metrology and Testing. The head of the section is Zdeněk Malý.

### Changes / new events in the previous year

- Successful completion of all sub-projects from the IROP React-EU grant program (renewal of instrumentation of the Comprehensive Cardiovascular Center of Na Homolce Hospital and acquisition of a hybrid PET/MRI scanner),
- Ing. Sabina Svobodová was appointed the head of the preventive services section.
- Preparation and submission of a grant application for the project "Development of highly specialized oncological care at NHH".



# SCIENTIFIC AND RESEARCH ACTIVITIES OF THE HOSPITAL

Na Homolce Hospital has fulfilled the definition of an organization for research and knowledge dissemination according to Commission Regulation (EU) No. 651/2014, Art. 2(83), and has been included on the list of research organizations kept by the Ministry of Education, Youth and Sport on the basis of Section 33a of Act No. 130/2002 Coll., on Research and Development Support.

Research and development at Na Homolce Hospital are supported by means of combined financing – institutional support from the Czech Ministry of Health and targeted support grants which are carried out both by individual departments of the hospital and in cooperation with a number of excellent research facilities across the entire country. The majority of research teams have also been involved in clinical studies over a long period of time, with the Cardiac Center having the largest share in these studies. Administrative support for grant projects and clinical studies is provided by the Department of Science and Research, which also includes the Medical Library.

### Grant projects

In 2023, Na Homolce Hospital managed a total of 45 grant projects, of which 41 were supported by the institutional support of the Czech Ministry of Health, and 4 targeted support grants were supported by the Agency for Medical Research of the Czech Ministry of Health.

Grants based on institutional support from the Ministry of Health of the Czech Republic

- In 2023, the hospital received institutional support for the long-term conceptual development of the research organization, based on the decision of the Ministry of Health of the Czech Republic (Decision No. 1 RVO-NHH/2023). The support was used and distributed based on the functional system of internal grants, their assessment by a specialized commission and approval by the Scientific Board and the hospital Director.
- Of the supported projects, 1 research project commenced in 2016, 1 in 2017, 2 research projects in 2018, 6 in 2019, 12 research projects in 2020, 3 research projects in 2021, 7 projects in 2022 and 9 were the new projects. NHH has again supported a wide range of research projects in order to maintain the plan for a broader research base for the future period, which is fully in line with the evaluation methodology for research organizations on the basis of which grants are awarded.

### Special-purpose grants of the Agency for Medical Research

Department	Project title	Allocated number	Grant provider (main beneficiary)
Stereotactic and Radiation Neurosurgery	Clinical, imaging and biological predictors of the effects of deep brain stimulation in Parkinson's disease	NV19-04-00233	AZV MZ ČR (1st Faculty of Medicine)
Cardiology	Evaluation of the significance of right-to-left shunt in patients with PFO after suffered systemic embolism	NU20-02-00310	AZV MZ ČR (University Hospital Hradec Králové)
Neurosurgery	Strategies to specifically target the microenvironment of brain metastases for diagnosis and treatment	NU22-03-00318	AZV MZ ČR 1ST FACULTY OF MEDICINE CHARLES UNIVERSITY



## SCIENTIFIC AND RESEARCH ACTIVITIES OF THE HOSPITAL

Department	Project title	Allocated number	Grant provider (main beneficiary)
Cardiac surgery	Early surgical treatment or conservative treatment (Cautious Waiting Strategy) of patients with significant asymptomatic aortic regurgitation	NV19-04-00233	FNKH (University Hospital Hradec Králové), FNUSA (St. Anne's University Hospital Brno), CKTCH (Center for Cardiovascular and Transplant Surgery)

### Clinical studies

In 2023, a total of 107 active clinical studies/partial health services were recorded, of which 14 clinical studies were completed during 2023.

#### Number of studies performed in 2023 - by subject and department

Clinical studies	Medical supplies	Medicines	Partial health services	Total number	
Cardiology	59	1	0	60	56%
Cardiac surgery	1	0	0	1	1%
Neurology	1	2	0	3	3%
Oncology	0	1	0	1	1%
Radiodiagnostics	2	0	4	6	6%
Nuclear medicine / PET	0	0	34	34	31%
Neurosurgery	1	0	0	1	1%
Internal medicine	0	1	0	1	1%
<b>Total</b>	<b>64</b>	<b>5</b>	<b>38</b>	<b>107</b>	<b>100%</b>

#### Performed Audits of Clinical Studies

In 2023, there were no audits of the clinical studies by the State Institute for Drug Control - SIDC.

### Summary

#### Basic breakdown of research projects in Na Homolce Hospital in 2023

Scientific project type	Subject	Number
Clinical studies	Medical supplies	64
	Medicines	5
	Partial health services for external researcher	38
Research grants	Institutional support (internal grants)	41
	Special purpose support (external grants)	5
<b>Research projects - total</b>		<b>153</b>

## PUBLICATIONS IN 2023

## Report on publication activity for 2023

Publication activity serves as a basis for the evaluation of scientific activity at the institutional and national level. Each year, data on the publication and conference activities of the hospital's authors are recorded in an internal database of publications. This data is used for internal scoring of the scientific performance of employees and as a basis for their remuneration. Data are also sent to the Research, Development and Innovation Information System (RDIIIS), which collects information on research, development and innovation projects supported by public funds at the national level.

As of 05 March 2024, the following is recorded for 2023:

- 121 papers (by 12.3% less than in 2022)
- 124 presentations at conferences (by 4.2% more than in 2022)
- Total 245 entries (by 4.7% less than in 2022)

Of the 121 papers, 69 papers come from journals with impact factor and 34 papers are published in journals without impact factor. There are also 3 books, 14 book chapters and 1 articles in popular periodicals. Of the 124 conference presentations, 86 records relate to international congresses, 32 records relate to national conferences and 6 records relate to seminars.

Papers	number of records
Articles from Journals with IF	69
Articles from peer-reviewed journals without IF	34
Books	3
Chapters from books	14
Articles in popular periodical	1
Dissertation works	0
<b>Total</b>	<b>121</b>

Appearances at conferences	number of records
International congresses	86
National/local conferences	32
Workshops	6
<b>Total</b>	<b>124</b>

## PUBLICATIONS IN 2023

The list of the most successful authors according to their score is given in Table No. 1. Table No. 2 shows the ranking of the most successful departments by point value. Table No. 3 lists the impact papers:

Table No. 1: Ranking of the 10 most unsuccessful authors in 2023

Author	Department	Share
Neužil Petr, prof. MUDr. CSc. FESC	KAR	17.08%
Šedivý Petr, MUDr. Ph.D.	VS (Vascular surgery)	7.52%
Petrů Jan, MUDr.	KAR	7.11%
Málek Filip, prof. MUDr. Ph.D. MBA	KAR	6.57%
Ošťádal Petr, prof. MUDr. Ph.D.	KAR	4.96%
Přindišová Helena, MUDr.	RAD	3.70%
Naar Jan, MUDr. Ph.D.	KAR	3.04%
Liščák Roman, doc. MUDr. CSc.	Stereotactic and radiation surgery	2.92%
Reddy Vivekanand	KAR	2.77%
Krámská Lenka, prof. . Ph.D.	KPSY	2.61%

Table No. 2: Ranking of the 10 most successful departments in 2023

Department	Share
Cardiology	52.11%
Department of Radiodiagnosics	10.82%
Vascular surgery	10.20%
Department of Stereotactic and Radiation Neurosurgery	6.24%
Clinical psychology	2.85%
Cardiac surgery	2.53%
Neurosurgery	2.48%
Internal medicine	2.43%
Pathology	2.17%
Clinical Pharmacy	1.55%

Table No. 3: In 2023, 69 papers in journals with impact factor were identified in the database

Article Citation
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### Conclusion

In 2023, there was a decrease in the number of papers entered in the publications database (by 12.3%), which is due to the incomplete record of the works published for 2023. In addition, there is a higher participation in conferences (4.2% more than in the previous year). Among the papers, more articles in impact journals are recorded than articles in non-impact journals. Overall, there has been a 4.7% decrease in the total number of entries compared to the previous year.



# QUALITY AND SAFETY

## International JCI accreditation



The long-term quality of healthcare, the safety of patients and the staff working at Na Homolce Hospital are the main pillars of its stability. From 2005 to 2020, Na Homolce Hospital was the holder of the Joint Commission International (JCI) international accreditation for healthcare facilities.

Since 2020 NHH has been accredited by the domestic company SAK, o. p. s. In January 2023, NHH received a certificate of accreditation from this recognized company for the second time, valid until January 26, 2026.

## National accreditation by SAK



Accreditation, i.e. the assessment of the hospital's quality system by an independent third party – SAK, o. p. s., is voluntary and the most demanding in the Czech Republic. It consists of 97 assessed standards, which is significantly more than the legislative basis of 17 standards.

Since 21 June 2012, Spojená akreditační komise, o. p. s., has been an authorized evaluator of the quality and safety of inpatient health care for types of health care in accordance with provisions of Section 5(2)(f) to (h) of Act No. 372/2011 Coll., according to the restrictions on granting authorisation pursuant to Decree No. 102/2012 Coll.

SAK accreditation standards cover all clinical areas of the activities of the facility: diagnostic care, anesthesiology and surgery, drug management and, last but not least, coordination and continuity of care. However, requirements are also placed on non-clinical areas related to patient care: e.g. catering, hospital operation (repairs, services, technical wiring), cleaning, hygiene in the hospital environment, fire protection, management.

From January 25 to January 27, 2023, an accreditation survey of Spojená akreditační komise, o.p.s., took place at NHH, including an assessment of the quality of care and patient safety in accordance with the relevant provision of Act No. 372/2011 Coll., on Health Services and the Conditions for Providing them, as amended, and Decree No. 102/2012 Coll., on Evaluation of Quality and Safety of Inpatient Health Care, as amended. Based on this survey, NHH obtained accreditation for the period of the following 3 years.



## Quality systems at Na Homolce Hospital

### ISO 15189

The following laboratories: Department of Clinical Biochemistry, Hematology and Immunology, Biopsy Laboratory of the Department of Pathology and Clinical Microbiology and Antibiotic Center of Na Homolce Hospital have had a quality management system in place since 2011 (awarded by the Czech Institute for Accreditation) that was accredited in accordance with ISO 15189. ISO 15189 (Medical laboratories - special requirements for quality and competence) focusing on the professional management of laboratories such as the process flow of sample examination, conditions for blood taking, collection of biological material, interpretation and provision of results and the safety and ethics of laboratory work. The accreditation of the quality management system in laboratories in accordance with ISO 15189 implies an increased confidence in compliance with the required level of services provided.

### ISO 9001

Since 2004, a system of quality management in accordance with ISO 9001 has been in place in the Department of Nuclear Medicine for the provision of diagnostic services using immunoanalysis laboratory methods and imaging methods such as scintigraphy, computing, single photon and positron emission tomography (CT, SPECT, and PET/CT), including the preparation of radiopharmaceutical drugs. All services are provided according to an approved Quality Assurance Policy. This type of certification covers work organization, including process management, management of resources, monitoring, and assessment of procedure efficiency.

### ISO 13485

Since 2014, the Department of Central Sterilisation has held certification for the system of quality management of medical devices in accordance with the international standard ISO 13485. The Department of Central Sterilisation is a workplace that ensures disinfection, preparation before sterilisation and material sterilisation for all facilities at Na Homolce Hospital, as well as the provision of contractual services for the offices of general and specialist practitioners.

## Internal quality and safety audits

Year-round internal audits (process, targeted, consulting) are conducted to determine compliance with established systems/processes in common practice, for example regarding medical records, drug management, hygienic-epidemiological regime, occupational health and safety, environmental and information safety, storage and disposal of chemicals and waste, complement operation and other areas related to the provision of health services.

More than 730 internal audits were conducted in 2023, including audits of closed medical records. These audits provide feedback on the level of quality and safety settings in NHH, based on preventive and corrective measures or opportunities to improve ongoing processes. During 2023, the removal of findings from SAK, o. p. s. audit was ongoing.

## Outpatient satisfaction

At the end of the year 2023 from January 10 to December 12, 2023, a self-administered questionnaire survey was conducted in the outpatient part of the hospital. A total of 982 questionnaires were processed. Overall patient satisfaction was reported at 93%. Patients are very satisfied with the care at NHH, coming most often on the recommendation of a physician or from their own experience. NHH has a good reputation among patients and professionals. Patients are also very satisfied with the staff at the outpatient units and the communication between physicians and nurses.

## Adverse event management (AE)

Monitoring and systematic evaluation of adverse events is one of the key approaches that enables NHH to increase the quality and safety of health services provided.

200 reports were recorded in 2023. We did not observe any significant deviations in reporting. Na Homolce Hospital has been involved in the central Adverse Events Reporting System aiming at monitoring the incidence of adverse events in clinical practice, central reporting and provision of reporting guidelines in accordance with a single terminology and application of preventive measures, i.e. effective proactive protective strategies. Data are transferred once a year to the Czech Institute of Medical Information and Statistics. On the basis of data obtained from various health care facilities in the Czech Republic, the Institute of Health Information and Statistics makes comparisons in individual event categories (falls, pressure ulcers, etc.) and according to the type of facility. Na Homolce Hospital is included in category "S" - specialized hospitals/centers. In comparison, we have been achieving very good results for a long time.

The Quality Department is a member of the working group for the creation of national methodologies for adverse event reporting systems, see <http://shnu.uzis.cz/>.





# INFORMATION DISCLOSURE

## Information disclosure pursuant to Act No. 106/1999 Coll., on Free Access to Information

### **The Annual Report for 2023 on Information Disclosure pursuant to Act No. 106/1999 Coll., on Free Access to Information**

In accordance with the provisions of Section 18 of Act No. 106/1999 Coll., on Free Access to Information (hereinafter referred to as the "Act"), Na Homolce Hospital, Company Identification Number: 00023884, based at Roentgenova 37/2, 150 00, Prague 5 (hereinafter referred to as "NHH") publishes this Annual Report for 2023.

In connection with for information received on the basis of the Act (hereinafter referred to as the "Request"), NHH hereby publishes the following:

**a. The number of submitted requests for information and the number of decisions issued on the denial of a request**

In 2023, NHH received nine (9) requests for information. NHH issued four (4) partial denials and one (1) denial decision.

**b. The number of appeals filed against the decision**

In 2023, NHH received four (4) appeals against the decision on the request.

**c. Judgements regarding the review of the lawfulness of the decision on the request and an overview of the expenses incurred in connection with court proceedings in accordance with the Act**

In 2023, NHH did not receive any judgement in that case. NHH did not incur any expenses related to litigation under the Act in 2023.

**d. List of granted exclusive licenses**

No exclusive licenses were granted in connection with the requests received in 2023.

**e. The number of complaints filed under Section 16a of the Act, reasons for filing and the manner of their settlement**

NHH received five (5) complaints under Section 16a of the Act in 2023. The complaints were filed primarily on the grounds under Section 16a(1)(a) of the Act - i.e. on the grounds of disagreement with the processing of the request under Section 6 of the Act, and further on the grounds under Section 16a(1)(a) of the Act - i.e. on the grounds of failure to provide information. NHH handled the complaints in accordance with Section 16a(5) of the Act. Complaints were thus dealt with under reconsideration or were forwarded to a superior authority.

**f. Other information related to the implementation of the Act**

NHH does not have any other information that relates to the application of the Act during 2023.

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