

ANNUAL REPORT 2003





NA HOMOLCE HOSPITAL VISION

WE ARE ONE OF THE MOST MODERN EUROPEAN HOSPITALS

We offer state-of-the-art diagnostics and therapeutic procedures

We are professionals and can ensure top quality health care in all areas.

We provide our patients with the fastest, least invasive procedures to identify their disorder and to treat it effectively.

We provide coverage for the whole Czech Republic in areas that require unrivalled methods and techniques, particularly in our cardiovascular program and neuroprogram.

We strive to achieve prestigious accreditation and certification, to ensure us a secure position in the European health care field.

We have satisfied clients

We respect our clients – which contributes to the prestige of our hospital.

We realize that we must serve our clients whatever the situation.

We respond to the most demanding requirements from our clients at a European and global level.

We always display a high standard of behavior and work in partnership with our clients.

We are a friendly hospital

We can significantly improve the quality of life for our patients by the quality of our care.

We are ready and willing to work with others, both within the hospital and at other centers at home and abroad.

We are happy to share our knowledge and experience and actively participate in training and research activities.

We can fulfill the needs of our clients, partners and employees thanks to our long-term financial stability.

We support our employees, our employees support us

We base our future on the personnel development of our staff – the basic resource of a highly effective hospital.

We encourage helpful and correct interpersonal relationships.

We value our employees' loyalty to our common goals.

We respect the hospital employee code, maintain and develop standards of behavior for the hospital employees.

NA HOMOLCE
HOSPITAL





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INTRODUCTION BY THE MANAGING DIRECTOR

The fundamental goal for the successful development of Na Homolce is to ensure that it provides high quality specialized care, while paying maximum attention to the needs of our customers and, currently, to the level of investment required. I believe we have made major progress towards achieving this goal, whether through the additional investments made to reinforce our teams of specialists, our positive approach to accreditation and certification, or subjecting our work and procedures to a process of analysis and continually upgrading them in order to comply with the wishes of our patients.

Apart from these traditional trends, in 2003 we drew up a new vision for the hospital to reflect changes occurring in our immediate environment. In the light of our country's accession to the European Union, our goals must conform to new conditions of increased competition from abroad.

We have defined the new mission of our organization to be one of the most modern specialist hospitals in Europe. We want to achieve the same position this decade in the highly competitive European market as we did in the domestic market during the nineties. Given our high concentration of state-of-the-art diagnostic and therapeutic equipment and our top quality staff, our hospital is well-placed to become a unique center, dealing with complex problems related to diseases caused by arteriosclerosis, whether in the peripheral vessels, heart or cerebral vessels. Apart from this, the range of treatments we provide in the fields of neurology, neurosurgery, spinal surgery and numbers of sub-specializations related to the clinical neurosciences, means that Na Homolce Hospital is destined to become a leading central European center in this area. We are prepared to bring the latest methods into application in fields such as genetics, robotization and to bring the latest minimally invasive treatment methods to Czech health care.

This definition of the hospital's purpose sets out a clear strategy for development in the years to come for each program, each department, team or employee. In general, our goal is to impose procedures on our work in order to standardize the diagnostic and therapeutic processes for each individual condition in order to achieve the highest quality care at the lowest possible cost. I see this as the fundamental goal for modern medicine – to accommodate our customers (patients and referring physicians) and to provide high quality medicine at low cost in order to make specialized care available to the highest possible number of patients.



*Oldřich Šubrt, M.D., Ph.D.
Managing Director*



HOSPITAL MANAGEMENT AND STATUTORY BODIES

HOSPITAL MANAGEMENT



Managing Director
Oldřich Šubrt, M.D., Ph.D.



Deputy Director
of Treatment and Preventive Care
Milan Ročeň, M.D.



Deputy Director
of Finance and Business
Pavel Brůna, M.Sc.



Deputy Director
of Human Resources
Pavel Chyňa, M.Sc.



Deputy Director
of Internal Audit Control
Iva Rechová, M.Sc.



Deputy Director
of Hospital Operations
Jan Kapal, M.Sc.



Head Nurse
Libuše Budská

SUPERVISORY BOARD



Chairperson

Ing. Milan Fafejta, M.Sc.

Vice-Chairperson: Assoc. Prof. Eliška Jelínková, M.S., Ph.D.

Members: Martin Kocourek, M.Sc.

Jan Polák, M.Sc. (Arch.)

Pavel Henyš, M.D.

Libuše Budská

Report by the supervisory board on management activities in 2003

The supervisory board of Na Homolce Hospital was established by the Czech Ministry of Health with effect from January 1st, 1996. Its activities in 2003 were governed by the provisions of its Memorandum of Association, issued by the Ministry of Health of the Czech Republic, and fully respected it.

There were four meetings of the supervisory board in 2003.

The supervisory board focused on management activities in the following areas:

- effective financial management of the hospital associated with achieving financial results to enable the implementation of development programs,
- conformity to the investment plan
- reduction of debt levels and optimizing cash-flow to meet them
- developing strategic goals for the hospital to the year 2007
- drawing up a plan of costs, income and investments for 2004
- improving the quality and extent of health care,
- cooperating with health care facilities and state institutions.

The Supervisory Board has not found any significant deficiencies in the areas it has controlled.

The Supervisory Board would like to express its thanks for Dr Šubrt, the management and all the employees for the level of health care provided and the financial results achieved in 2003.

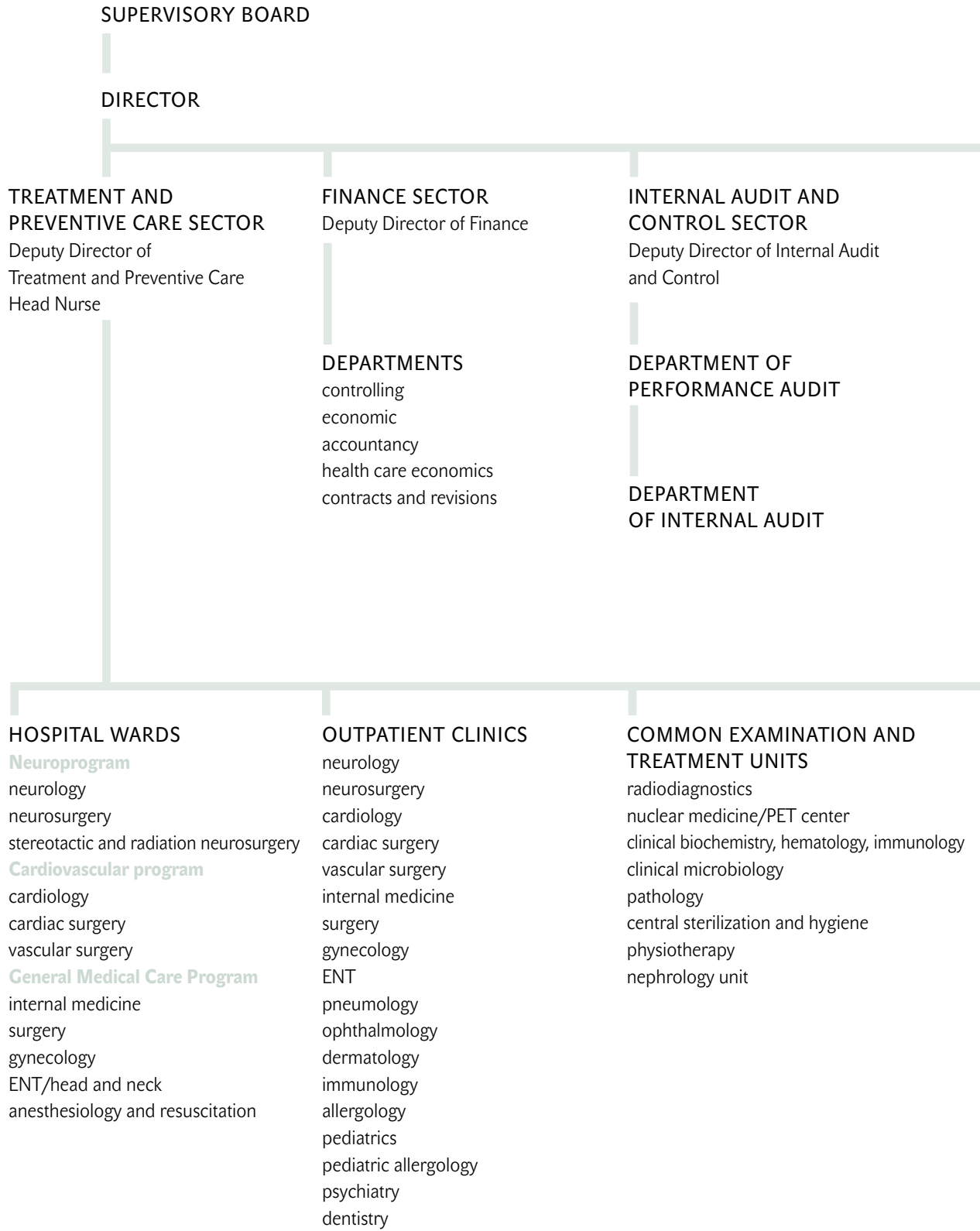
Milan Fafejta, M.Sc.

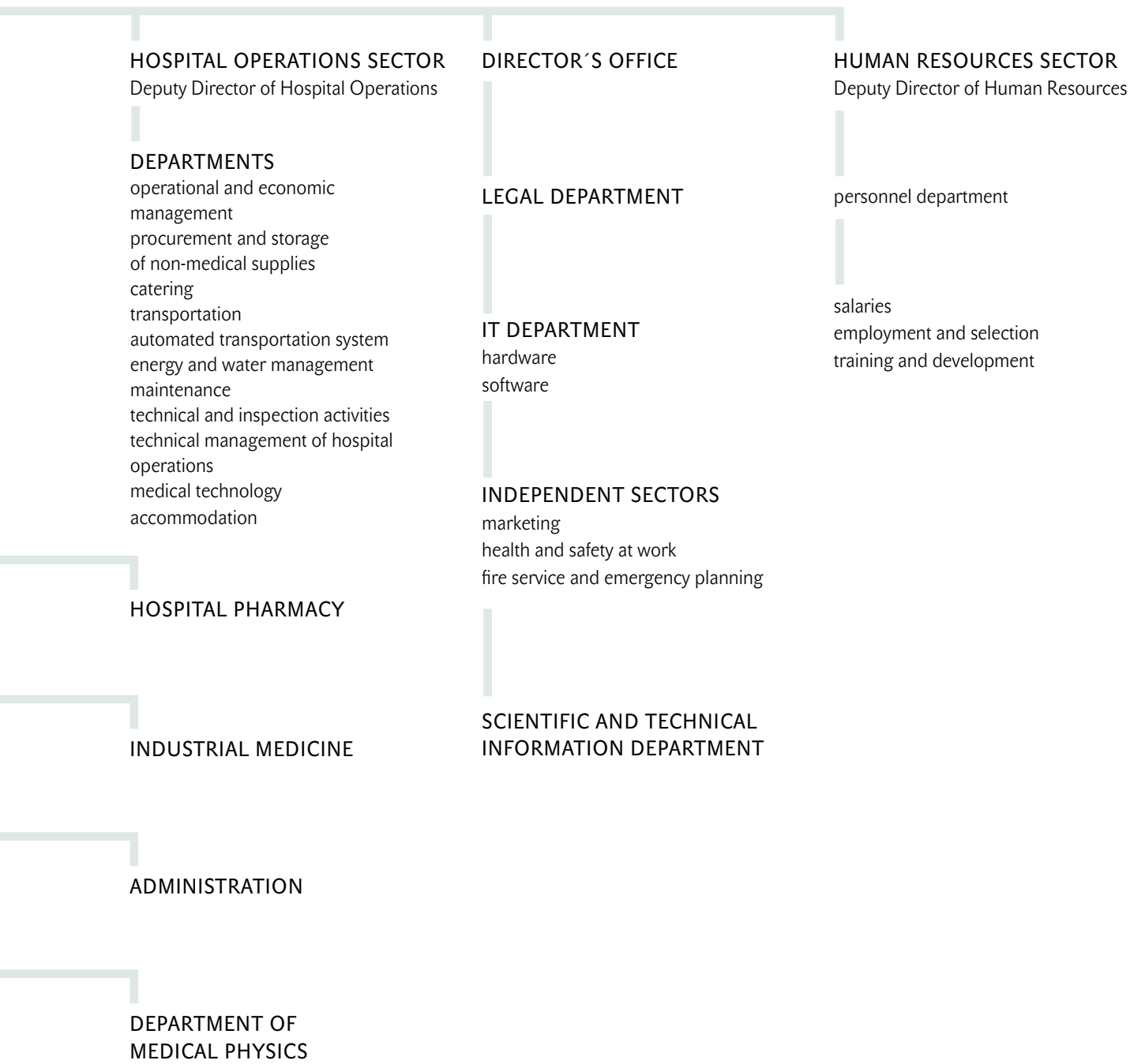
Chairman

of the Supervisory Board



ORGANIZATIONAL STRUCTURE 2003





2003 NEWS

New space for cardiosurgery

In order to improve the care of patients recovering from heart surgery, Na Homolce had already decided during 2002 to separate cardiosurgery and vascular surgery into two independent units. The newly completed Department of Cardiac Surgery commenced operations in its newly reconstructed area on November 1st 2003 and has a total capacity of 34 beds, including intensive care.

PET/CT begins operations

Celebrations accompanied the launch of a new machine that will bring significant improvements to the diagnosis of oncological diseases on November 12th 2003 in Na Homolce Hospital's Department of Nuclear Medicine. This so-called PET/CT hybrid scanner combines the principles of both positron emission tomography (PET) and computer tomography (CT).

The Siemens PET/CT hybrid scanner is the first of its type in the Czech Republic. Given the ultramodern configuration of its components, this model was only the seventh in Europe when it was installed. A specialist seminar on the occasion of the gala opening was attended by 250 guests.

Benefit performance for the Homolka Foundation

At a gala performance of Don Giovanni, organized for Na Homolce Hospital on December 17th, 2003 at the Estates Theater, the Homolka Foundation received a cheque for 523 thousand crowns. This sum was donated by the Pražská energetika power company, represented by its Managing Director, Drahomíra Ruta. The gift was used to buy ventilators for artificial respirators used by patients in the Department of Neurosurgery at Na Homolce Hospital.

Na Homolce Hospital receives accreditation

In its efforts to provide top quality health care to its patients, following clearly defined standards, Na Homolce decided to apply for the internationally recognized accreditation from Joint Commission International (JCI). In 2003, all the prescribed standards for medical and non-medical operations were prepared and guidelines binding on all employees and based on these standards will be drafted during 2004. The nursing staff in particular underwent intensive training in unifying specialized activities in 2003. Na Homolce Hospital also participated in producing the first commented Czech translation of the Accreditation Standards for Joint Commission International hospitals.

NA HOMOLCE HOSPITAL

A SPECIALIZED HEALTH CARE CENTER WITH NATIONWIDE COVERAGE FOR CARDIOVASCULAR AND NEUROSURGICAL TREATMENT

Neurology/Neurosurgery Program

Comprehensive care for patients suffering from diseases of, or injuries to, the central and peripheral nervous system, as well as diseases of, or injuries to, the spine. The three independent program centers provide a full range of care, from diagnostic services and therapy by conservative methods, through complex neurosurgical operations including radiosurgery and stereotactic surgery, to the latest methods of interventional neuroradiology. Part of the treatment process also covers related physiotherapy and long-term follow-up of patients.

Department of Neurology

Department of Neurosurgery

Department of Stereotactic and Radiation Neurosurgery

Cardiovascular Program

Comprehensive care for patients suffering from diseases of the cardiovascular system, the heart and blood vessels. The three independent program units focus on complex diagnostics and treatment by conservative methods, as well as surgical treatment of cardiac and vascular diseases including interventional radiology. Medical care includes special physiotherapy for patients with diseases of the circulatory system and follow-up of selected groups of patients.

Department of Cardiology

Department of Cardiac Surgery

Department of Vascular Surgery

Program of General Medical Care

A comprehensive range of general health care treatment, supported by a large outpatient department and related wards. The four independent hospital wards within this program offer patients a complete range of diagnostic and therapeutic procedures for diseases related to internal medicine and general surgery, particularly minimally invasive surgery. These are closely linked to the extensive outpatient department with clinics covering individual specializations.

Department of Internal Medicine

Department of Surgery

Department of Gynecology and Minimally Invasive Surgery

Department of ENT/Head and Neck Surgery

Basic data

	to 12. 31. 2002	to 12. 31. 2003	Increase
Staff	1,570	1,670	106 %
Beds	422	357	85 %
Number of patient admissions	15,984	16,815	105 %
Number of interventions	12,838	13,491	105 %
Number of outpatient examinations	759,150	805,946	106 %

Number of admissions

	to 12. 31. 2002	to 12. 31. 2003	Increase
Neurology-Neurosurgery program	4,160	4,383	105 %
Cardiovascular program	7,181	7,389	103 %
General Medical Care program	5,905	6,114	104 %
Total	17,246	17,886	104 %

Number of beds to 12. 31. 2003

	IC Beds	Total	%
Neurology-Neurosurgery program	26	106	30 %
Cardiovascular program	67	147	41 %
General Medical Care program	39	104	29 %
Total	132	357	100 %

Number of admissions 1998–2003

2003	16,815
2002	15,984
2001	14,968
2000	14,026
1999	13,208
1998	13,023

Number of interventions (including one-day surgery) 1998–2003

2003	13,491
2002	12,838
2001	11,357
2000	10,914
1999	10,837
1998	9,729

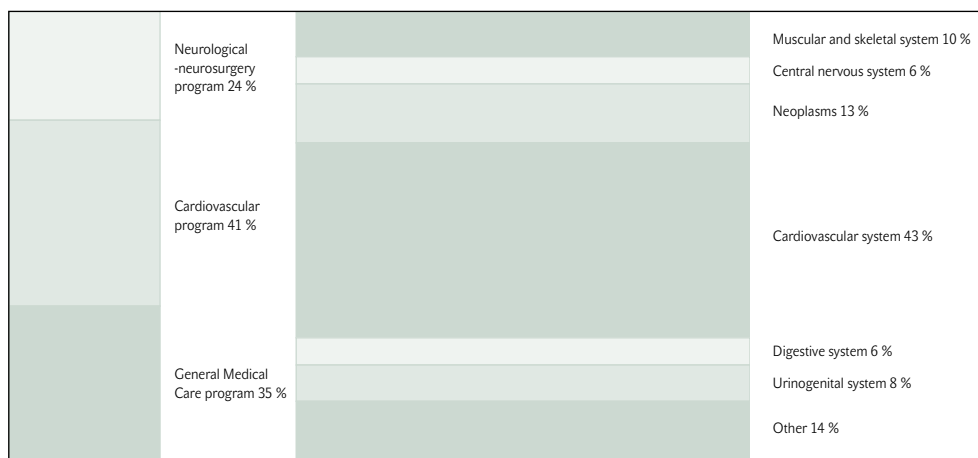
Average length of stay 1998–2003

2003	6.25
2002	6.58
2001	6.37
2000	6.57
1999	6.64
1998	6.58

Number of days of treatment 1998–2003

2003	105,104
2002	96,611
2001	95,273
2000	92,103
1999	87,718
1998	85,733

Breakdown of main diagnoses in 2003



Note: This data does not include the Veleslavín Department of Pneumology, transferred on July 1st to Thomayerova Teaching Hospital

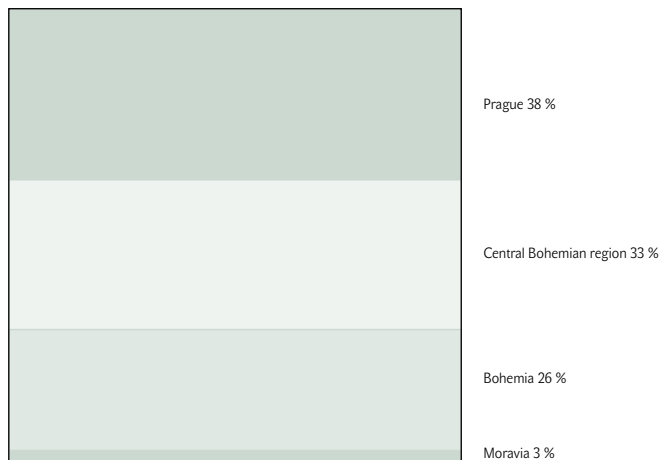
Mortality 2000-2003

	2000	2001	2002	2003
NNH	1.9 %	2.2 %	2.1 %	1.6 %
Neurology	2.2 %	2.3 %	2.2 %	3.7 %
Neurosurgery	1.7 %	2.1 %	1.5 %	1.5 %
Gamma knife	0.0 %	0.1 %	0.1 %	0.3 %
Cardiology	1.4 %	1.7 %	1.4 %	1.2 %
Cardiac surgery			3.2 %*	2.5 %
Vascular surgery	2.5 %	3.4 %	2.3 %	2.2 %
Internal medicine	4.2 %	4.3 %	3.2 %	3.0 %
General surgery	1.2 %	1.1 %	0.5 %	0.2 %
Gynecology	0.0 %	0.0 %	0.0 %	0.0 %
ENT	0.4 %	0.1 %	0.6 %	0.2 %

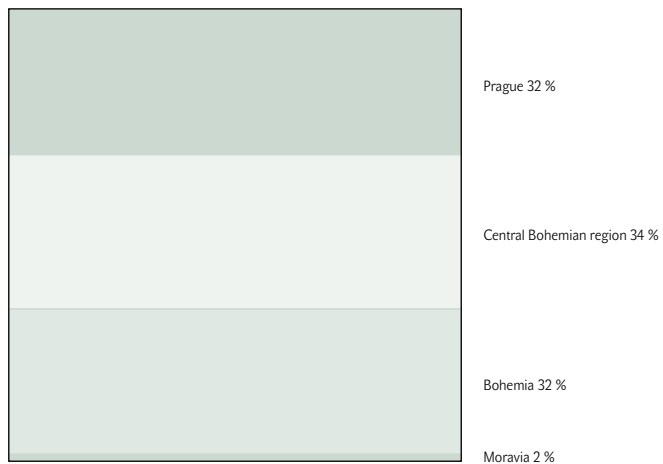
**for the period between May 2002 and March 2003*

Origin of admitted patients in 2003 by %

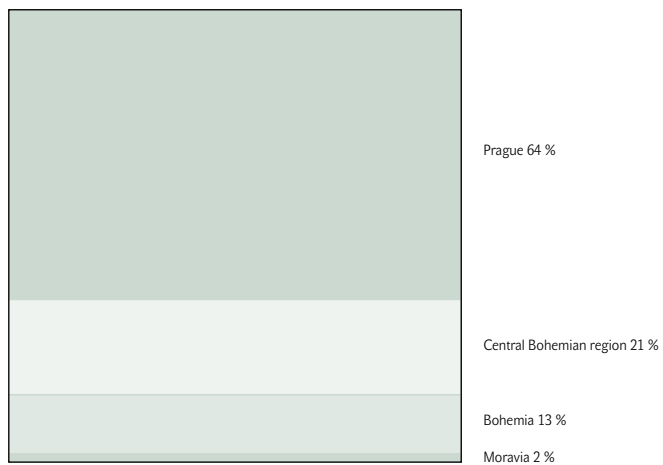
Neurology-Neurosurgery program



Cardiovascular program



General Medical Care program



Responses to a questionnaire on patient satisfaction

(on a scale of 1 to 5)

Admissions procedure

2003	1.12
2002	1.13
2001	1.12
2000	1.12
1999	1.16
1998	1.34

Willingness to respond to requests

2003	1.13
2002	1.12
2001	1.12
2000	1.13
1999	1.16
1998	1.17

Interest in the patient and his/her needs

2003	1.21
2002	1.20
2001	1.20
2000	1.20
1999	1.23
1998	1.33

Standard of care provided

2003	1.08
2002	1.10
2001	1.09
2000	1.10
1999	1.10
1998	1.11

Explanations given of the health disorders

2003	1.26
2002	1.27
2001	1.29
2000	1.29
1999	1.31
1998	1.41

Information provided on discharge

2003	1.23
2002	1.22
2001	1.25
2000	1.27
1999	1.27
1998	1.37

Na Homolce Hospital benchmarking

Bed occupancy %

2003	91	73
2002	93	76
2001	92	75
2000	88	74
1999	87	71
1998	85	72

**data field at the top Na Homolce Hospital, at the bottom Czech Republic*

Average number of days of treatment 1998–2003

2003	6.3	8.1
2002	6.6	8.4
2001	6.4	8.5
2000	6.6	8.6
1999	6.6	8.6
1998	7.0	9.0

**data field at the top Na Homolce Hospital, at the bottom Czech Republic*

NEUROLOGICAL/
NEUROSURGICAL
PROGRAM
|NEUROPROGRAM|



DEPARTMENT OF NEUROLOGY

Head of Department: Miroslav Kalina, M.D., Ph.D.

The department focuses on diagnostics and the non-surgical treatment of diseases of the brain, spinal cord, peripheral nerves and muscular apparatus, also using special electrophysiological and ultrasonic diagnostic methods. It provides complex outpatient and ward care in these specialized areas. The department also includes an **Epilepsy Center**, providing specialized outpatient and ward care for patients suffering from epilepsy. It comprises two *epilepsy counseling units*, which examined 2,112 patients in 2003, and an *epilepsy monitoring unit* (EMU) which, in addition to its other activities, conducts long-term monitoring and selection of patients for epileptosurgical treatment and provides consultancy for neurological centers throughout the Czech Republic. During 2003, 212 patients were admitted to the EMU, of whom 21 were monitored by surgical implantation of electrodes and 42 were referred for epileptosurgical treatment. A project for the treatment of epilepsy involving the removal of epileptogenous tissue by stereotactic surgery was prepared during the course of 2003 and is due to be implemented in 2004. The treatment of epileptic patients over the year was marked by strong interdisciplinary cooperation between the hospital's neuro-scientific departments and, following established tradition, contributions were made by the Department of Neurosurgery, the Department of Stereotactic and Radiation Neurosurgery, the Department of Radiodiagnostics and the Department of Nuclear Medicine/PET Center. Na Homolce is one of the three largest epileptology and epileptosurgical centers in the Czech Republic with the largest number of operated patients.

The specialized Intensive Care Unit for the treatment of acute and extremely serious neurological cases also serves as a postgraduate training center for neurological intensive care. During the course of 2003, nine intra-arterial thrombolyses were performed, 12 patients with polyradiculoneuritis received comprehensive treatment, including a series of plasmaphereses, and nine patients with resistant epilepsy were treated. In 2003 an extension was built on to the Intensive Care unit, which has further expanded its capacity.

Outpatient care also covers, in addition to the outpatient clinic for the treatment of general neurological disorders, **the neurovascular clinic** and the **spinal counseling unit**, which also refers patients for surgical interventions to the spinal canal, as well as the **evoked potentials laboratory**, **the electromyographic laboratory** and **the transcranial Doppler ultrasound unit**.

Teaching

Na Homolce's Department of Neurology is the teaching base for the Institute of Health Care Postgraduate Education in the fields of acute neurology, epileptology and electroencephalography. Teaching by individual doctors from the department in 2003 covered both undergraduate and post-graduate courses, mainly consisting of lecturing and supervising courses and fellowships for the Institute of Health Care Postgraduate Education in the areas listed above.

Research

The Department of Neurology was involved in 1 grant project in 2003 (see annex on Grants).

Publications and Lectures

Physicians from the Department of Neurology presented a total of 107 lectures at domestic events and 2 lectures abroad during 2003. 9 works were published in Czech professional journals and two contributions appeared in foreign professional publications.

Basic data

Number of beds	33
standard	27
intensive care	6
Number of physicians	14
Number of nurses	44
Number of outpatient examinations	15,755
Epilepsy counseling unit	2,112
Number of patient admissions	1,145
Number of days of treatment	9,470
standard	7,714
intensive care	1,756
Bed occupancy rate (as a %)	86.4 %
standard	86.3 %
intensive care	88.5 %
Average length of stay (in days)	6.2
standard	6.1
intensive care	7.6

Treatment of cerebral vascular events by local intraarterial thrombolysis (LIT) 1999–2003
Angiographic results from a group of patients treated by LIT

Location	Number of patients	Average age	Effect of thrombolysis		
			Full recanalization	Partial recanalization	Unsuccessful
ACI	3	33	1	1	1
ACM	19	51	15	1	3
VA/BA	9	53	5	3	1
total	31	51	21	5	5

DEPARTMENT OF NEUROSURGERY

Head of Department: František Tovaryš, M.D., Ph.D.

In 2003 the Department of Neurosurgery worked to develop its complex diagnostic, surgical and follow-up care of patients suffering from diseases of the central and peripheral nervous system. As usual, patient therapy fell into four key areas, namely **the neurooncological, neurovascular, epileptosurgical and spinal programs**. Aside from these priority programs, the department continued to develop a range of minor neurosurgical specializations, such as neurotraumatology, neurosurgery of the peripheral nerves, functional neurosurgery and others. The total number of operations performed during 2003 rose to 1,966, representing a 2% increase on the previous year. The breakdown of surgical procedures by type remains stable and there was a decrease in the number of epileptosurgical operations. The mortality rate for operated patients was 1.51% in 2003.

The Neurooncological program made further progress in the development of its experimental Boron Nuclear Capture Therapy (BNCT) for cerebral tumors in 2003, carried out in association with the Nuclear Research Institute in Řež. The results of the project to date were successfully published in foreign professional journals and presented at international congresses. Promising clinical trials of a radiofrequency TTF therapy began last year for the treatment of certain types of malignant tumors, and the use of perioperative function navigation for specific types of cerebral tumors continued to be intensively developed. The department also began working in collaboration with the Motol Teaching Hospital and the University of Pittsburgh Medical Center in the area of genetic therapy of cerebral oncological diseases.

During the period under review, the navigational operating systems, with a complete software package enabling cerebral and spinal surgery to be performed at a level comparable with the best available internationally, were in constant use. Simultaneous navigation devices operating in two operating theaters became a routine procedure, as did the program of operating on the pathological processes in the functionally important areas of the brain using neuronavigational and detailed electrophysiological intraoperative scanning and monitoring.

In **the Neurovascular Program**, the complete range of endovascular treatments for vascular diseases of the brain, including a combination of open surgery with subsequent endovascular intervention for multiple pathological processes, were performed in the department in 2003. Cooperation with the Department of Vascular Surgery and the Department of Cardiosurgery enabled surgical management of the extracranial vessels. The use of intraoperative angiography for surgical management of certain complicated cerebral aneurysms, carried out in close cooperation with the hospital's Department of Radiodiagnostics, and the application of intraoperative Doppler became routine procedures.

Na Homolce's Department of Neurosurgery **Epileptosurgical Program** is the leader in its field for the Czech Republic. The total number of patients undergoing epileptosurgical interventions stabilized at around forty in 2003, representing the highest number of patients with drug resistant epilepsy operated on in the Czech Republic. Indications for surgery in 2003 included extratemporal types of epilepsy, requiring complex preoperative diagnostics and postoperative care. Resections were routinely performed using navigation techniques. A total of thirty vagal stimulators were applied to patients to treat epilepsy. In 2003, Na Homolce neurosurgeons were the first in the Czech Republic to perform an MST (multiple subpial transection) to the epileptic node at the speech center of the brain. Within the framework of **the Spinal Program** there was further development in stabilization and fixation interventions for traumatic, oncological, inflammatory and degenerative diseases to the whole length of the spine. There was a significant increase in the use of dynamic cervical stabilization procedures by replacing the intervertebral discs with movable prostheses (a total of 20 interventions).

In functional neurosurgery, positive progress was achieved in the program to treat unrelievable pain

by DREZ operation of the medulla oblongata. Na Homolce Hospital is the only unit to perform this intervention in the Czech Republic. In addition, in association with the Department of Anesthesiology and Resuscitation, the department continued to develop spinal neurostimulation techniques and to apply pharmaceutical pumps to treat certain forms of spinal pain.

In 2003 the Department of Neurosurgery was awarded Medtronic certification as a training center for cerebral and spinal navigational techniques and the dynamic stabilization of the cervical vertebrae. The first foreign participants attended a specialized course at the centre.

Teaching

In 2003, surgeons from the Department of Neurosurgery contributed to undergraduate teaching courses for medical students at the first and third Medical Faculties of Charles University, as well as postgraduate courses in Neurosurgery for the Institute of Health Care Postgraduate Education program.

Publications and Lectures

Amongst their lecturing activities, surgeons from the Department of Neurosurgery gave a total of nineteen lectures at domestic and seven at foreign professional events during 2003. Eight of their works were published in Czech professional journals.

Basic data

Number of beds	65
standard	45
intensive care	8
intermediary	12
Number of physicians	17
Number of nurses	91
Number of outpatient examinations	9,559
Number of patient admissions	2,470
Number of days of treatment	19,239
Bed occupancy rate (%)	93 %
Average length of stay (in days)	8.15

Breakdown of surgical interventions in 2003

Cerebral tumors	208
Cerebral vascular diseases	54
Spinal diseases including tumors	1,049
Injuries	55
Epileptosurgery	33
Miscellaneous	575
Total	1,974

Number of surgical interventions 1990–2003

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
154	780	994	1,156	1,370	1,588	1,590	1,666	1,577	1,600	1,744	1,837	1,930	1,974

DEPARTMENT OF STEREOTACTIC AND RADIATION NEUROSURGERY

Head of Department: Roman Liščák, M.D., Ph.D.

The clinical activity of the department is focused on the non-invasive radiosurgical treatment of certain types of cerebral tumors, cerebral vascular malformations and functional diseases of the brain using the **Leksell gamma knife** as well as stereotactic and functional neurosurgery. The outpatient clinic, in addition to providing consultation and follow-up care for the department's neurosurgical patients, also provided chemotherapy for patients with oncological diseases and specialized ophthalmologic care.

In 2003 the number of patients treated in the department increased by 3% as against 2002, and by 9% compared to the 2001 figures. The total number of surgical interventions performed in the department reached 980 (including Leksell gamma knife irradiation and other surgical interventions). Neurostimulators were implanted in eleven patients.

Patients from Slovakia made up a mere 2% of patients referred.

Among the patients irradiated by the Leksell gamma knife in 2003 were patients from the Ukraine, who were offered this treatment free under the terms of a tripartite agreement between Na Homolce Hospital, the Charta 77 Foundation and the Ukraine (ten children) and those who received the same conditions as Czech patients (seven adults).

In 2003 internal grant projects were initiated, in association with the Střešovice ÚVN Eye Clinic, to study the effects of treating glaucoma by Leksell gamma knife at an early stage and the influence of Leksell gamma knife irradiation on the progress of age-influenced macular degeneration. Both projects are supported by the Elekta company. The number of patients with ophthalmologic referrals for irradiation by the Leksell gamma knife made up 9% of all referrals last year.

In keeping with the move towards an integrated hospital system of care for epilepsy patients, a unit was fully equipped to perform stereotactic electrocoagulation ablative treatment of temporal epilepsy.

The Department of Stereotactic and Radiation Neurosurgery is the only center of its kind in the Czech Republic and the Eastern European region. The quality of its work and the range of its experience have ranked it among the foremost centers of its type worldwide.

Teaching

In 2003, physicians and other specialists from the Department of Stereotactic and Radiation Neurosurgery participated in the undergraduate teaching program in neurosurgery for medical students attending the Third Medical Faculty of Charles University. As part of their postgraduate training, 301 trainees visited the department during 2003, mainly as part of their studies at the Institute of Health Care Postgraduate Education as well as professional training programs organized by the International Atomic Energy Agency in Vienna.

Research

Two grant projects were completed by the Department of Stereotactic and Radiation Neurosurgery in 2003 (see annex on Grants).

Publications and Lectures

Physicians from the Department of Stereotactic and Radiation Neurosurgery gave eleven lectures at professional events organized within the Czech Republic and five lectures at foreign conventions. Six of their works appeared in domestic professional publications, and seven papers were published in the foreign professional media.

Basic data

Number of beds	
short stay	8
Number of physicians	6
Number of other college graduates	1
Number of nurses	10
Hospital ward	
Number of patient admissions	768
Number of operations carried out using the Leksell gamma knife	803
Number of other stereotactic operations	177
Number of days of treatment	1,125
Bed occupancy rate (%)	66.6 %
Average length of stay (in days)	1.46
Outpatient clinic	
Number of outpatient examinations	2,553
Number of written outpatient consultations	374
Number of patients visiting the oncological clinic	272
Number of patients visiting the eye clinic	102
Number of neurophysiological examinations	248

Number of patients treated using the Leksell gamma knife from 1992–2003

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
16	182	235	303	514	459	461	511	566	735	781	803

Radiosurgical treatment by Leksell gamma knife in 2003 broken out by individual diagnosis 2000–2003

	2000	2001	2002	2003
Malignant tumors of the brain	34 %	30 %	31 %	33 %
Benign tumors of the brain	41 %	34 %	37 %	39 %
Functional diseases of the brain	14 %	16 %	14 %	10 %
Vascular malformations of the brain	11 %	9 %	9 %	9 %
Eye referrals		11 %	9 %	9 %

NEUROPROGRAM 1998–2003

Development in the numbers of Neuroprogram patient admissions

1998	549	850	1,868	Total 3,267
1999	620	906	1,921	Total 3,447
2000	669	866	2,112	Total 3,647
2001	815	1,042	2,226	Total 4,083
2002	788	970	2,402	Total 4,160
2003	768	1,145	2,470	Total 4,383

◆ *Gamma knife*
◆ *Neurology*
◆ *Neurosurgery*

Development in the numbers of Neuroprogram outpatient examinations

1998	2,064	10,397	6,743	Total 19,204
1999	2,207	12,403	6,970	Total 21,580
2000	2,212	13,333	7,318	Total 22,863
2001	2,583	13,654	7,913	Total 24,150
2002	2,544	14,115	9,020	Total 25,679
2003	2,553	15,755	9,559	Total 27,867

◆ *Gamma knife*
◆ *Neurology*
◆ *Neurosurgery*

CARDIOVASCULAR PROGRAM



DEPARTMENT OF CARDIOLOGY

Head of Department: Associate Professor Petr Niederle, M.D., Ph.D.

The clinical activities of the department cover the complete spectrum of preventive, diagnostic and therapeutic methods for patients with diseases of the heart and blood vessels, or with a high risk of incurring these diseases. Just as in previous years, the department provided full coverage of several individual specialized areas. **Acute cardiology** along with its coronary unit is devoted to the examination and treatment of patients suffering from acute and severe conditions using intensive care and the monitoring of their essential vital functions. Last year 806 patients were admitted. **Invasive cardiology** deals with diagnostics of diseases of the coronary arteries, including therapeutic interventions, where 2003 registered a steep rise in invasive cardiologic examinations, particularly coronarographies with an annual total of 2,469 as well as the implantation of stents. Invasive cardiology also covered cardiac electrophysiology, particularly the diagnostics and treatment of cardiac rhythm disorders. Cardiosurgery collaborated with the department's Cardiac Stimulation Center to become the first in the Czech Republic to introduce the MAZE cryoablation method during cardiosurgical operations on patients with chronic atrial fibrillation. MRI (magnetic resonance imaging) was introduced as a routine procedure for the same group of patients, enabling 3D imaging of the cardiac chambers and electroanatomical mapping of the heart. In 2003 we also implanted a digital heart pacemaker in a patient for the first time and again performed extractions of cardiostimulator and ICD electrodes using radiofrequency energy.

Non-invasive cardiology continued to offer patients a wide range of diagnostics of cardiovascular diseases during this period, including ultrasound, electrocardiography exercise tests and echocardiograms, as well as long-term monitoring of cardiac rhythm and blood pressure, among others. A new method of tissue Doppler echocardiography was introduced for use on patients suffering chronic heart failure. **Clinical cardiology** traditionally covers diagnostics and treatment of cardiovascular diseases in both hospital wards as well as specialized outpatient clinics, and shared in providing the final treatment and physiotherapy for acute conditions and in the treatment of chronic diseases of the circulatory system.

The hospital-wide heart failure program entailed the inclusion in the Department of Cardiology of a **heart failure unit**, which carries out continuous monitoring of patients with heart failure and cares for patients at a less advanced stage of the disease. This area of patient care is managed by specially trained nurses, working under the direction of a cardiologist.

Teaching

In 2003 the Department of Cardiology contributed to the postgraduate teaching of physicians in the field of echocardiography, in association with the Institute of Health Care Postgraduate Education. As regards undergraduate studies, the department provided a training package for students from the Third Medical Faculty of Charles University.

Research

In 2003, the Department of Cardiology joined the BARI 2D international multicentric research project, in which Na Homolce Hospital is the only European center to participate (see annex on Grants).

Publications and Lectures

Physicians from the Department of Cardiology gave a total of thirty-three lectures at domestic professional events during 2003. During the same period, forty-three works were published in Czech professional journals, and five works appeared in a foreign professional publications.

In November 2003, the Department of Cardiology organized its traditional specialist event, "Cardiological Days at Na Homolce" in collaboration with the committee of the Czech Cardiology Society.

Basic data

Number of beds	52
standard	30
intermediate	4
intensive care	18
Day care clinic	4
Number of physicians	23
Number of nurses	87
Number of outpatient examinations	29,059
Number of patient admissions	3,984
Number of days of treatment	17,487
standard	11,246
intensive care	6,241
Bed occupancy rate (%)	97.0 %
standard	97.0 %
intensive care	97.0 %
Average length of stay (in days)	4.39
standard	4.72
intensive care	2.99

Specialized interventions in 2003

Angiography Center	
Coronarography (SKG)	2,469
Ventriculography (LVG)	1,068
Right-side angiocardiography	2
Pulmonary artery angiography	4
Catheterization R	5
Catheterization R-L	178
Coronary angioplasty (PTCA)	918
Direct angioplasty (AIM)	242
Stents	
number of patients	836
number of stents	1,111
Alcohol septal ablation	1
Occlusion of ventricular septal defect (Amplatz)	4
Intracoronary ultrasound	14
Other angiographies	322
Complications	
fatal	1

Electrophysiology Center in 2003

Primary implantation and exchange of pacemakers	827
Electrophysiology	1,541
Implantation and reimplantation of ICDs	125
Biventricular stimulation	118
RF ablations in total	513
Extraction of electrodes	72
Right ventricle biopsy	5
Implantation of IV port for the administration of drugs	3
Implantable arrhythmia monitor (REVEAL)	15
Spinal neurostimulation	2
Total	3,221
Complications	
Pneumothorax	8 (0.3 %)
A-V fistula	2 (0.1 %)
Perforations, penetrations, electrodes	3 (0.1 %)
fatal	1

Outpatient clinics

General cardiology	10,809
Pacemakers	7,078
Angiology	1,695
Heart failure clinic	941

Non-invasive cardiology

Echocardiography	4,840
Esophagus examination	532
Dobutamine load	15
Total	5,387
ECG exercise test	1,186
Holter ECG	1,556
Blood pressure monitoring	1,189
TT test	20

DEPARTMENT OF CARDIAC SURGERY

Head of Department: Štěpán Černý, M.D., Ph.D.

The Department of Cardiac Surgery deals with **complex surgical treatment of heart disease and the major endothoracic vessels**. Its activities also cover outpatient monitoring of selected groups of patients before and after surgical intervention. Almost 3,000 outpatient examinations were performed during 2003. Na Homolce's Cardiac Surgery department only became an independent unit in 2002 after separating from the Department of Cardiovascular Surgery, so last year was the first full year of reference.

An important landmark for Na Homolce Hospital's Cardiac Surgery Department last year was the gradual reconstruction and opening of areas devoted to cardiosurgical care, comprising cardiac surgery operating theaters, units for post-operational treatment and resuscitation, as well as wards providing semi-intensive and standard care.

The scope of cardiosurgical operations last year reflected the range of these interventions throughout the Czech Republic, though their breakdown reveals a slight tendency for the department to specialize in valvular surgery. In 2003, a total of 521 cardiosurgical interventions were performed, a majority of which comprised **aortocoronary reconstructions**. **The program of surgical maintenance of the mitral valves and reconstruction of the left ventricle was further developed**, while the ratio of mitral valve reconstructions rose to 76.7% out of the total number of mitral interventions. Following on from the first intervention of its type in the Czech Republic (performed in December 2002) 48 **intraoperational cryoablations were performed on patients with chronic atrial fibrillation**. This operation is performed in association with the Cardiology Department, and Na Homolce is currently the center performing the highest number of these interventions. 2003 also saw further progress in care for **patients with diseases of the aorta and combined disorders of the heart and the major and peripheral vessels**, which was carried out in collaboration with the Department of Vascular Surgery.

Teaching

In 2003 physicians from the Department of Cardiac Surgery assisted in undergraduate studies of cardiac surgery for students of the Third Medical Faculty of Charles University.

Publications and Lectures

Physicians from the Department of Cardiac Surgery gave a total of eight lectures at Czech professional events in 2003. One paper was published in the Czech medical press.

Basic data

Number of beds	33
standard	14
intensive care	7
semi-intensive	13
Number of physicians	17
Number of nurses	75
Number of outpatient examinations	1,440
Number of patient admissions	669
Number of days of treatment	7,181
standard	2,930
intensive care	1,539
intermediate	2,712
Bed occupancy (as a %)	81.1 %
standard	77.4 %
intensive care	87.3 %
intermediate	78.5 %
Average length of stay (in days)	10.73
standard	3.93
intensive care	4.64
intermediate	3.31

Number of surgical interventions in 2003

Isolated aortocoronary reconstructions	340
Combined aortocoronary reconstructions (EACI, MAZE etc)	26
Aortal valve repair	61
Mitral valve repair	73
Operations on the ascending branch of the aorta	21
Total	521

MAZE operations (combined with ACB and valve operations)	48
Other (myxoma, pericardectomy, extraction of pacemakers)	7

Acute and emergency operations	82
Planned operations	439

DEPARTMENT OF VASCULAR SURGERY

Head of Department: Pavel Šebesta, M.D., Ph.D.

The department deals with surgical and angioradiological invasive diagnostics and treatment of diseases of the vascular system, primarily the narrowing or complete occlusion of the vessels as a result of arteriosclerosis. It is the only center of its type, with nationwide coverage of complex cardiovascular problems, ranging from radical replacement of the thoraco-abdominal aorta to palliative interventions such as radiofrequency sympathectomy. The range of surgical interventions, just as in previous years, covers **operations on the arteries supplying the brain**, which have long constituted the largest group of operations, **operations on the thoracic and abdominal aorta including surgical and endovascular treatment of aneurysms**, where the number of interventions, including the implantation of stents for abdominal aneurysms further increased during the period under review, as well as the **reconstruction of the pelvic arteries and the arteries serving the lower limbs** with a steep rise also registered in the numbers of arterial operations on the lower limbs. 2003 saw a slight increase in the number of referred reoperations performed for the most serious complications. Newly introduced interventions included the partial sternotomy of the affected central branch of the aortic arch, while the range of major vascular operations performed under local anesthetic was expanded and there was an increase in the numbers of laparoscopic arterial reconstructions. Na Homolce Hospital's Department of Vascular Surgery serves as a training center in vascular surgery for postgraduate studies at the Institute of Health Care Postgraduate Education. It also functions as a specialized consultancy for severe and complicated angiosurgical cases.

Teaching

In 2003 the Department of Vascular Surgery continued to provide an undergraduate teaching program for students of the Second Medical Faculty at Charles University and participated in postgraduate teaching for trainees in vascular surgery in courses provided for the Institute of Health Care Postgraduate Education.

Publications and Lectures

Physicians from the Department of Vascular Surgery gave a total of nine lectures at domestic professional events and seven lectures abroad during 2003. Two works appeared in professional Czech publications and another two were published abroad.

Basic data

Number of beds	61
standard	36
intensive care	11
intermediary	14
Number of physicians	21
Number of nurses	94
Number of outpatient examinations	11,516
Number of patient admissions	2,736
Average length of stay (in days)	6.79
Number of days of treatment	18,585
standard	11,272
intensive care	3,463
intermediary	3,850
Bed occupancy rate (as a %)	92,7 %
standard	94.2 %
intensive care	93.2 %
intermediary	88.1 %
Average length of stay (in days)	6.79
standard	3.21
intensive care	2.91
intermediary	2.58

Total number of reconstructions performed from 1990–2003

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
145	616	650	771	806	847	1,141	1,214	1,412	1,443	1,345	1,349	1,552	1,573

Breakdown of vascular and general surgical interventions – 2003

486	Other vascular operations
318	Operations on branches of the aortic arch
201	Femoropopliteal reconstructions
116	Pelvic reconstructions
104	Abdominal aneurysms
102	Aortofemoral reconstructions
56	Laparoscopic operations
42	Shin reconstructions
40	Stent implants
6	Thoracoabdominal aneurysms

CARDIOVASCULAR PROGRAM 1998-2003

Development in the numbers of Cardiovascular Program patient admissions

1998	288	2,380	2,677	Total 5,345
1999	293	2,324	2,758	Total 5,375
2000	312	2,380	2,982	Total 5,674
2001	322	2,400	3,058	Total 5,780
2002	325	2,884	3,972	Total 7,181
2003	669	2,736	3,984	Total 7,389

◆ Cardiac Surgery
 ◆ Vascular Surgery
 ◆ Cardiology

Development in the numbers of Cardiovascular Program outpatient examinations

1998	428	10,246	18,938	Total 29,612
1999	412	9,343	19,853	Total 29,608
2000	439	9,722	23,241	Total 33,402
2001	452	9,793	24,988	Total 35,233
2002	487	10,463	28,561	Total 39,511
2003	1,440	11,516	29,059	Total 42,015

◆ Cardiac Surgery
 ◆ Vascular Surgery
 ◆ Cardiology

GENERAL
MEDICAL CARE
PROGRAM



DEPARTMENT OF INTERNAL MEDICINE

Head of Department: Associate Professor Jan Kábrt, M.D., Ph.D.

The department's activities consist of ensuring preventive, diagnostic and conservative treatment for diseases of an internal nature, with important sub-specializations in the areas of **artificial nutrition and metabolic care, gastroenterology, diabetology, endocrinology** and **pneumology**. The intensive care unit is dedicated to patients suffering from acute internal diseases. The care provided during 2003 included the conservative treatment of diseases of the kidneys and urinary system, which the Department of Internal Medicine provided in collaboration with the Department of Nephrology, as well as care of patients suffering from diseases of the sanguifacient/immune system provided in association with the Clinical Immunology unit. National specializations over the past year have primarily focused on the care of patients with functional disorders of the small intestine, who require long-term artificial nutrition, as well as the use of endosonography for the diagnosis and treatment of diseases of the digestive tract. The number of endosonographic examinations almost doubled compared to 2002 and showed the importance of the gastroenterological unit. The number of examinations performed by the Internal Medicine outpatients clinic rose by over 30% in 2003.

The complete reconstruction of the intensive care unit in 2003 created a top quality environment for care of patients in a critical state.

Teaching

During 2003, Na Homolce Hospital's Department of Internal Medicine continued to provide undergraduate teaching to students attending the Third Medical Faculty of Charles University. Postgraduate teaching covered diploma programs in internal and general medicine.

The Department of Internal Medicine has an accreditation from the Czech Medical Chamber for postgraduate teaching in the specialized fields of artificial nutrition and metabolic care.

Publications and Lectures

Physicians from the Department of Internal Medicine gave a total of twenty lectures at domestic medical events during the course of 2003. They published fifteen works in the Czech medical press.

Basic data

Number of beds	29
standard	21
intensive care	8
Number of physicians	26
Number of nurses	54
Number of outpatient examinations	45,769
internal medicine outpatient clinic	44,745
Gasteroenterological examinations	8,351
Spirometry	2,251
Number of patient admissions	1,023
Number of days of treatment	8,830
standard	6,342
intensive care	2,488
Bed occupancy rate (%)	90.7 %
standard	88.8 %
intensive care	95.9 %
Average length of stay (in days)	8.63
standard	6.78
intensive care	8.08

Specialized interventions in 2003

Gastroscopy	2,362
Endoscopic sonography	1,728
Coloscopy	425
ERCP	346
Endoscopic papillosphincterotomy	134
PEG	23

DEPARTMENT OF SURGERY

Head of Department: Pavel Beňo, M.D.

The department provides a wide spectrum of services covering diagnostics and surgical treatment in the areas of **general surgery, orthopedics** and **urology**, while the outpatient clinic also includes counseling centers for **mammology, phlebology, abdominal surgery, an orthopedic outpatients clinic, a urological clinic** and **a clinic for minor surgical interventions**. The intensive care unit provides post-operational care for complications and life-threatening conditions.

In the field of general surgery, as in previous years, abdominal and thoracic surgery was performed using minimally invasive methods in all areas of laparoscopic surgery and one-day surgery was prioritized. Care continued to be provided in oncological surgery of the digestive system and mammology. In 2003, **the surgical team** performed the standard range of interventions, primarily using intraoperative radiofrequency ablation methods for the treatment of liver metastases in colorectal carcinoma. Hernia operations using Trabucco, PHMS and laparoscopic IPOM restructuring were routinely performed, particularly in one-day surgery. Total proficiency was achieved in the new Long surgical techniques for anal prolapses and hemorrhoids and the department was selected as one of two centers in the Czech Republic to participate in a third pilot study of these surgical techniques. The surgery department was also the only center in the Czech Republic last year to perform a Collis reconstruction for brachyoesophagus in an operation for esophageal reflux with single cavity access. Laparoscopic surgery was extended to cover the most demanding interventions on the colon, rectum and gastrointestinal tract using the harmonic scalpel. Early feeding of intensive care patients via the intestine after surgery was introduced as routine and partial surgery of breast carcinoma was also extended.

Orthopedic operations last year including the total replacement of joints, including shoulder and ankle joints, as well as the reimplantation of joints. The orthopedic navigational system was routinely used for surgery on large joints during 2003. The orthopedic unit last year continued to implant total bilateral endoprostheses of the ankle joints and made further developments in modern methods of hallux surgery (Swanson endoprostheses in the hallux rigidus and Stoffel osteotomy in the hallux vagus). Utilization of a bone bank allowed progress to be made in a wide range of orthopedic and elective traumatological operations and other minimally invasive surgical techniques. The number of outpatient orthopedic examinations rose by almost 50% in 2003.

Urological operations included, as in previous years, open and endoscopic surgery on the urinary system, including urological oncosurgery, using minimally invasive laparoscopic, cystoscopic and ureterorenoscopic surgical techniques. The range of operations carried out also included ultrasound guidance of punctures to the affected retroperitonea, as well as complex diagnostics and treatment of erectile dysfunctions and endoscopic reconstruction for incontinence. Routine interventions included endoscopic urethrotomy and urethroscopy.

Teaching

In 2003 physicians from the Department of Surgery participated in undergraduate teaching programs for students from the Third Medical Faculty of Charles University and also worked together with the International Health Medical Education Consortium to teach foreign trainees. Postgraduate training comprised the preparation of physicians for diplomas in surgery set by the Institute of Health Care Postgraduate Education. The Na Homolce Hospital Department of Surgery is a reference and training center in the Czech Republic for ankle joint surgery, knee joint surgery using a LCS rotating plate and the Ortopilot orthopedic navigation system.

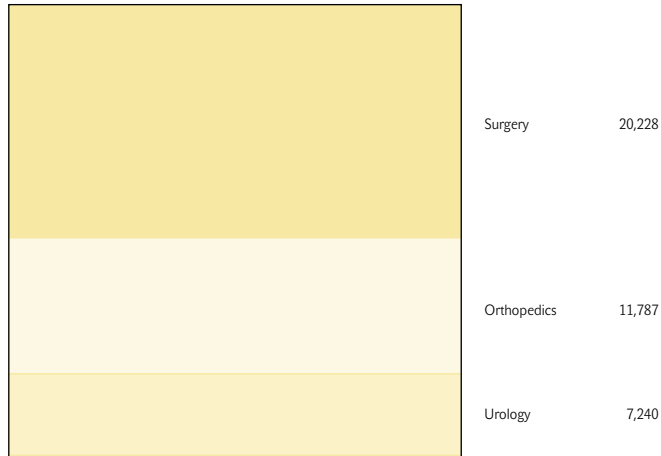
Publications and Lectures

During 2003 physicians from the Department of Surgery gave a total of six lectures at medical congresses in the Czech Republic and five lectures abroad. Eleven works were published in the Czech medical press during 2003.

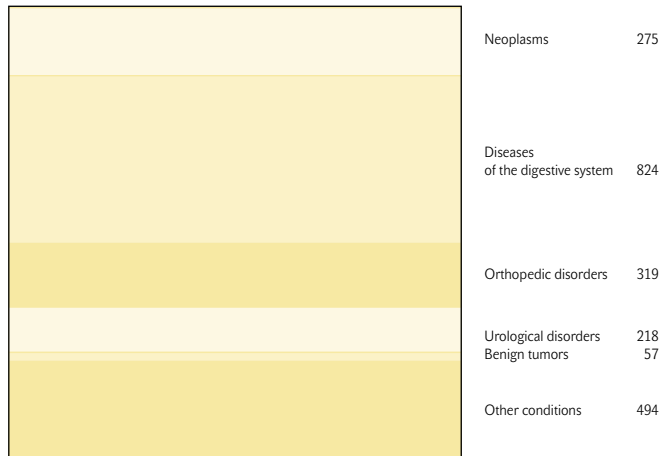
Basic data

Number of beds	31
standard	26
intensive care	5
Number of physicians	17
Number of nurses	44
Number of outpatient examinations	39,255
Number of patient admissions	2,156
Number of surgical interventions	2,980
Minor outpatient interventions	659
Number of days of treatment	10,269
standard	8,581
intensive care	1,688
Bed occupancy rate (%)	92.7 %
standard	92.2 %
intensive care	95.4 %
Average length of stay (in days)	4.76
standard	3.44
intensive care	3.65

Number of outpatient examinations 2003



Number of admissions by diagnosis 2003



Number of surgical interventions 2003



DEPARTMENT OF GYNECOLOGY AND MINIMALLY INVASIVE SURGERY

Head of Department: Pavel Bartoš, M.D., M. MED.

The services provided by the department include the diagnostics and surgical treatment of gynecological diseases. The complete spectrum of pelvic and gynecological surgery was concentrated into five clinical programs last year.

The Oncological and Oncolaparoscopic program includes classical, laparoscopic, laparoscopically assisted and laparovaginal surgery for malignant tumors of the cervix, ovaries, endometrium and vulva. In 2003, in addition to the standard oncoinstruments, the operating theaters acquired state-of-the-art supporting and rotating laparoscopic equipment enabling modern operating procedures, as well as a cutaneous ultra-sound aspiration dissector (CUSA), which resulted in significant improvements in the speed and precision of oncolaparoscopic interventions.

A total of 124 radical operations were performed on gynecological carcinomas.

The Department of Gynecology and Minimally Invasive Therapy is the headquarters of the Secretariat and Presidency of the Czech Society for Gynecologic Endoscopy and Pelvic Surgery (CSGE) and an accredited center for gynecological oncosurgery (CSGE).

Urogynecological and reconstructive surgery covers surgical treatment of incontinence and complex surgical procedures for cases of pelvic organ prolapse and incontinence, where emphasis is placed on finding a laparoscopic solution to the problems which arise. 220 patients were operated on for problems related to complex urogenital prolapse using reticulate implants. A procedure referred to as laparoscopic global repair was standardized in 2003 and adopted by other gynecological centers in the Republic. The department is an accredited center in this area for the treatment of urethropexy incontinence by universal access (an ESGE multi-centric study).

Complex diagnostics and endometriosis surgery offers patients from throughout the Czech Republic a comprehensive treatment program comprising laparoscopic radical surgery, a predictive histological diagnosis of growth factors and subsequent hormonal treatment with a final check up to verify its success. The department is a CSGE national reference center for ultraradical surgical excision of endometriosis of the rectovaginal septa with resection of the vaginal walls.

General gynecological surgery deals with surgery for infertility, myomatosis of the uterus, adnexal tumors and cysts, as well as with problems involving post-operational adhesion, chronic pelvic pain, inflammation and congenital development disorders of the uterus, in particular aplasia of the uterus and vagina.

The hysteroscopic program includes diagnostic and surgical endoscopy of the cavity of the uterus for cases of dysfunctional hemorrhage, polyposis, congenital defects of the uterus, adhesion, cancer of the uterus and submucous myomas.

During 2003 the surgical wing of the Department of Gynecology and Minimally Invasive Surgery underwent complete reconstruction, expanding the capacity of the unit and its state-of-the-art surgical equipment. The department is now one of the best equipped centers for laparoscopic radical and advanced operations in the Czech Republic. Overall, the number of surgical interventions rose to 2,000 operations in 2003, of which **80 %** including oncological interventions, **were performed laparoscopically or hysteroscopically**, i.e. by what are referred to as minimally invasive methods.

Teaching

The Department of Gynecology and Minimally Invasive Surgery is a department member of the Institute of Health Care Postgraduate Education and a teaching center for laparoscopic gynecology in its postgraduate medical teaching programs. During the reconstruction of the operating theaters in 2003, equipment was permanently installed to enable direct transmission of operations, which is primarily used for training in surgical technique. In 2003 the center organized the Fifth International

Congress on Gynecological Laparoscopy which was attended by almost 300 delegates, including a number of foreign lecturers. The department also organized two national workshops in urogynecology and oncosurgery, which were broadcast directly from the operating theaters.

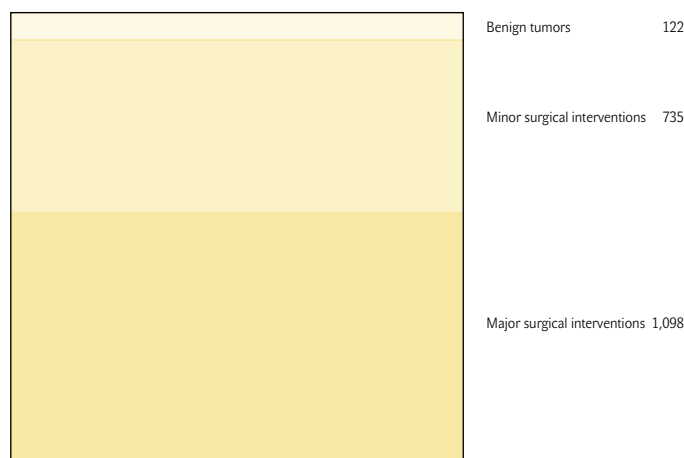
Publications and Lectures

In 2003, the department's physicians gave a total of eleven lectures, of which four were delivered at European and International medical events. Over the same period, two works were published in the medical press.

Basic data

Number of beds	26
standard	20
intensive care	6
Number of physicians	9
Number of nurses	24
Number of outpatient examinations	24,855
Total number of surgical interventions	1,955
of which minor operations	820
Number of days of treatment	7,184
standard	5,819
intensive care	1,365
Bed occupancy rate (%)	92.0 %
standard	92.5 %
intensive care	89.9 %
Average length of stay (in days)	3.62
standard	2.16
intensive care	1.91

Number of surgical interventions 2003



DEPARTMENT OF ENT/HEAD AND NECK SURGERY

Head of Department: Jan Paska, M.D.

The department specializes in diagnostics and conservative and surgical treatment of diseases of the ears, nose and throat. Surgical interventions in 2003 included what is referred to as one-day surgery, as well as a complete range of head and neck surgery, concentrating on comprehensive oncological ENT surgery, cophosurgical interventions, surgery to the nose and paranasal cavities including endoscopic interventions, complex surgery on the thyroid gland, adenotomy, as well as reconstructive surgery in the area of the head and neck, microsurgery on the larynx, operations to the soft tissues of the head and neck and surgery after injuries to the facial bones.

The department's outpatient clinic again provided a comprehensive range of services during 2003, including specialized counseling in oncology, otoneurology, cophosurgery, otoprosthesis, a rhinology clinic, a clinic for thyroid disorders, a counseling service for sleep and snoring disorders, a clinic for corrective nose surgery and a pain treatment clinic. The department also has a specialized pediatric practice.

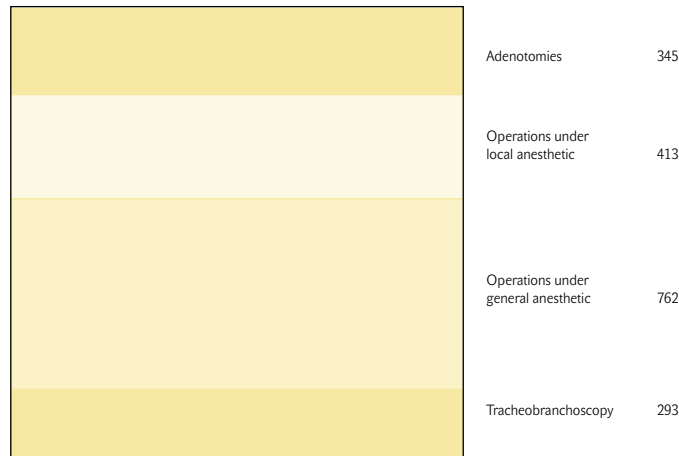
Publications and Lectures

In 2003 the ENT Department of Na Homolce Hospital organized the Third National ENT Symposium at which its members gave a total of five lectures. The physicians also gave a further twenty lectures at separate professional events at home and abroad. They published three works in the Czech medical press and a further 3 abroad.

Basic data

Number of beds	10
standard	8
intensive care	2
Number of physicians	8
Number of nurses	19
Number of outpatient examinations	31,612
Number of patient admissions	949
Number of surgical interventions	1,813
Number of days of treatment	3,375
standard	2,688
intensive care	687
Bed occupancy rate (%)	94.9 %
standard	94.6 %
intensive care	95.9 %
Average length of stay (in days)	3.56
standard	4.84
intensive care	3.10

Number of surgical interventions 2003



DEPARTMENT OF NEPHROLOGY

Head of Department: Lukáš Svoboda, M.D.

The Department of Nephrology provides **outpatient nephrological care, a 24-hour nephrological consultancy** and an entire range of **hemopurification treatments** for chronic and acute patients. Care also covers the preparation of patients with irreversible kidney failure for organ transplantation. The department also includes a nephrological outpatients clinic for the diagnostics and treatment of kidney disease as well as a specialized counseling unit for ischaemic kidney disorders and an outpatients clinic for peritoneal dialysis. **The Hemodialysis Center** is open non-stop and has ten dialysis units, including one box for patients suffering from hepatitis B and one box for patients with hepatitis C. Comprehensive continuous dialysis treatment covers hemodialysis, hemofiltration, hemodiafiltration, plasmaphoresis, hemoperfusion, peritoneal dialysis and continuous elimination methods. In 2003 the Hemodialysis Center again achieved lower mortality levels than the average in the Czech Republic and Europe, despite a significant increase in the average age of patients under treatment (17% of patients were over 80 years old).

The reputation the Na Homolce Hospital Department of Nephrology enjoys at a Czech and European level is strengthened by its long-term efforts in creating an integrated rehabilitation program for dialysis and transplant patients. The sports club for these patients, part of the Czech Sporting Association, was founded in association with Na Homolce Hospital and not only devotes itself to educational and informational activities, but primarily to the organization of sporting activities for dialysis and transplant patients, including their representation at international sporting events.

Teaching

In 2003, the Department of Nephrology of Na Homolce Hospital provided practical training courses for the Medea health care school and contributed to the undergraduate teaching program in physiotherapy at the Faculty of Sports of Charles University.

Publications and Lectures

In 2003 physicians and nurses from the Department of Nephrology gave a total of twelve lectures at domestic, and four lectures at foreign medical events. Three of their works were presented in the Czech professional press. The Department of Nephrology was the 2003 organizer of the nationwide Symposium of Nephrological Nurses.

Basic data

Number of full-time physicians	3
Number of nurses	16
Number of dialysis units	10
of which 1 box for patients with type B hepatitis	
of which 1 box for patients with type C hepatitis	
Number of dialysis monitors	11
Number of monitors for continuous hemopurification	3

Number of examinations performed 2003

Number of nephrological examinations	1,337
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Interventions performed in 2003

Hemodialysis	7,929
of which, in the acute program	522
Hemofiltration	406
Plasmaphoresis	15
Continuous methods (CVVHD, CVHD, DWHDF)	369
Number of transplanted patients	10
Number of patients undergoing peritoneal dialysis treatment	1

Clinical activities

Number of dialysis patients over the age of 80	17.0 %
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DEPARTMENT OF ANESTHESIOLOGY AND RESUSCITATION (ARO)

Head of Department: Milan Roček, M.D.

The Department of Anesthesiology and Resuscitation provides comprehensive care for patients during surgery as well as in the periods prior to and following the operation, covering the administration of general anesthesia and the more demanding types of local anesthesia. In 2003 the number of anesthetics administered increased and a new method of chemical lumbar sympathectomy was brought into routine practice. The Resuscitation unit provides comprehensive diagnostics and treatment of patients whose general state of health is affected by disorders to their basic vital functions, so severe as to be life-threatening and require the highest level of medical care. The overwhelming majority of cases involve patients with injuries to the brain and cranium. The facilities provided by the center include a hyperbaric chamber offering the possibility of artificial pulmonary ventilation and other specialized methods of resuscitation treatment. The pain management clinic deals with problems experienced by patients in chronic pain.

Teaching

In 2003, physicians from the Department of Anesthesiology and Resuscitation provided post-graduate teaching and diploma courses organized by the Institute of Health Care Postgraduate education in anesthesiology and resuscitation as well as teaching at the department of emergency care at the Institute of Health Care Postgraduate Education. They also contributed to the on-the-job training courses provided by the Prague branch of the Czech Medical Chamber for general practitioners by lecturing on the problems of acute and chronic pain.

Publications and Lectures

Physicians from the ARO department made nine contributions to domestic and nine contributions to foreign medical events. During the same period they published fifteen papers in domestic medical journals and seven in the foreign medical press.

Basic data

Number of beds	8
Number of physicians	26
Number of nurses	52
Number of outpatient examinations	2,338
Number of patient admissions	84
Number of days of treatment	2,359
Bed occupancy rate (%)	95.7 %
Average length of stay (in days)	31.45
Breakdown of units	
1 resuscitation unit	
7 central operating theaters	
3 operating theaters for general surgery	
2 operating theaters for gynecology	
6 other operating theaters and clinics (ENT, stereotaxis, x-ray, dentistry and eye clinic)	

Breakdown of selected anesthesiology interventions 2003

Numbers anesthetized for interventions lasting longer than 2 hours	3,317
Number of local anesthetics	1,487
Number of patients over the age of 70 anesthetized	1,921
Number of children anesthetized	377
Number of anesthetics administered for acute interventions	1,157
Number of other anesthetics administered	1,124
Total	9,383

DEPARTMENT OF PNEUMOLOGY

Head of Department: Assoc. Prof. Boris Št'astný, M.D., Ph.D.

The Czech Ministry decided that on July 1st 2003 Na Homolce Hospital's Department of Pneumology, previously the Pneumological Clinic of Charles University First Medical Faculty, should be transferred to Thomayerova Teaching Hospital.

GENERAL MEDICAL CARE PROGRAM 1998-2003

Development in the numbers of General Medical Care Program patient admissions

1998	615	930	1,542	1,786	Total 4,873
1999	617	947	1,582	1,734	Total 4,880
2000	707	1,060	1,686	1,780	Total 5,233
2001	876	1,026	1,916	1,874	Total 5,692
2002	788	1 006	2,016	2,095	Total 5,905
2003	949	1,023	1,986	2,156	Total 6,114

◆ ENT
 ◆ Internal Medicine
 ◆ Gynecology
 ◆ General Surgery

Development in the numbers of General Medical Care Program outpatient examinations

1998	24,754	40,452	20,193	31,146	Total 116,545
1999	25,124	40,184	20,041	30,542	Total 115,891
2000	31,401	42,310	22,611	30,954	Total 127,276
2001	33,542	44,515	21,580	33,592	Total 133,229
2002	29,327	45,296	22,768	37,268	Total 134,659
2003	31,612	45,769	24,855	39,255	Total 141,491

◆ ENT
 ◆ Internal Medicine
 ◆ Gynecology
 ◆ General Surgery

COMPLEMENTARY
SERVICES



COMPLEMENTARY SERVICES

Department of Radiodiagnostics
 Department of Nuclear Medicine/PET Center
 Department of Clinical Biochemistry, Hematology and Immunology
 Department of Clinical Microbiology
 Department of Pathology
 Department of Central Sterilization and Hygiene

DEPARTMENT OF RADIODIAGNOSTICS

Head of Department: Ladislava Janoušková, M.D., Ph.D.

During 2003, the unit continued to provide services both to its own hospital as well as to other health care facilities, including those that open non-stop. The scope of its activities covers diagnostic examinations in all areas of radiodiagnostics, with emphasis on diseases of the nervous, locomotive and cardiovascular systems, as well as on vascular and non-vascular interventions.

It continued to apply **vascular techniques** over the past year, working closely with the vascular surgery program on the implantation of stents in aneurysms of the abdominal and thoracic aorta and the pelvic circulatory system. Na Homolce Hospital is ranked first in the Czech Republic for the number of implantations performed. The treatment of patients with false inguinal aneurysms by catheterization with fibrin adhesive under ultrasound monitoring was introduced into routine practice. It also continued the program of endovascular treatment of cerebral aneurysms with the GDC detachable spiral, where a new type of spiral began to be used and remodelling techniques in the treatment of wide-necked aneurysms were routinely employed. Similarly, treatment of local intracranial thrombolysis continued for cases of acute occlusion of the cerebral arteries. In 2003 there was an increase in the number of local thrombolyses performed in the veins for acute ileo-femoral thrombosis. Last year endovascular embolization combined with radiofrequency ablations were newly introduced to treat parenchymatose tumors in the cavity of the abdomen.

Percutaneous vertebroplasty for the treatment of compress fractures caused either by osteoporosis or tumor was one of the range of **non-vascular methods** that continued to be developed. Vertebroplasty methods were again used during surgery in combination with neurosurgery or with radiofrequency ablations on skeletal tumors.

In the field of **magnetic resonance imaging**, the range of non-invasive MR angiographies was expanded to include, in addition to the peripheral arteries, the carotids, the whole extent of the aorta and the renal arteries. Examination techniques for assessing the viability of the heart muscle were worked out in detail. Functional magnetic resonance using the BOLD method became a routine examination for patients with brain tumors and was also included in the operational neuronavigational system. Further refinements were made to the method of measuring subthalamic cores before implanting stimulators in patients suffering from Parkinsons disease.

Ultrasound examinations saw progress in 2003 in ultrasound indications for carotid endarterectomy. Ultrasound monitoring during breast puncture biopsies became a routine procedure.

Teaching

In 2003, physicians from the Department of Radiodiagnostics at Na Homolce Hospital participated in the undergraduate teaching program for the Third Medical Faculty of Charles University and in postgraduate training in courses run by the Institute of Health Care Postgraduate Education.

Publications and Lectures

In 2003, physicians from the Department of Radiodiagnostics published a total of eight works in the Czech medical press. Lecturing activities during the same year included thirty lectures presented at domestic professional events, and twelve lectures at congresses abroad.

Technical equipment

Angiography Center	1 x Multistar Siemens 1 x Toshiba CAS 1 x theater OEC 9700
CT unit	1 x Siemens Somatom Plus 4 1 x Siemens DRH
MR unit	1 x Magnetom Impact Expert 1 T 1 x Magnetom Symphony 1.5 T
USG unit	1 x Toshiba 270 1 x Toshiba Eccocee 1 x Vingmed System V
Mammography	1 x Lorad M-IV
Basic equipment	4 radioscopic and radiographic units, mobile x-ray unit
PACS	Workstations, scanners, printers, laser filmcameras, data archives

Basic data

Number of physicians	18
Number of laboratory technicians	26
Number of nurses	7

Specialized therapeutic interventions 2003

PTA	331
Implantation of vascular stents	196
Implantation of stentgraphs into abdominal and thoracic aortal aneurysms	42
Endovascular treatment of cerebral aneurysms using GDC	27
Local intraarterial thrombolysis in cerebral vascular events	14
Vascular embolization and interventions to the head	32
CT-guided radicular injections	356
Chemical sympathectomy	12
Drainage of abcesses and cysts, guided biopsies	24
Vertebroplasty	28
Radiofrequency ablations	27
Breast node biopsies	126

Selected radiodiagnostic examinations 2003

Computer tomography	9,120
Magnetic resonance	10,068
Angiography	16,433
Ultrasound examinations	21,119
Mammography	6,400
Total number of all RDG examinations	115,042

DEPARTMENT OF NUCLEAR MEDICINE/PET CENTER

Head of Department: Otakar Bělohávek, M.D., Ph.D.

The services provided by the center include **scintigraphic functional imaging**, which includes **PET (positron emission tomography)**, mainly used to diagnose disorders of an oncological, neurological and cardiovascular nature. In 2003 a new **hybrid PET/CT scanner** (a combination of positron emission tomography and computer tomography) was brought into operation. This equipment provides the most up-to-date diagnostics of oncological conditions, and is currently the only one of its kind in the Czech Republic. Further services provided by the center include immunoanalytic laboratory testing techniques (RSA - radiosaturation analysis and chemiluminiscence). During 2003, the Department of Nuclear Medicine/PET Center continued to serve patients in other health care facilities throughout the Czech Republic as well as those in Na Homolce Hospital (primarily in providing PET and PET-CT examinations). Bringing PET/CT into clinical practice has provided a new outlook for diagnostic imaging and we managed over the course of the year to build up a team of radiologists and physicians specialized in nuclear medicine to supervise the examinations. The number of PET and PET/CT examinations, particularly as a result of the new equipment, was 42.8% higher than in 2002 and the total number of examinations rose by 57.5%. The year on year increase in scintigraphic examinations was of the order of 2.1% and in immunoanalytic laboratory methods 13.1%. The continuing rise in examinations performed by the immunoanalytic laboratory was due to the increase in endocrinology, primarily thyroid diagnostics. There was further expansion of prenatal screening.

Teaching

In 2003 the Department of Nuclear Medicine/PET Center contributed to undergraduate teaching for the Third Medical Faculty at Charles University and postgraduate courses in nuclear medicine for the Institute of Health Care Postgraduate Education. Study courses were organized at the Center for a number of Czech and foreign specialists and consultancy was provided for a model project run by the International Atomic Energy Agency (IAEA). We also provided instruction at the IAEA Regional Training Course in Italy.

Research

The Center concluded two grant projects during the course of 2003 (see annex on Grants).

Publications and Lectures

Physicians and other health care professionals from the Department of Nuclear Medicine/PET Center delivered a total of nineteen lectures at professional events in the Czech Republic and five lectures abroad. Twenty-eight papers appeared in the Czech medical press and six were published in foreign journals. A monograph was also published in the Czech Republic.

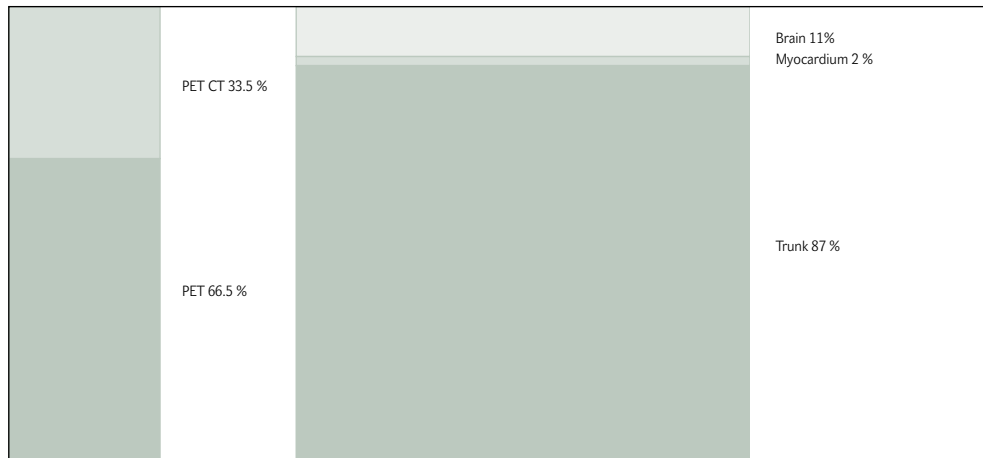
Basic data

Number of physicians	7
Number of other college graduates	2
Number of nurses and laboratory technicians	14
Technical equipment	
instruments	
2 x scintillation camera	
1 x positron emission tomography camera	
1x positron emission tomography and CT camera	
Imaging station	
Immunoanalysers	

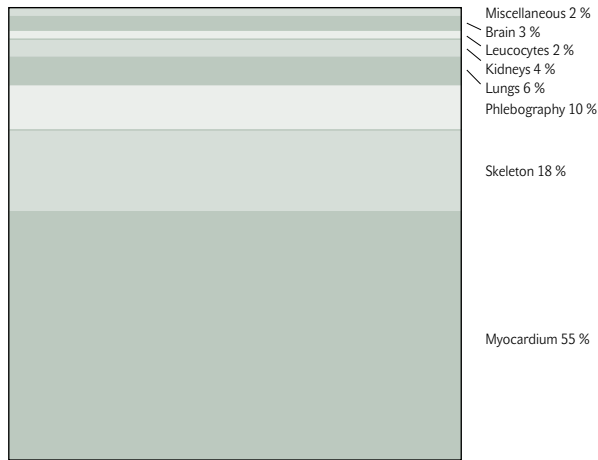
Number of interventions/examinations 2003

Scintigraphy	
number of interventions	6,882
number of examinations	2,107
Positron emission tomography	
number of interventions	3,568
number of examinations	3,234
Laboratory tests	
number of interventions	124,472
number of examinations	97,794

Breakdown of PET and PET CT examinations 2003



Breakdown and number of scintigraphic examinations 2003



Breakdown and number of immunoanalytic assays 2003



DEPARTMENT OF CLINICAL BIOCHEMISTRY, HEMATOLOGY AND IMMUNOLOGY

Head of Department: Prof. Josef Hyánek, M.D., Ph.D.

In the field of **clinical biochemistry** the department provides a routine biochemical service for both hospital wards and outpatient clinics in Na Homolce Hospital, and focuses on the diagnosis and treatment of critically ill patients admitted to the hospital. The number of routine laboratory interventions registered a rise of around 3% in 2003. In the wards, where patients are in a critical state, testing is carried out directly in the wards (POCT diagnostics), which increased by about 40% year-on-year, as well as the analysis of cardiomarkers, amino acid and drug levels. During 2003, the clinical biochemistry unit continued to provide services to general practitioners, pediatricians and other specialists working in the field. An important part of the work carried out by the biochemical unit concerns the analysis of lipid metabolism disorders. Routine diagnostics of these atherogenetic disorders is supplemented by metabolic tests for homocystein levels and other related parameters. Diagnostic activity is also focused on investigating genetic anomalies relating to the metabolism of lipids of adults and, particularly, in children. Over the past year, the activities of the club of parents of children suffering from lipid disorders were further expanded by a metabolic counseling service, which concentrated in particular on rehabilitation, reconditioning and educational activities for club members. In **hematology**, the laboratory provides a routine service for clinical units and conducts specialized analysis of coagulation parameters for the Department of Vascular Surgery.

The Immunology Laboratory again in 2003 used a wide spectrum of serological and cytological examination methods in the fields of immunology and allergology. Specialized activities were focused on diagnosing septic conditions in critically ill patients and on the diagnosis of respiratory dysfunctions.

The Transfusion Center ensures the supply of blood and blood derivatives and carries out autotransfusions in response to the needs of the surgical departments.

The Laboratory for Cerebrospinal Fluid and Neuroimmunology last year carried out routine analyses of serum and cerebrospinal fluid and cytological analyses on patients with neurological and neurosurgical diseases. It also serves a long-term function as a reference center for cerebrospinal fluid laboratories in the Czech Republic in the area of cytological analysis.

In 2003 **the Molecular-genetic Laboratory** developed its molecular genetic analyses with DNA and RNA analysis of human and other genomes in line with the requirements of the clinical departments. Routine diagnostics of blood clotting disorders were amplified, tests were performed to screen for neuroborreliosis in serums and cerebrospinal fluid and genetic screening for apolipoproteins and Gilbert syndrome was initiated.

Teaching

In 2003, the Department of Clinical Biochemistry, Hematology and Immunology of Na Homolce Hospital served as a training center for topics involving urinary sediments and cerebrospinal fluid for the Department of Clinical Biochemistry of the Institute of Health Care Postgraduate education and for immunology and allergology for the Institute's Clinical Immunology and Allergology service.

Research

During 2003, the Department of Clinical Biochemistry, Hematology and Immunology participated in three grant projects (see annex on Grants).

Publications and Lectures

The department physicians delivered fifty-three lectures at domestic events and made sixteen contributions to international congresses. In the same year they published twenty-two papers in the Czech medical press and eight papers were published in foreign medical journals. One monograph was published in the Czech Republic.

Last year, the department also organized three national seminars on HLP in children, on the problems involved in the analysis of urine and urine sediments, on the subject of cerebrospinal fluid and its cytology, as well as the fourth national fluid cytometry days.

Basic data

Number of physicians	13
Number of other college graduates	7
Number of laboratory technicians	33
Number of nurses	8
Total number of examinations	3,194,386

Breakdown of examinations in 2003

Laboratory	
Urine examinations	86,117
POCT	77,937
Drug laboratory	4,940
Genetic laboratory	4,181
Cerebrospinal fluid examinations	67,100
Routine and research biochemistry	1,877,889
Total BIOCHEMISTRY	2,118,164
HEMATOLOGY	874,405
IMMUNOLOGY	112,034
BLOOD BANK AND TRANSFUSIONS	76,057
Total	3,180,660
Outpatient clinics	
Metabolic disorders	6,115
Hematology	1,527
Immunology and allergology	5,082
Neurology	1,002
Total	13,726

DEPARTMENT OF CLINICAL MICROBIOLOGY AND ANTIBIOTIC CENTER

Head of Department: Vlastimil Jindrák, M.D.

The Department of Clinical Microbiology provides **laboratory diagnostics of community and nosocomial infectious diseases or complications** in hospitalized patients, as well as consultative work to deal with their diagnosis, treatment and prevention. The department's consultants participate in routine interdisciplinary work in a team of specialists to provide the highest possible level of treatment for both ward patients and outpatients. In 2003 there was a further increase in the volume of examinations performed by the laboratory diagnostic service, which have traditionally been provided both to Na Homolce Hospital as well as to primary care general practitioners and specialists, although their scope did not change.

An important part of the department's activities consists of the work of **the Antibiotic Center**, which deals with antibiotic practices in Na Homolce Hospital as well as in primary outpatient care. In 2003 the number of consultations provided to ward patients increased slightly, while the cost of antibiotics as a proportion of the hospital's outgoings fell by 2% year-on-year. During the past year the department has again been involved in or has directly organized projects of national importance. The department is the main sponsor for two Ministry of Health projects on the quality of health care. In 2003 the project *"Influencing resistance to antibiotics by the quality of antibiotics used"* was approved and implemented, involving processing the results of the two previous multicentric audits of prescriptions for antibiotics in primary pediatrics, developing software to support routine audits and creating an information system to support national surveillance of resistance to antibiotics and to monitor the use of antibiotics in hospitals. The project entitled *"Surveillance of nosocomial infections and managing hospital epidemiology in health care facilities"*, carried out by the Center for Quality Health Care at the State Institute of Health, and the Ministry of Health *"National Register of Nosocomial Infections"* were continued during 2003. As the same time a multicentric pilot study on infections of the blood system was carried out in five Czech hospitals. The results have been accepted for presentation at the 14th European Clinical Microbiology and Infectious Diseases Congress, to be held in Prague in May 2004.

Teaching

In 2003, collaboration continued with the Institute of Health Care Postgraduate Education. Physicians from the Department of Clinical Microbiology again worked with the Institute of Health Care Postgraduate Education to provide postgraduate teaching on medical microbiology, anesthesiology resuscitation and intensive care medicine, neurology, the treatment of infections and industrial medicine. Together with other units, the department also organized a week-long course for the IHCE on "Clinical microbiology of infectious complications in ward patients" for clinical microbiology units throughout the Czech Republic.

They also worked alongside the First Medical Faculty of Charles University to provide undergraduate teaching in the field of medical microbiology.

Publications and Lectures

During 2003, physicians from the Department of Clinical Microbiology delivered a total of sixty-three lectures, of which six were presented at Czech events with foreign participation and three were presented abroad. In all they published five works in the Czech medical press.

Basic data

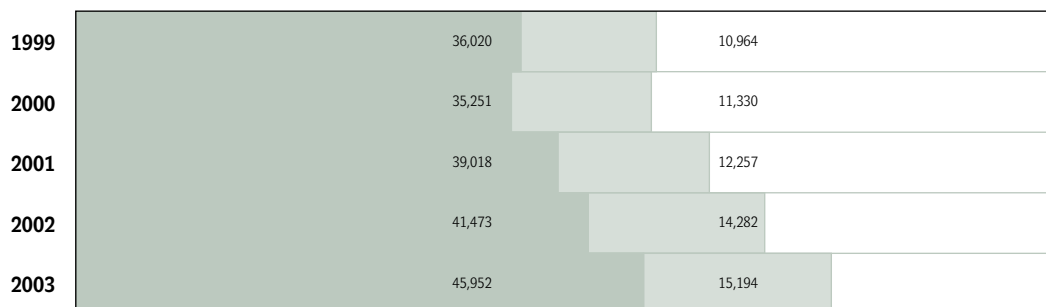
Number of physicians	3
Number of other college graduates	1
Number of laboratory technicians	16
Number of examinations	119,104

Consultations for antimicrobial therapy in admitted patients 1999–2003

	1999	2000	2001	2002	2003
Number of consultations	4,370	4,287	5,069	6,076	6,960
Number of patients consulted	967	905	1,024	1,266	1,559
Proportion of patients consulted out a the total of admitted patients	7.3 %	6.5 %	6.8 %	7.5 %	9.3 %

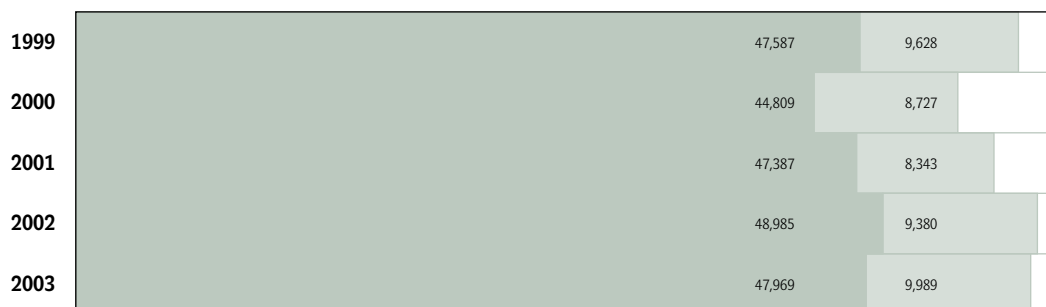
Number of examinations performed between 1999–2003

Na Homolce Hospital



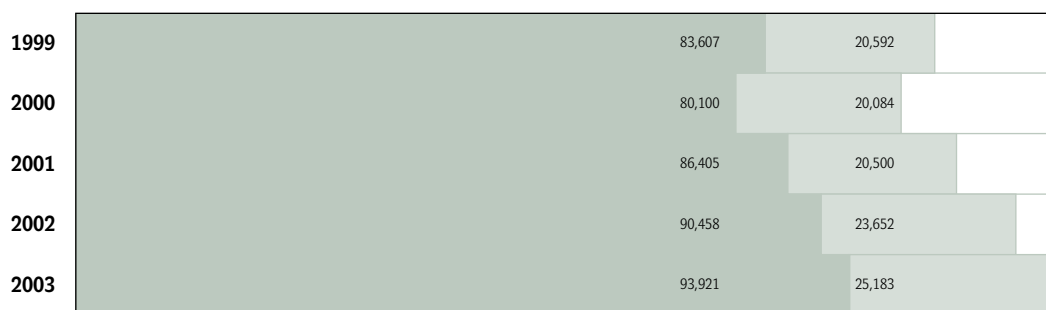
◆ Bacteriology ◆ Serology

External clients



◆ Bacteriology ◆ Serology

Total number of microbiological examinations



◆ Bacteriology ◆ Serology

OUR HELP EXTENDS
BEYOND THE HOSPITAL GATES



CLUB FOR PARENTS OF CHILDREN SUFFERING FROM LIPID DISORDERS

This Club was established in 1995 through the Clinic for Metabolic Disorders in Na Homolce Hospital. It links families with children suffering from inherited disorders related to the metabolism of lipids, known as hypercholesterolemia. Patients who have inherited this disorder have increased levels of cholesterol in their blood, which gives rise to a high risk of cardiovascular diseases. Basic treatment for children suffering from this disorder involves following a controlled low-calorie diet, with medication prescribed for those patients who are worst affected. The Club is affiliated with the Association for the assistance of chronically ill children, and in 2003 its membership consisted of 121 families. The Club is run primarily by medical volunteers and parents. Parents, doctors and dietary nurses work closely together to form good health habits in families at risk, to provide information on health nutrition and suitable types of food products, as well as new discoveries concerning the treatment of hypercholesterolemia. The Club's traditional and popular activities include the publication of the club magazine, *Cholesterol*, organized water therapy exercises in the Na Homolce Hospital pool, day or weekend trips, and, most of all, the summer fitness camp, focusing on a low cholesterol diet and exercise. During the summer of 2003, children and their parents met for what was the seventh week-long therapeutic camp with a low-calorie diet in the Jeseník mountains. The Club for parents of children suffering from lipid disorders plays an important part in preventing cardiovascular disease by encouraging good nutrition and eating habits as well as increased physical activity.

Contact details:

Club for parents of children suffering from lipid disorders

Clinic for Metabolic Disorders

Na Homolce Hospital, Roentgenova 2, 150 30 Prague 5, Tel.: +420 257 273 229

E-mail: vera.martinkova@homolka.cz

KLUB AA HOMOLKA

Klub AA Homolka was established by the Department of Pediatric Allergology and Clinical Immunology in Na Homolce in 1998. It brings together families with children suffering from allergies and asthma. Last year membership numbers rose to 127 (families), representing not only patients treated at Na Homolce, but also those from other units in Prague and elsewhere. The club's activities are diverse, ranging from the retrieval and circulation of information concerning individual allergic diseases, through the organization of discussions with experts for the parents, to the publication of the club magazine, *Motýlek* (Butterfly), which includes contributions from the children themselves, or organizing entertaining and educational activities for the young patients. The most popular club event is the annual three-week trip to the sea for children with allergies, when they are accompanied by medical professionals. This is for school-age children suffering from atopic eczema, bronchial asthma, allergic rhinitis, immune disorders or repeated respiratory infections. Last year the children spent their therapeutic holiday in Greece. Club AA Homolka is a member of the Association for the assistance of chronically ill children.

Contact details:

Klub AA Homolka

Dept. of Pediatric Allergology and Clinical Immunology

Na Homolce Hospital, Roentgenova 2, 150 30 Prague 5 Tel.: +420 257 272 017

SPORTS CLUB FOR DIALYSIS AND TRANSPLANT PATIENTS - CZECH SPORTING ASSOCIATION

The sports club for dialysis and transplant patients was established by the Hemodialysis Center at Na Homolce Hospital in 1995. It is a member of the Association of internally handicapped sportsmen and women and also a member of the WTGD and EDTPF international federations. Last year it united 186 active members and a number of supporters from throughout the Czech Republic. The club's activities are not confined to creating and promoting an integrated physiotherapy program for patients who have to rely on artificial kidney treatment, or those living with a transplanted kidney (the creation of education and reference materials for the disabled, specialized lectures), but also extend into putting these ideas into practice. Examples of this are the organization of the annual winter and summer sporting competitions for dialysis and transplant patients. In 2003 the tenth annual games were held in the Czech Republic. The Czech representation managed to win 3 gold and 1 silver medal at the international games for transplant patients in Bormio, Italy, held under the auspices of the WTGF.

Contact details:

Sports club for dialysis and transplant patients

Hemodialysis Center

Na Homolce Hospital, Roentgenova 2, 150 30 Prague 5, Tel.: +420 257 272 220

E-mail: lukas.svoboda@homolka.cz

ECONOMIC
INFORMATION





ECONOMIC INFORMATION

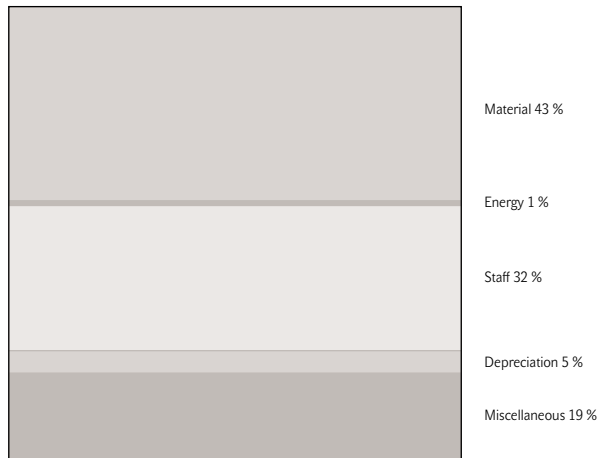
BALANCE SHEET in thousands of CZK

ASSETS	as of 12. 31. 02	as of 12. 31. 03
A. Fixed assets	1,530,357	1,743,276
1. Intangible fixed assets	29,971	35,900
2. Accumulated depreciation of intangible fixed assets	-20,971	-24,461
3. Tangible fixed assets	2,441,428	2,766,497
4. Accumulated depreciation of tangible fixed assets	-1,013,358	-1,127,946
5. Financial investments	93,286	93,286
B. Current assets	458,616	667,966
1. Inventory	12,120	50,479
2. Receivables	166,360	355,006
3. Financial assets	130,041	68,325
5. Temporary credit accounts	150,095	194,155
TOTAL ASSETS	1,988,973	2,411,242
LIABILITIES		
C. Own resources	1,776,120	1,773,779
1. Property funds	1,562,541	1,775,460
2. Financial funds	155,303	-30,263
5. Net income	58,276	28,582
D. Other resources	212,853	637,463
1. Reserves	22,300	1,700
2. Long-term liabilities	730	214,930
3. Short-term liabilities	177,053	523,762
4. Bank credits	0	105,000
5. Temporary debit accounts	13,500	7,001
TOTAL LIABILITIES	1,988,973	2,411,242

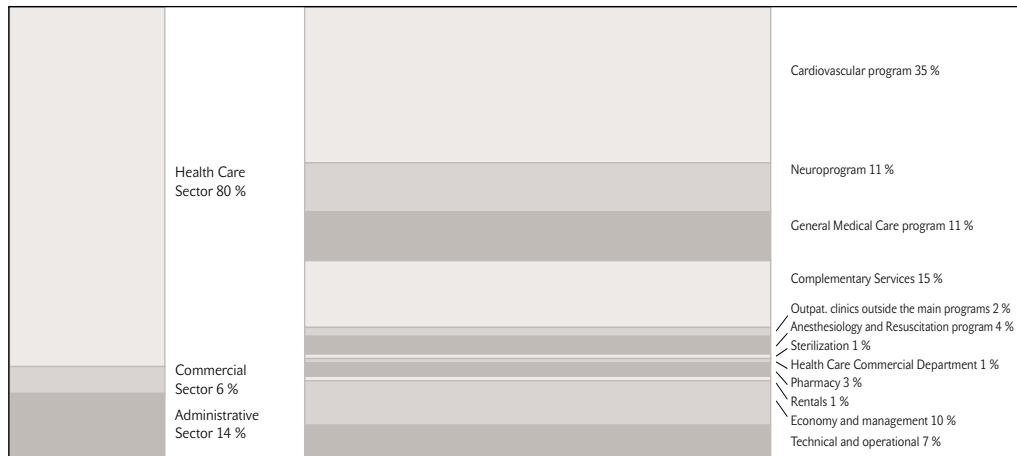
PROFIT AND LOSS STATEMENT as of December 31st 2003, in thousands of CZK

	Activity
I. Revenue from merchandise	119,818
A. Cost of goods sold	103,497
Sales margin	16,321
II. Production	2,007,072
1. Revenue from own products and services	2,007,072
B. 1. Material and energy consumption	968,878
2. Services	179,931
Value added	858,263
III. Operating costs	5,779
C. Personnel expenses	725,745
1. Wages and salaries	505,040
2. Social security expenses	187,371
3. Social expenses	33,334
D. Taxes and fees	163
GROSS OPERATING REVENUE	154,455
E. Depreciation of tangible and intangible fixed assets	118,112
IV. Revenue from sales of tangible and intangible fixed assets and materials	145
F. Net book value of tangible and intangible fixed assets sold	226
Revenue from tangible and intangible fixed asset sales	-81
V. Accounting for reserves and accruals and deferrals	21,450
G. Additions to reserves and accruals and deferrals	850
Difference between accounted and additional reserves, accruals and deferrals	20,600
VI. Revenue from sales of securities	0
H. Securities sold	0
VIII. Other revenue	63,517
I. Other operating expenses	91,797
J. Income tax	0
PROFIT FOR THE CURRENT ACCOUNTING PERIOD	28,582

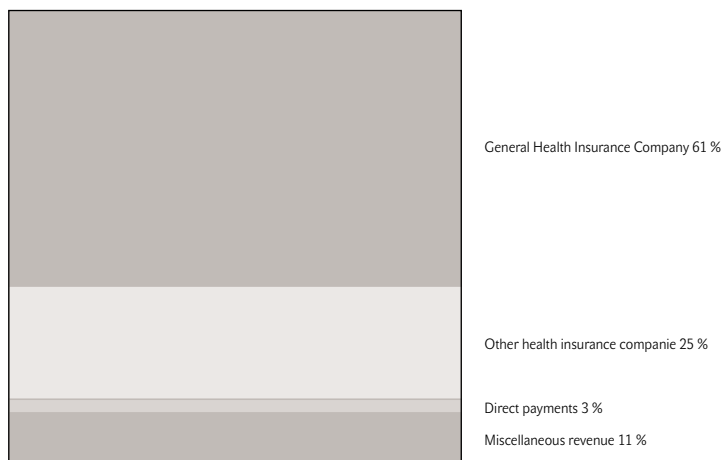
Breakdown of costs by type in 2003




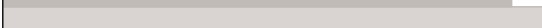

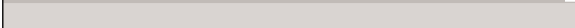
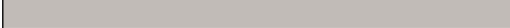

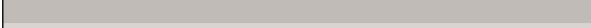

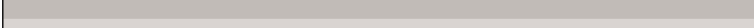

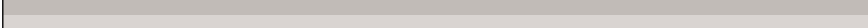

Breakdown of costs by unit in 2003



Breakdown of revenue in 2003

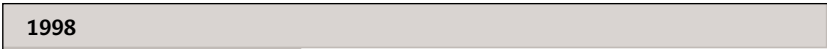


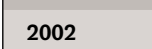




Costs and revenue from 1998-2003 (in millions of CZK)

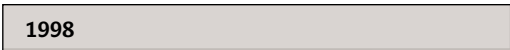
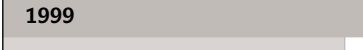

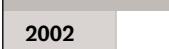


1998		1,282
		1,389
1999		1,414
		1,457
2000		1,344
		1,397
2001		1,640
		1,665
2002		1,924
		1,982
2003		2,189
		2,218

 *Costs*  *Revenue*

Cost effectiveness from 1998-2003 (as a %)

1998		8.34
1999		3.02
2000		3.95
2001		1.56
2002		3.03
2003		1.31

Development in overdue receivables from 1998-2003 (in millions of CZK)

1998		103.7
1999		75.5
2000		70.0
2001		34.2
2002		23.5
2003		167.1

Na Homolce Hospital bench marking

Bed occupancy rate (as a %)

Na Homolce Hospital	92.3
CR average	81.0
Prague hospitals	82.1
Czech hospitals	80.4
Moravian hospitals	84.6

Average length of treatment (in days)

Na Homolce Hospital	6.74
CR average	8.96
Prague hospitals	9.02
Czech hospitals	8.90
Moravian hospitals	9.09

Average monthly salary (in CZK)

Na Homolce Hospital	26,676
CR average	20,572
Prague hospitals	21,613
Czech hospitals	21,103
Moravian hospitals	19,378

Cost effectiveness (as a %)

Na Homolce Hospital	1.3
CR average	-3.5
Prague hospitals	-4.3
Czech hospitals	-3.3
Moravian hospitals	-2.1

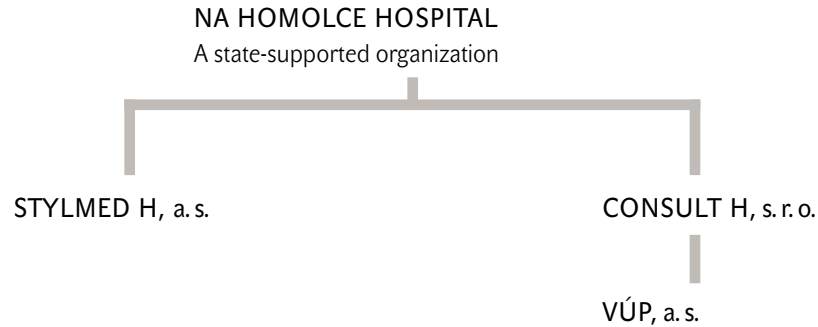
Overdue receivables as a percentage of total costs

Na Homolce Hospital	7.6
CR average	3.4
Prague hospitals	3.3
Czech hospitals	2.9
Moravian hospitals	4.1

Overdue payables as a percentage of total costs

Na Homolce Hospital	3.5
CR average	7.2
Prague hospitals	11.9
Czech hospitals	7.6
Moravian hospitals	6.8

ECONOMIC STRUCTURE OF NA HOMOLCE HOSPITAL



Stylmed H, a. s.

Roentgenova 2, Prague 5

Date established: January 7th, 1998

Ownership structure to December 31st, 2003: Na Homolce Hospital 70%
Other shareholders 30%

Sphere of business: Distribution of health care appliances
Distribution of pharmaceuticals

Stylmed H, a. s. was established for the purpose of combining purchases of health care materials and pharmaceuticals originally only for Na Homolce Hospital, but now for a group of customers from a series of health care facilities. Given the strong position of the primary supplier, the company guarantees its customers low prices year-round through a number of discounts as well as reductions based on the volume of turnover.

In 2003 Stylmed H performed all the tasks established for it by the majority shareholder.

Tasks for 2003	2003 results
Increase in health care consumables <1%	-4.5 %
Increase in separately charged consumables 0%	-1.9 %
Operating costs as a percentage of the total <7%	6.7 %
Profit = 3 million CZK	3 mil. CZK

A year-on-year comparison of a basket of consumables delivered to Na Homolce Hospital in 2003 showed a 2.6% fall in prices (representing savings of over 10 million CZK).

A high quality approach and low prices led to an increase in deliveries to other health care facilities. In 2003, sales other than to the parent company represented over 100 million CZK.

Consult H, s. r. o.

Roentgenova 2, Prague 5

Date established: June 20th, 1998

Ownership structure to December 31st, 2003: Na Homolce Hospital 100%

Sphere of business: Business, financial, organizational and economic advisory services

The company provides advisory services for the health care sector, specializing particularly in legal forms and consulting for health care facilities undergoing restructuring, introducing controlling and implementing DRG.

It is also a service organization, holding shares in the Výzkumný ústav pletářský, a.s. in Brno. Consult H. s r.o. reported profits for the 2003 financial year.

Výzkumný ústav pletářský, a. s.

Šujanovo nám. 3, Brno

Date established: March 20th, 1991

Ownership structure to December 31st, 2003: Consult H, s. r. o. 100%

Sphere of business: Research and development in knitting and ribbon-making methods and technologies, including non-woven textiles and health care products
Production of health care articles
Production of textiles and textile products

The company marketed and sold its products under the brand names METEA and KLIMATEX.

The KLIMATEX product range covers special textiles with high added value used to make functional clothing. Major customers of this brand include the SPORTISIMO chain of sports shops, the downhill ski and snowboard Czech representation for Athens 2004 (twice Czech champions) and other important sporting personalities. Total turnover for this division was over 30 million crowns in 2003.

The other brand name, MEDEA, makes unique health care textiles. Its turnover was over 22 million crowns. In 2003 the company managed to place its products on the former Yugoslav market and the extremely competitive French market. The traditionally active sales campaign in Latin America was supported by the presence of VÚP representatives on the commercial mission led by the Czech prime minister in November 2003.

The company closed its 2003 accounting period with profits of 2.1 million CZK.

PERSONNEL AND SOCIAL POLICIES

One of the hospital's key areas of focus in 2003 was the creation of a team of stable, positively motivated employees with the necessary qualifications, knowledge and productiveness, working towards implementing the vision and goals of Na Homolce.

In accordance with the approved personnel plan, a system to review the performance and potential of key groups of employees was implemented in 2003. The review was based on fulfilling qualification criteria in the areas of professionalism, quality, performance, customer orientation, managerial skills and the personal attitude of individual employees. Each review concluded with an interview between the reviewer and reviewee, specifically aimed at further personal development of the employees, which also contributed to improving internal communications and corporate culture.

Connected to the review system, a new structure of special biannual bonuses was developed with the objective of increasing employee motivation and supporting employee attitudes and behavior that contributed to fulfilling the goals set. Differentiating attitude and strengthening the decision-making power of management staff are important elements of this system. Given the hospital's financial stability, the current system of pay increases has been maintained.

From the point of view of employment, during 2003 there was an increase in the numbers of personnel, particularly in nursing staff. Despite the fact that the Veleslavín Department of Pneumology was transferred to the Thomayerova Teaching Hospital, this reduction in staff numbers was compensated for by further development in key areas of Na Homolce Hospital, particularly in the cardiovascular program.

An important stabilizing factor for the staff was also the implementation of a social program. Money from the Cultural and Social Fund created by the employer can be used for the social, educational, health care, sporting and cultural needs of the employees. During 2003 almost 10 million CZK were devoted for this purpose.

Staff numbers

Staff categories	Numbers	%	Change from 2002
Physicians	243	14.6	+ 3
Pharmacists	7	0.4	0
Other graduates and professionals (non medical)	22	1.3	0
Nurses	841	50.3	+ 40
Other nursing staff	15	0.9	+ 1
Assistant nursing staff	133	8.0	+ 8
Technical and administrative staff	239	14.3	+ 1
Operational and general service staff	170	10.2	-7
Total staff numbers	1,670	100.0	+ 46

Salaries

Na Homolce spent a total of 534,694,222 CZK on salaries in 2003.

The average salary rose by 13.3% from 2002 levels and reached 26,676 CZK.

Average pay by individual category

Average salaries for individual staff categories	
Physicians	60,298 Kč
Pharmacists	45,873 Kč
Other graduates and professionals (non medical)	47,330 Kč
Nurses	21,444 Kč
Other nursing staff	16,536 Kč
Assistant nursing staff	14,936 Kč
Technical and administrative staff	22,615 Kč
Operational and general service staff	16,985 Kč



AUDITOR'S CERTIFICATE

The statutory body of the accounting unit is responsible for ensuring that the accounts are maintained, and are comprehensive, transparent and accurate. The duty of the auditor is to prepare a report and to comment on the Statement of Account and the Annual Report, in compliance with act no. 254/2000 Coll. on auditors and the Chamber of Auditors of the Czech Republic.

On the basis of the auditing procedures we have used, we have not found any significant facts to indicate that the accounts certified by the accounting unit do not provide a true and faithful picture of the object of accounting and the financial status of the unit.

We have verified that the information concerning the audited organization for the period under review, as set out in the Annual Report, conforms to the certified statement of account to 12. 31. 2003. It is our opinion that this information, in all important respects, is in agreement with the statement of account from which it was taken.

Drawn up in Čelákovice, April 4th, 2004



ATLAS AUDIT s. r. o.
Tomáš Bartoš
licence number 300

GRANTS





RESEARCH GRANTS IN NA HOMOLCE HOSPITAL IN 2003

Total number: 13

Grant National Institutes of Health, USA (National Heart, Lung and Blood Institute, National Institute of Diabetes and Digestive and Kidney Diseases)

Title: INTERNATIONAL MULTICENTRIC BARI 2D STUDY
(BYPASS ANGIOPLASTY REVASCULARIZATION
INVESTIGATION 2 DIABETES)

Period: 2002–2007

Authors: University of Pittsburgh Graduate School of Public Health and 40 other university medical centers in the USA and Canada, Na Homolce Hospital in Europe

Main author: Katherine Detre, M.D., Ph.D.
Director, Epidemiology Data Center, University of Pittsburgh Graduate School of Public Health, Pennsylvania, U.S.A.

Co-authors for Na Homolce Hospital:

Petr Neužil, M.D., Ph.D.
Department of Cardiology, Na Homolce Hospital
Štěpánka Stehlíková
Department of Internal Medicine, Na Homolce Hospital

The project aims to research the most effective method of treating ischaemic heart disease in patients suffering from type 2 diabetes. 95% of all diabetics suffer from this type of diabetes.

Type 2 diabetics have high blood sugar levels, either caused by the inability of the organism (pancreas) to produce enough insulin, or the inability of the organism to react to the insulin, or a combination of both these disorders. The resultant high level of blood sugars subsequently causes damage to many organs, including the heart muscle. It has been proved that ischaemic heart disorder affects patients with type 2 diabetes at an earlier age and two to three times more frequently than the healthy population. The study will investigate whether the early treatment of ischaemic heart disorder by angioplasty, coronary bypass or pharmaceuticals produces better results for type 2 diabetics. At the same time, patients taking part in the study will be tested with two different therapeutic methods for high blood sugar levels: the administration of pharmaceuticals to stimulate the production of insulin by the organism (insulin providers) or the administration of drugs that adjust the body's reaction to insulin (insulin sensitizers). It is not yet known which of these pharmaceutical treatments is the better for patients suffering from a combination of type 2 diabetes and ischaemic heart disorder.

Grant NS 1296 (Na Homolce Hospital and Elekta)

Title: TREATMENT OF GLAUCOMA WITH THE LEKSELL GAMMA KNIFE
AT THE EARLY STAGES OF THE DISEASE

Period: 2003–2008

Authors: Assoc. Prof. V. Vladyka, M.D., Ph.D.
Department of Stereotactic and Radiation Neurosurgery, Na Homolce Hospital
Roman Liščák, M.D., Ph.D.
Department of Stereotactic and Radiation Neurosurgery, Na Homolce Hospital

Gabriela Šimonová, M.D., Ph.D.
Department of Stereotactic and Radiation Neurosurgery, Na Homolce Hospital
 Josef Novotný, M.Sc.
Department of Medical Physics, Na Homolce Hospital
 Prof Martin Kořán, Ph.D.
Clinical Psychologist, Na Homolce Hospital
 Daniele Tlacháčová, M.A.
Department of Stereotactic and Radiation Neurosurgery, Na Homolce Hospital

Assoc. Prof. Jiří Pašta, M.D., Ph.D.
Střešovice ÚVN Eye Clinic, Prague
 Jiří Pilbauer, M.D.
Střešovice ÚVN Eye Clinic, Prague
 Iveta Hejduková, M.D.
Střešovice ÚVN Eye Clinic, Prague
 Ladislav Nováček, M.D.
Střešovice ÚVN Eye Clinic, Prague
 Pavel Němec, M.D.
Střešovice ÚVN Eye Clinic, Prague
 Jaroslava Vladyková, M.D., DrSc.
Střešovice ÚVN Eye Clinic, Prague
 Leoš Rajmont, M.D.
Střešovice ÚVN Eye Clinic, Prague

Between 2000 and 2002, both study centers contributed to the initial research project. They found that gamma knife irradiation of the intra-ocular ciliary body can still help patients at an advanced stage of glaucoma, when they face losing the eye. It alleviates severe pain, reduces intra-ocular pressure and helps to alleviate the formation of new vessels. This is a completely new medical procedure. The results have been confirmed on over one hundred patients and presented at medical fora at home and abroad. The intermediate results have been published in foreign professional journals and the final report for this initial study is about to be printed. A new treatment option has been found for the 20% of glaucoma patients who generally reach this advanced stage of the disease.

The question remains as to whether this type of treatment can be used to halt the progress of the disease in its early stages, when increased intra-ocular pressure leads to imperceptible deterioration in vision. This applies to the 80% of glaucoma patients who are resistant to conventional treatment methods (pharmaceutical, laser and microsurgical).

Comprehensive computer-assisted eye examinations now enable early diagnosis and long-term comparative monitoring of the therapeutic results. A reasonable follow-up period should be at least five years.

This new five-year grant study should answer this question. 60 patients should be a suitable number for the project and, apart from gamma knife treatment, they will have to undergo a total of 5,400 clinical and technical examinations.

The detailed methodology for the study has been developed in line with the latest international ethical standards and has been considered and approved by the ethics committees of both Na Homolce and the Střešovice Eye Clinic. Patients will give their informed consent before being included in the study.

Should this research project prove that gamma knife treatment prevents vision deterioration in these glaucoma patients and has a neuroprotective effect, it would mean a breakthrough for global efforts, which have so far been ineffective.

Grant NS 1297 (Na Homolce Hospital and Elekta)

Title: **CAN LEKSELL GAMMA KNIFE TREATMENT HALT THE PROGRESS OF THE DISEASE AND IMPROVE VISION IN AGE-DEPENDENT MACULAR DEGENERATION?**

Period: 2003–2008

Authors: Assoc. Prof. V. Vladyka, M.D., Ph.D.
Department of Stereotactic and Radiation Neurosurgery, Na Homolce Hospital
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 Leoš Rajmont, M.D.
Střešovice ÚVN Eye Clinic, Prague

At an advanced age one of the most frequent, and most serious, eye diseases is age-dependent macular degeneration (ADMD). To date no unequivocally effective treatment has been found to prevent vision loss. In the initial stages of the disease, as long as no serious deterioration in vision has taken place, a number of different treatments are used – laser, coagulation, transpupilar thermotherapy and microsurgery. Each of these has some very limited effect but none of the procedures is effective enough to cure this serious disease. In the advanced, malignant form, a very active vascular membrane develops beneath the retina causing its partial detachment and can lead to permanent blindness.

The focused, demarcated irradiation of the pathological structure by gamma knife has proved to be an effective modern treatment for a number of eye diseases – tumors, glaucoma, vascular anomalies. In ADMD, this type of irradiation to the vascular membranes can seal off vascular neoplasms in the membrane. This halts the activity of the membrane and can lead to a stabilization of the disease, or even a slight improvement in visual orientation in space. The use of non-invasive gamma knife treatment avoids the need for intra-ocular surgery that is sometimes associated with numerous complications.

The effect of gamma knife treatment on ADMD has not yet been proven, which is why we have proposed a grant study of 30 patients with this condition. A comprehensive series of examinations will have to be conducted at regular intervals over a period of at least 5 years. Modern imaging methods will complement the clinical tests.

The detailed methodology for the study has been developed in line with international ethical standards and has been considered and approved by the ethics committees of both Na Homolce and the Střešovice Eye Clinic. Patients will give their informed consent before being included in the study. Should the gamma knife prove effective as a form of treatment for limited forms of ADMD, it would represent an important contribution to widening the therapeutic options available as well as to reducing the cost of treating this disease.

Grant NF 7623-3

Title: HUNTINGTON'S CHOREA: ANALYSIS OF RELATIONS BETWEEN THE CLINICAL, FUNCTIONAL AND MORPHOMETRIC FINDINGS

Period: 2002-2004

Author: Assoc. Prof. Jan Roth, M.D., Ph.D.
Neurology Clinic, CU 1st Medical Faculty

Co-author: Josef Symazal, M.D., Ph.D.,
Department of Radiology, Na Homolce Hospital

Magnetic resonance plays an important role in researching hitherto poorly-understood neurological disorders. Huntington's Chorea falls into this category, a hereditary condition affecting predetermined areas of the cerebral gray matter, first causing deterioration and later morphologically detectable shrinkage. In these cases, magnetic resonance can carry out non-invasive mapping of various areas of the brain and comparing their volume and the intensity of the emitted signals with healthy volunteers of a similar age. This is the scope of the approved grant. The results of this project may significantly contribute to our understanding of the ways in which Huntington's Chorea damages the gray matter of the brain and how the magnetic resonance findings are correlated to the clinical state of the patient.

Grant IGA MZ ČR NC 7460-3

Title: THE USE OF THREE-DIMENSIONAL GEL DOSIMETRY TO CONFIRM IRRADIATION PROCEDURES IN RADIATION ONCOLOGY

Period: 2003-2005

Author: Assoc. Prof. Josef Novotný, M.Sc., Ph.D.
Department of Medical Physics, Na Homolce Hospital

Co-authors: Assoc. Prof. Tomáš Čechák, M.Sc., Ph.D.

ČVUT, Prague

Václav Spěvák, M.Sc.

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Institute of Macromolecular Chemistry

Jiří Vacík, M.Sc., Ph.D.

Institute of Macromolecular Chemistry

Martin Příkladný, M.Sc., Ph.D.

Institute of Macromolecular Chemistry

Jan Hrbáček, M.Sc.,

Motol Teaching Hospital

The objective of this proposed project is to bring the existing system of three-dimensional gel dosimetry into clinical practice. During the project, the dosimeter will be used to verify various irradiation techniques used in radiation oncology with the objective of increasing the overall quality of treatment. The chemical and physical parameters of the dosimeter will be studied during its preparation, irradiation and evaluation of nuclear magnetic resonance just as other measuring techniques are tested (using CCD cameras, for example). Three-dimensional gel dosimetry can offer advantages not found in other dosimetric methods: 1) the dosimeter is tissue equivalent and can create its own testing phantom, 2) three-dimensional doses can be measured during a single irradiation session, using a single dosimeter and 3) the dosimeter enables unlimited simulated irradiation of the patient. Using three-dimensional gel dosimetry in clinical dosimetry would greatly increase the possibilities of controlling the overall radiation process during radiation oncology of the patient. The development of a suitable method for independent audit of planning systems or irradiation techniques would also help in fulfilling the conditions of Act no. 18/Coll. 1997 (on atomic energy) and related decrees. Bringing the gel dosimeter into clinical practice within the framework of this project should enable us to determine the conditions governing its future use in the Czech Republic, either to verify selected radiation oncology techniques in individual centers, or for use by the public bodies responsible for monitoring radiation safety.

Grant IGA MZ ČR NC 7568

Title: THE IMPORTANCE OF POSITRON EMISSION TOMOGRAPHY (PET) WITH 18-FLUORODEOXYGLUCOSE (18-FDG) IN DIAGNOSING MALIGNANT LYMPHOMA IN CHILDREN AND ADOLESCENTS

Period: 2003–2005

Author: Edita Kabíčková, M.D.
Childrens Oncological Clinic, Motol Teaching Hospital

Co-author: Otakar Bělohávek, M.D., Ph.D.
Department of Nuclear Medicine/PET Center, Na Homolce Hospital

An essential pre-condition for the successful treatment of malignant lymphoma in children (ML) is determining the extent of the disease. Conventional imaging methods enable morphological imaging of the tumor. Positron emission tomography (PET) uses glucose marked with radioisotopes to allow imaging of metabolic changes before anatomic changes can be perceived. While this examination has been found to be suitable for the initial staging and subsequent monitoring of adult oncological patients with ML, the role of PET in child ML diagnostics has not yet been defined.

We intend to use this prospective study to judge the clinic importance of FDG-PET in determining the extent of the disease before commencing treatment and to monitor the response to treatment of children and adolescents with Hodgkins disease (HD) and non-Hodgkins lymphoma (NHL). The objective of the project is to define the role of PET in ML diagnostics and to propose the most suitable place for PET in the range of interventions available under the Czech health care system.

The results of this study should help to group patients by level of risk (to reduce the level of toxicity in treatments for children with positive findings while intensifying the treatment in high-risk patients) as well as improving the treatment results of child ML.

Research Center established by the Ministry of Education, Youth and Sports: LN00B122

Title: CENTER OF NEUROPSYCHIATRIC STUDIES

Contribution of Na Homolce Hospital to the project:

Utilization of positron emission tomography in the study of neuropsychiatric disorders.

Period: 2000–2004

Author: Cyril Höschl, M.D., Ph.D.
Psychiatric Center, Prague

Co-author: Otakar Bělohávek, M.D., Ph.D.
Department of Nuclear Medicine/PET Center, Na Homolce Hospital

As part of this project, patients suffering from schizophrenia are examined by positron emission tomography at Na Homolce Hospital. Neuroleptic therapy of these patients had been discontinued for various reasons. The group of examined patients also includes those diagnosed with a first episode of schizophrenia, those on medication and experiencing an onset of remission. The PET examination monitors the relationship between the PET activation profile and several other variables, such as the type of therapy, the symptomatology assessed on the basis of psychometric scales and undesirable side-effects of the therapy - such as extra-pyramidal syndrome.

Grant NS 1592

Title: **THE DEVELOPMENT OF SPATIAL MEMORY TESTS FOR THE EARLY DETECTION OF MEMORY DISORDERS IN NEUROLOGICAL AND PSYCHIATRIC PATIENTS**

Period: 2002–2004

Author: Jan Preiss, Ph.D.
Department of Neurology, Na Homolce Hospital

Co-authors: Andre A. Fenton, Ph.D.
Physiological Institute, Czech Academy of Science
Iva Holmerová, M.D.
Gerontological Center, Prague 8

The development of the memory nerve mechanisms project, which has been underway over the past ten years in the Physiological Institute of the Czech Academy of Science, has led to the development of non-verbal tests for space cognition that can be used for the objective assessment of memory disorders induced by cerebral disease. With the support of the McDonnell Foundation, a laboratory was built at Na Homolce Hospital between 1999 and 2001, equipped with a computerized monitoring system to evaluate the navigational behavior of patients suffering from lesions of the medio-temporal cortex. The study aims to continue with this research and to use this unique installation for the quantitative assessment of memory disorders caused by other diseases of the brain, in particular the early stages of Alzheimer's disease. Computer tests of spatial memory have also been developed and standards are being set for expanded clinical applications.

Grant NM 6548-3

Title: **HYPERHOMOCYSTEINEMIA IN PREGNANCY: THE ROLE OF GENETIC FACTORS IN THE APPEARANCE OF DEFECTS IN THE NEURAL TUBE DEFECTS, OROFACIAL CLEFTS AND PREECLAMPSIA**

Period: 2001–2003

Author: Viktor Kožich, M.D., Ph.D.
Institute of inherited metabolic disorders, First medical Faculty, Charles University

Co-author: Prof. J. Hyánek, M.D., Ph.D.
*Department of Clinical Biochemistry, Hematology and Immunology,
Na Homolce Hospital*

The aim of the grant project was to demonstrate the applicability and effectivity of molecular-genetic analyses for screening and homocystein metabolism disorders in the Czech population of pregnant women.

Part A of the project dealt with mapping allele variability in genes controlling the metabolism of homocystein and its associated vitamins in the Czech population of pregnant women. 112 polymorphisms were discovered in the coding element of the selected genes, and of these we monitored polymorphisms of folate metabolism FOLH 1561C>T, RFC 80G>A, MTHFR 677C>T, MTHFR 1289 A>C on folacin concentrations in the blood and blood plasma. The association between the 844ins68bp polymorphism in CBS and a lower risk of ICHS was statistically significant.

Part B was aimed at studying the genetic factors contributing to birth complications, primarily defects of the neural tube, orofacial clefts and pre-eclampsia. 256 patients with orofacial clefts were examined as well as 27 families from throughout the Czech Republic with repeated histories of neural tube defects. The DNA genome thus acquired will be used to analyze the 10 genes associated with remethylation of homocystein and folate metabolism. Determining the 28 genotypes with their resultant associated and binding analysis is being carried out in association with the Columbia University center and, because of the extensive genetic analysis required, the results are not yet available.

Grant NM 6497-3

Title: **INCIDENCE OF HYPERHOMOCYSTEINEMIA AND ITS SIGNIFICANCE FOR CARDIOVASCULAR AND THROMBOEMBOLIC COMPLICATIONS IN INTENSIVE CARE PATIENTS**

Period: 2001–2003

Author: Prof. J. Hyánek, M.D., Ph.D.
*Department of Clinical Biochemistry, Hematology and Immunology,
Na Homolce Hospital*

Co-author: Prof Milan Macek, M.D., Ph.D.
*Institute of Biology and Medical Genetics, Molecular Genetics Laboratory,
Motol University Hospital*

Between 1993 and 2003, total homocystein (tHcy) levels were tested in 11,409 Na Homolce hospitalized patients and 3,353 of them were found to have high levels - hyperhomocysteinemia – HHC. Mild HHC (up to 30 $\mu\text{mol/l}$) was found in 1:3.6, moderate HHC (30-100 $\mu\text{mol/l}$) in 252 (incidence of 1:46) and 15 had severe HHC – over 100 $\mu\text{mol/l}$ (1:728), which shows an unusually high incidence of HHC in a hospital population of patients with cardiovascular diseases and confirmed the completed pilot study on the high frequency of C677T MTHFR gene mutation in this population. For this reason we began monitoring HHC in intensive care patients (n=561) and found the same high incidence, i.e. mild HHC in 18 patients, medium HHC in 18 and severe HHC in 3 patients. The TT genotype for MTHFR mutation was found in 43% of cardiovascular patients and in 86% of cerebrovascular patients. B-12 vitamin deficiency was found in 45.6% of older patients (above 65), folate deficit in 12.6% and kidney deficiency was shown in 78% of patients. A positive correlation between the Apache II score

and tHcy levels was shown in ICU patients. Selected case histories of patients with severe HHC without changes in their lipid levels and typical for different intensive care units (general anesthesiology, vascular, coronary, neurological, hemodialysis) are provided in the details. Vitamin supplementation of treatment for hyperhomocysteinemic patients in metabolic outpatient clinics with single vitamins (folic acid, cyanocobalamin, pyridoxin) or a mixture of them (Metavit, Kardioprotektin) proved effective in 72% of treated patients.

The results show that HHC is present in the population of patients with cardiovascular diseases far more frequently than had been assumed and that only routine testing for tHcy can reveal this fact. A large majority of HHC patients have kidney deficiency. tHcy levels of over 100 $\mu\text{mol/l}$ may appear in this population without necessarily implying the diagnosis of classical homocystinuria.

Grant IGA NA 7452-3

Title: **CORRELATIONS BETWEEN THE GENOTYPE AND PHENOTYPE OF FAMILY-RELATED HYPERCHOLESTEROLEMY IN CHILDREN AND ADOLESCENTS.**

Period: 2003–2005

Author: Prof. J. Hyánek, M.D., Ph.D.
*Department of Clinical Biochemistry, Hematology and Immunology,
Na Homolce Hospital*

Out of a total of 160 children attending the metabolic outpatients clinic for familial hypercholesterolemia, molecular-genetic testing to establish ApoB100 and LDL receptors was carried out on 108 children, and an additional 213 tests were performed on their parents and closest family members (n=321). Of 10 types of LDL mutation receptors analyzed, the most frequently found mutations were 1272ins96 and G751E. The average value for total cholesterol levels (TC) at LDL mutation receptors was 7.4 mmol/l and in the Apo B100 7.2 mmol/l. 2 homozygotes were found for ApoB100 with TC levels of 11.7 and 10.7 mmol/l.

The methodology used was an extremely complex method to establish the cholesterol biosynthesis in hypercholesterolemic children, its precursors (lathosterol, campesterol, desmosterol, lanosterol and sitosterol) were analyzed by use of the GC/MS method. The only defected significant correlation was between TC and lathosterol. The diagnostic spectrum of cholesterol precursors was used to diagnose suspected desmosterolosis in bone dysplasia with accompanied by hypercholesterolemia.

IMT ultrasound examination of the monitored children with family-related hypercholesterolemia did not detect, with the exception of one patient, any positive changes in thickness status.

Grant IGA NF 6460-3

Title: **DIFFERENTIAL DIAGNOSTICS OF INFLAMMATORY AND AUTO IMMUNE DISEASES OF THE CENTRAL NERVOUS SYSTEM (CNS): ASSISTANCE IN MONITORING PROTEIN FRACTIONS IN CEREBROSPINAL FLUID**

Period: 2001–2001

Authors: Assoc. Prof. Pavel Adam, M.D., Ph.D.
*Department of Clinical Biochemistry, Hematology and Immunology,
Na Homolce Hospital*

Ondřej Sobek, M.D.

*Department of Clinical Biochemistry, Hematology and Immunology,
Na Homolce Hospital*

The grant project concerns the monitoring of the biological behavior of protein fractions in the cerebrospinal fluid of patients with inflammatory and autoimmune diseases of the nervous system. The established methodology is laser nephelometry, in certain cases linked to the utilization of latex particules or with monoclonal antibodies. Monitoring is carried out in conjunction with cytological examination of the cerebrospinal fluid, its routine biochemical examination and in some cases this is supplemented with isoelectrical focusing. The results of the already extremely extensive file are continually analyzed by mathematico-statistical methods. Results from the project clearly indicate that many cerebrospinal fluid protein markers can be used in routine cerebrospinal fluid diagnostics, which is an undoubted improvement. The results of the progress of this project have been regularly published in domestic and foreign publications. The grant project was given an A assessment and has been put forward for the Ministry of Health award.

Grant IGA NL 7024-3

Title: **BIOCHEMICAL INFLAMMATION MARKER IN EXHALED AIR FROM ASTHMATIC PATIENTS AS A NEW METHOD OF MONITORING THE DISEASE AND A MEANS OF OPTIMIZING DRUG TREATMENT**

Period: 2002-2004

Author: J. Chádek, M.Sc., Ph.D.
Institute of Pharmacology, Charles University Medical Faculty, Hradec Králové

Co-author: Petr Čáp, M.D.
Department of Clinical Immunology and Allergology, Na Homolce Hospital

Associate of the co-author:
František Pehal, M.Sc.
fa Perose, Prague

The research undertaken for the purposes of this grant concerns the establishment of inflammation markers in exhaled air from asthmatic patients to ensure more precise diagnostics, to determine the seriousness of the disease, to enable differential diagnoses and to perfect the monitoring of the effectiveness of the treatment.

The research aims to establish direct markers indicating inflammation in the lower air passages of asthmatics, which have never before existed. The current diagnostic methods for asthma do not rely on any objective tests which would help to establish a definite diagnosis in a manner that is fast and non-invasive while being sufficiently sensitive and specific. The inflammation markers now used in the peripheral blood do not correlate to inflammation of the lower air passages and the other previously developed methods are invasive, stressful for the patient, and cannot be used routinely (bronchoscopy, lavage, biopsy.)

The co-authors, P. Čáp and F. Pehal, were the first in the Czech Republic to measure leucotrienes in standard samples of cooled air exhaled by 100 healthy adults and children and to compare the analyses with those taken from a group of treated asthmatics. For this they developed a method of direct measurement of leucotrienes using gas chromatography and mass spectrometry. The results achieved to date have been presented at the annual congress of allergological and pulmonary societies in the Czech Republic, published in specialized periodicals and are currently being printed and will appear in foreign professional publications.

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PUBLISHED IN 2003



I. MONOGRAPHS

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