






 NA HOMOLCE  
HOSPITAL



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## Introduction by the Managing Director



2002 was a key year for Na Homolce Hospital for two quite separate reasons. Because the hospital has achieved financial and organizational stability, we are now in a position to consider projects which, despite not producing any immediate, significant impact, have enormous potential over the long-term.

The first priority was to ensure the quality of those procedures that - through the use of minimally invasive diagnostic and therapeutic methods and state-of-the-art equipment, materials and drugs - produce the best results for our patients. The modernization of the existing capacity, continuing professional training and preparation for internationally recognized certification and accreditation, all guarantee the rapid implementation of safe and reliable procedures.

This then brings us on to our second theme – our entry into the commercial and international health services market. The high investment and operating costs borne by any highly technological institution require additional financing, which has to be found outside the general health insurance system. Our task is to identify these potential resources, and to set out the conditions governing their use. These sources already contribute 6 % of hospital income, while their high level of profitability means that they represented 60% of operating profits in 2002, while only occupying 2.7% of total hospital capacity. Over the next few years, we should like to gradually increase this proportion to 10% of capacity. Because of the high bed occupancy ratios at Na Homolce Hospital, this would still mean that there would be greater availability of ward space for patients covered by general health insurance than is standard in Prague, and in the Czech Republic as a whole. This attempt to increase the percentage of

our commercial clients will allow us to continually update our technical equipment in order to keep pace with rapid global technological developments. It is also important to note that finances raised in this manner will create significant savings for the state budget, from which Na Homolce Hospital, unlike other state-run hospitals, does not receive subsidies.

Our international activities more specifically concern professional collaboration, which enables us to introduce the latest methods into immediate practice as well as to acquire data concerning their profitability and the economics of their use as quickly as possible from renowned institutions. In our modern, developed information society, information is readily available, which makes it all the more important to know how to apply it correctly. These contacts that focus on the application of modern methods draw us further into the area of clinical research, where we have become important partners for both European and overseas centers.

We lay particular emphasis on the realization of our vision – *to be able to provide our patients, particularly in the areas of cardiovascular medicine and in the clinical neurosciences, with state-of-the-art, comprehensive, cost-effective and efficacious diagnostics and treatment.*



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 for Treatment and Preventive Care  
**Milan Ročeň, M.D.**



Deputy Director for Finance and Business  
**Pavel Brůna, M.Sc.**



Deputy Director for Internal Audit and Control  
**Iva Rechová, M.Sc.**



Deputy Director for Hospital Operations  
**Jan Kapal, M.Sc.**



Head Nurse  
**Libuše Budská**

### SUPERVISORY BOARD



Chairperson  
**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 2002

The work of the supervisory board conformed to the provisions of its Memorandum of Association, issued by the Ministry of Health of the Czech Republic, and followed on from its practice and experience acquired over previous years. Libuše Budská, Head Nurse of Na Homolce Hospital, joined the board as a new member in 2002.

There were four meetings of the supervisory board in 2002, attended by the members listed above. The supervisory board focused on management activities in the following areas:

financial management of the hospital, with particular emphasis on the effective use of financial resources in the provision of health care,

improvement of the quality and range of health care by using state-of-the-art diagnostic and therapeutic methods,

reduction of debt levels,

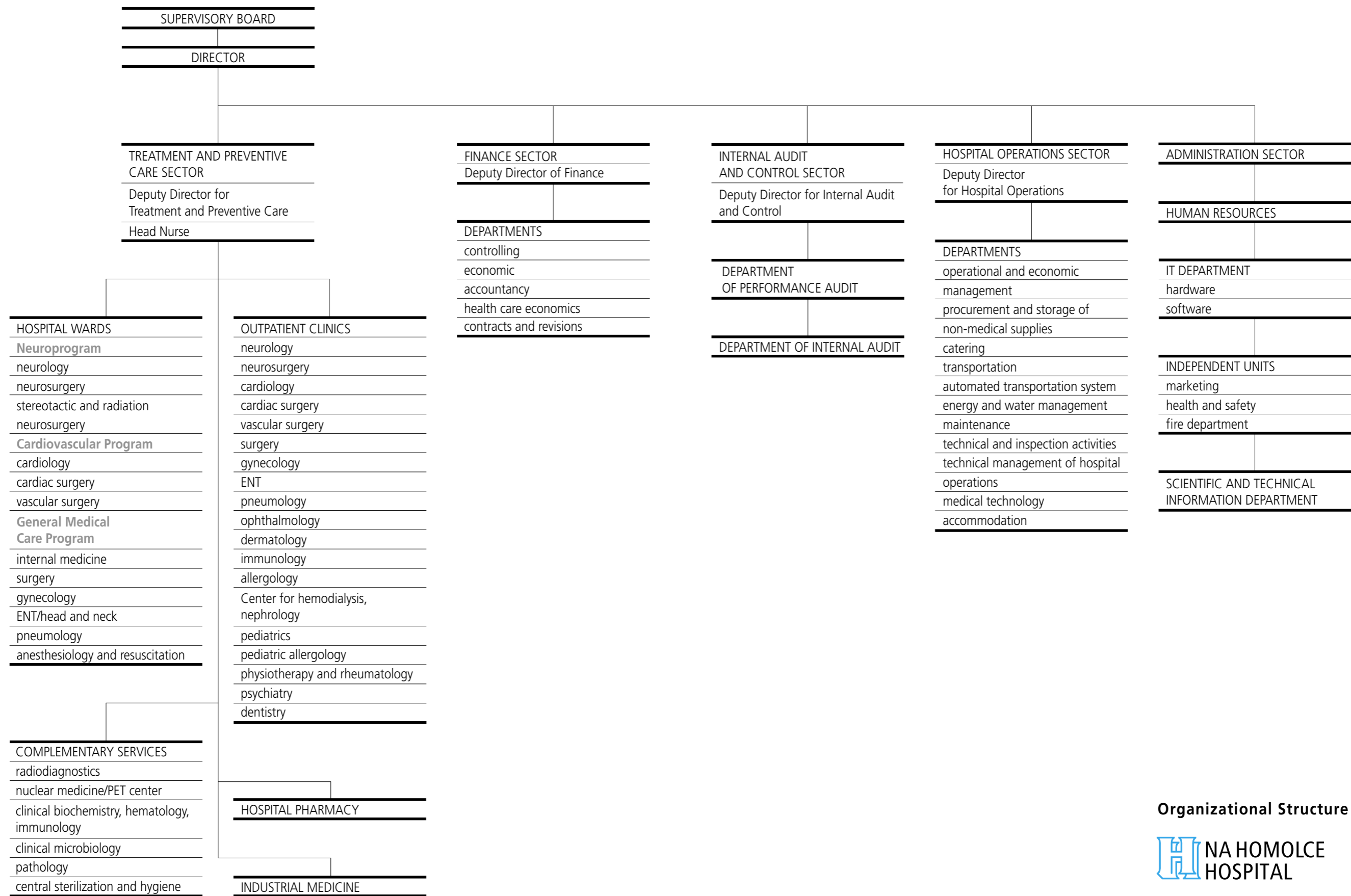
ensuring conformity between the economic, operational and qualitative aspects of the hospital's activities and its long-term strategy,

development of relationships with domestic and foreign health care facilities.

After assessing the results of these activities, the Supervisory Board announces that it is satisfied and has found no serious deficiencies.

The Supervisory Board expresses its appreciation of the level of cooperation provided by the hospital management and its thanks to the employees for their work during 2002.

Milan Fafejta, M.Sc.  
Chairman of the Supervisory Board



**Organizational Structure 2002**



## Na Homolce Hospital

A specialized health care center with nationwide coverage for cardiovascular and neurosurgical treatment

### Neurology/Neurosurgery Program

A national program for patients from throughout the Czech Republic suffering from diseases of, or injuries to, the central and peripheral nervous system, as well as diseases of, or injuries to, the locomotory system. 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

A national program for patients from throughout the Czech Republic suffering from diseases of the cardiovascular systém (heart and blood vessels). The three independent program units focus on complex diagnostics and treatment by conservative methods, and also, in particular, on surgical treatment of vascular diseases – primarily stenosis or obliteration of the arteries as a result of arteriosclerosis – including interventional radiology. Medical care includes special physiotherapy for patients with diseases of the circulatory system.

*Department of Cardiology*

*Department of Cardiac Surgery*

*Department of Vascular Surgery*

### Program of General Medical Care

This regional program for the city of Prague focuses on providing a comprehensive range of general health care treatments, supported by a large outpatient department and related wards in the internal medical and surgical areas. The five independent hospital wards within this program offer patients from Prague and the surrounding area a complete range of diagnostic and therapeutic procedures for diseases related to internal medicine and general surgery. These are closely linked to the extensive services provided by the outpatient department with specialized clinics covering individual internal medical and surgical specializations.

*Department of Internal Medicine*

*Department of Surgery*

*Department of Gynecology and Minimally Invasive Therapy*

*Department of ENT/Head and Neck Surgery*

*Department of Pneumology*

### Basic data

	to 12. 31. 2001	to 12. 31. 2002	% increase
Staff	1,445	1,570	8%
Beds	330	420	21%
Number of patient admissions	14,968	16,930	12%
Number of interventions	11,357	12,838	12%
Number of outpatient examinations	716,319	772,951	7%

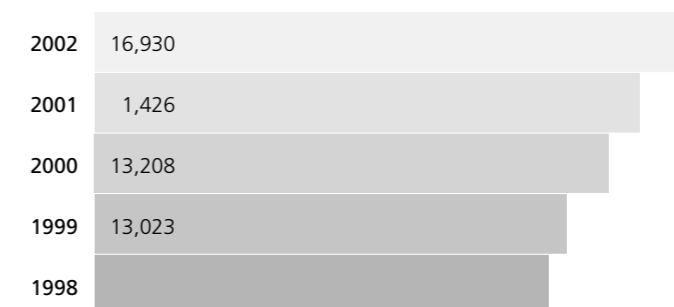
### Number of admissions

	to 12. 31. 2001	to 12. 31. 2002	% increase
Neurology-Neurosurgery program	4,083	4,160	2%
Cardiovascular program	5,780	7,181	20%
General Medical Care program	5,794	6,968	17%
<b>Total</b>	<b>14,968</b>	<b>16,930</b>	<b>12%</b>

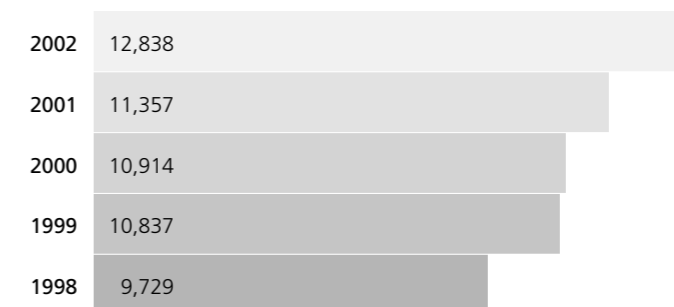
### Number of beds to 12.31.2002

	IC beds	total	%
Neurology-Neurosurgery program	25	105	25%
Cardiovascular program	45	122	29%
General Medical Care program	44	195	46%
<b>Total</b>	<b>114</b>	<b>422</b>	<b>100%</b>

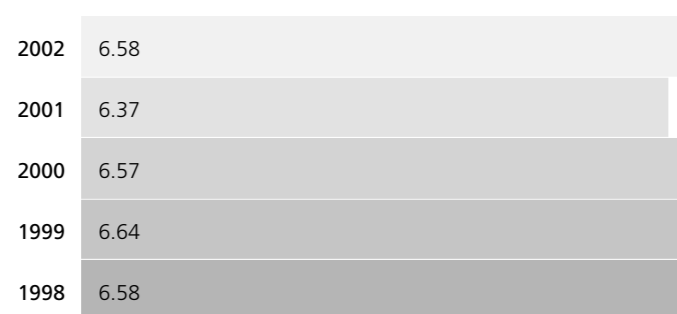
### Number of admissions 1998-2002



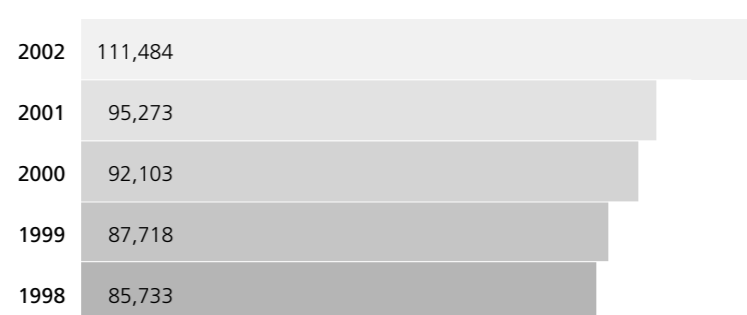
### Number of interventions (including outpatients) 1998-2002



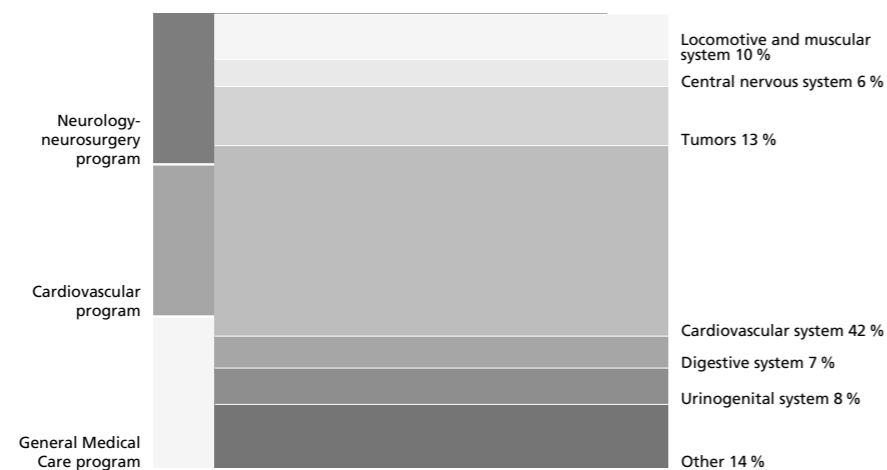
### Average length of stay 1998-2002



### Number of days of treatment 1998-2002



### Structure of the main diagnoses in 2002



### Mortality 2000 - 2002

	2000	2001	2002
<b>NHH</b>	<b>1.9%</b>	<b>2.2%</b>	<b>2.1%</b>
Neurology	2.2%	2.3%	2.2%
Neurosurgery	1.7%	2.1%	1.5%
Gamma knife	0.0%	0.1%	0.1%
Cardiology	1.4%	1.7%	1.4%
Cardiac surgery			3.2%*
Vascular surgery	2.5%	3.4%	2.3%
Internal medicine	4.2%	4.3%	3.2%
General surgery	1.2%	1.1%	0.5%
Gynecology	0.0%	0.0%	0.0%
ENT	0.4%	0.1%	0.6%

\* for the period between May 2002 and March 200

### Treatment of acute myocardial infarct by direct PTCA 1998 - 2002

	1998	1999	2000	2001	2002
Number of direct PTCA	43	57	97	85	240
Complications after PTCA	1	2	2	1	3
Mortality	2	2	1	1	2

### Treatment of cerebral vascular events by local intraarterial thrombolysis (LIT)

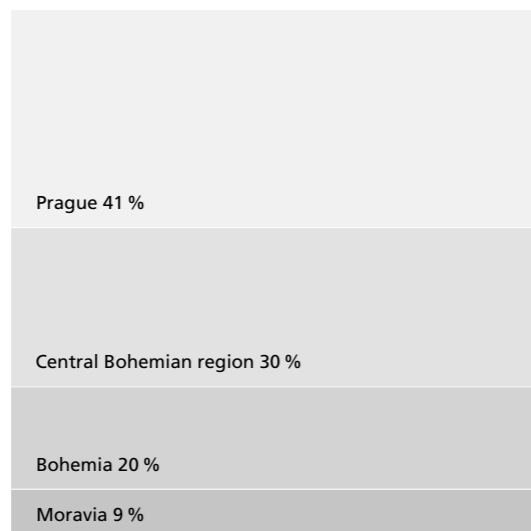
#### Angiographic results from a group of patients treated by LIT

Localization of stenosis	Number of patients	Age Average	Effect of thrombolysis		
			I – total recanalization	II – partial recanalization	III – unsuccessful
<b>ACI</b>	3	16-52 33	1	1	1
<b>ACM</b>	17	21-76 49	13	1	3
<b>VA / BA</b>	7	32-63 52	4	2	1
<b>Total</b>	27	49	18	4	5



**Origin of admitted patients in 2002 by %**

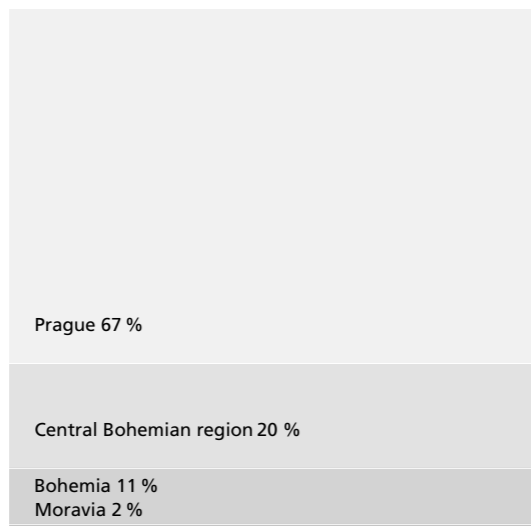
**Neurology-Neurosurgery program**



**Cardiovascular program**

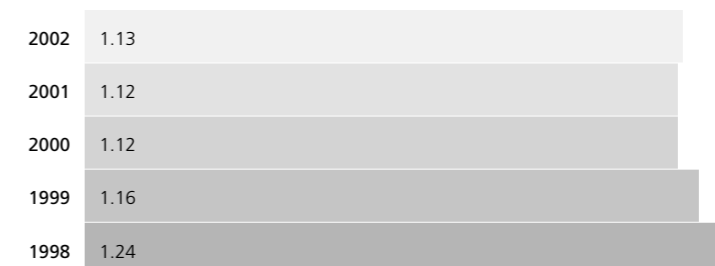


**General Medical Care program**

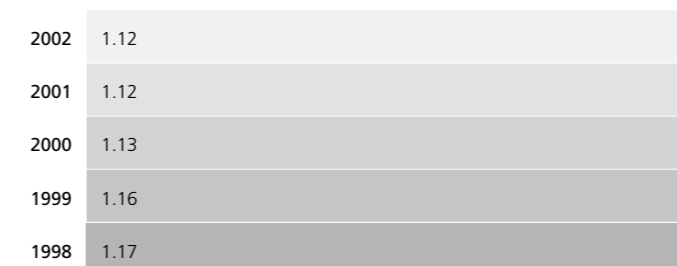


**Responses to a questionnaire on patient satisfaction (on a scale of 1 to 5)**

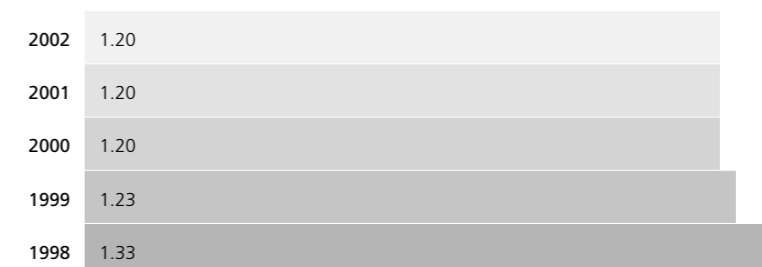
**Admissions procedure**



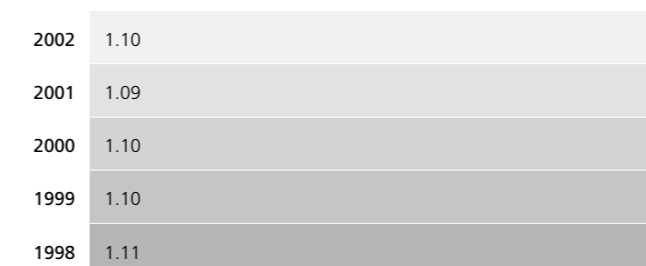
**Willingness to respond to requests**



**Interest in the patient and his/her needs**



**Standard of care provided**



**Explanations given of the health disorders**

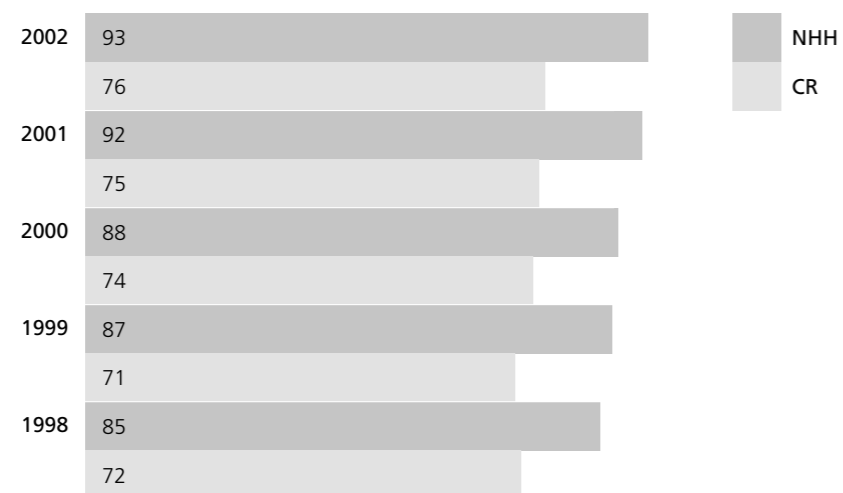


Information on discharge

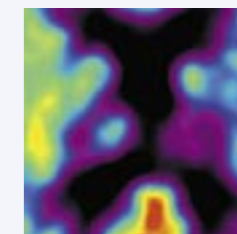


Na Homolce Hospital benchmarking in the Czech Republic

Bed occupancy % 1998-2002



Average length of stay 1998 - 2002



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, including special electrophysiological and ultrasonic diagnostic methods. It provides comprehensive outpatient and ward care in these specialized areas. The department includes an Epilepsy Center for the treatment of patients suffering from epilepsy. This comprises two *epilepsy counseling* units, which treated 1,922 patients during 2002, 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 acts as a consultancy for neurological centers within the Czech Republic. In 2002, 187 patients were admitted to the EMU, of whom 16 were monitored by the invasive implantation of electrodes and 37 were referred for epileptosurgical intervention. Interdisciplinary cooperation between the Department of Neurosurgery and the Department of Stereotactic and Radiation Neurosurgery can sometimes allow for a choice between two treatment alternatives for patients suffering from forms of epilepsy that cannot be managed by drug therapy – between open surgery and gamma knife radiation. Na Homolce Hospital is one of three epileptosurgical centers in the Czech Republic, but the only medical institution in the republic to offer the option of gamma knife irradiation of damaged brain tissue.

*The Special Intensive Care Unit* for the treatment of acute and very severe neurological conditions also serves as a postgraduate training center for neurological intensive care. In 2002 a total of 11 patients were admitted to the intensive care unit to undergo intra arterial thrombolysis and 14 for complex treatment for polyradiculoneuritis, which included a series of plasmaphereses.

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*.

In 2002, the Department of Neurology was extended, resulting in a noticeable increase in capacity for its specialized laboratories.

### Teaching

The Department of Neurology of Na Homolce is the teaching base for the Institute of Health Care Postgraduate Education in the areas of acute neurology, epileptology and electro-encephalography. Teaching by individual doctors from the department in 2002 covered both graduate and postgraduate courses, mainly consisting of lecturing and overseeing courses and fellowships for the Institute of Health Care Postgraduate Education in the areas listed above.

### Research

The Department of Neurology was involved in 2 grant projects in 2002 (see the annex on Grants).

### Publications and Lectures

Physicians from the Department of Neurology gave a total of 46 lectures at domestic events and 5 lectures abroad during 2002. Fourteen works were published in Czech professional journals and three contributions were included in foreign professional publications.

### Basic data

Number of beds	32
standard	25
intensive care	6
Number of physicians	12
Number of nurses	41
Number of outpatient examinations	14,115
Number of patient admissions	970
Number of days of treatment	7,207
standard	5,905
intensive care	1,302
Bed occupancy rate (%)	86.4%
standard	87.2%
intensive care	83.2%
Average length of stay (in days)	7.43
standard	6.36
intensive care	6.64

## DEPARTMENT OF NEUROSURGERY

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

In 2002, the Department concentrated on further improving the quality of its treatment of patients in the four key areas of its activities, namely *the neurooncological, neurovascular, epileptosurgical* and *spinal programs*. Alongside the comprehensive diagnostic, therapeutic and follow-up care provided in these priority areas, the department continued to develop minor neurosurgical specializations such as neurotraumatology, neurosurgery of the peripheral nerves, functional neurosurgery and others. In 2002, the number of surgical interventions increased by 5.4% as compared with the previous year. The total number of 1,930 operations means that the Na Homolce Hospital Department of Neurosurgery is once again ranked first in the Czech Republic in relation to the number of surgeons. Nonetheless, the breakdown of surgical operations by type continues to be stable, the numbers of operations for cerebral aneurysms increased in comparison with 2001 while the numbers of epileptosurgical interventions declined. The mortality rate for operated patients was reduced to 1.47% in 2002.

*The Neurooncological program* saw further successful development in the experimental Boron Neutron Capture Therapy (BNCT) in 2002, carried out in association with the Nuclear Research Institute in Řež. By the end of last year, a total of nine patients suffering from brain tumors had been operated on and irradiated with bundles of neutron beams. The results of the project to date were successfully published in foreign professional journals and presented at international congresses.

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, as is customary elsewhere in the world, became a routine procedure for the department. Both navigation systems were also equipped with hardware enabling guidance by microscope. The past year also brought further development in the program of surgical treatment of pathological processes in the functionally important centers of the brain (for instance in the center of motility) with the help of neuronavigation and detailed electrophysiological intraoperative scanning and monitoring.



In *the Neurovascular Program*, the increasing tendency to treat selected cerebral vascular diseases by endovascular methods, and, where appropriate for multiple pathological processes, by a combination of surgery with subsequent endovascular intervention, continued to be seen. 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, became a routine procedure.

*The Epileptosurgical Program* saw an increase in the numbers of patients undergoing epileptosurgical interventions in comparison to 2001, with the total numbering around forty patients. Resection interventions were routinely performed using navigation techniques and the indication spectrum for extratemporal types of epilepsy was expanded. The numbers of vagal stimulators applied for the treatment of epilepsy exceeded twenty patients.

Within the framework of *the Spinal Program* there was further development in stabilization and fixation interventions for both traumatic and degenerative diseases of the whole length of the spine, with the possibility of large-scale interventions on the rear and front parts of the spine, using thoracic or abdominal access. In 2002 the Department of Neurosurgery became the third center in the Czech Republic where patients could undergo dynamic stabilization of the cervical vertebrae by replacement of the intervertebral discs.

In cooperation with the Department of Anesthesiology and Resuscitation, progress continued to be made in 2002 in the application of spinal neurostimulation techniques to treat certain forms of spinal pain.

#### Teaching

In 2002, surgeons from the Department of Neurosurgery contributed to undergraduate teaching courses for medical students at the First Medical Faculty 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 thirty lectures at domestic and three at foreign professional events during 2002. Three of their works were published in Czech professional journals and two in foreign professional publications.

Basic data	
Number of beds	65
standard	45
intensive care	8
intermediary	12
Number of physicians	16
Number of nurses	68
Number of outpatient examinations	9,020
Number of patient admissions	2,402
Number of days of treatment	19,160
Bed occupancy rate (%)	88.9%
Average length of stay (in days)	7.98

#### Breakdown of surgical interventions

Cerebral tumors	280
Cerebral vascular diseases	120
Spinal diseases including tumors	880
Injuries	60
Epileptosurgery	40
Miscellaneous	550
<b>Total</b>	<b>1,930</b>

#### Number of surgical interventions

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

## 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 2002 the number of patients treated in the department increased by 8% as against 2001, and by 40% compared to the 2000 figures. The total number of surgical interventions performed in the department reached 958 (including Leksell gamma knife irradiation and other surgical interventions). Seventeen neurostimulators were implanted in nine patients.

Among the patients irradiated by the Leksell gamma knife in 2002 were eight children 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, and four adults who received the same conditions as Czech patients. Patients from Slovakia made up a mere 2% of patients referred.

In 2002 the clinical research study on radiosurgical treatment of advanced glaucoma, supported by the Elektra company, was completed. The study's objectives were achieved and patients suffering from advanced ocular glaucoma continue to be treated in association with the Střešovice ÚVN Eye Clinic. The number of patients with ophthalmologic indications for irradiation by the Leksell gamma knife made up 9% of all referrals last year.

During 2002, the Leksell gamma knife was completely modernized. It was equipped with a new generation of robotics to process and direct the irradiation plan for the patient, which greatly increases the level of security and comfort of the intervention. Of a total of around 160 gamma knives world-wide, only 20 are equipped with this system, while within Europe the Prague gamma knife is the ninth to undergo this modification.

Na Homolce also hosted the 11<sup>th</sup> International Convention of Gamma Knife Users, attended by 400 specialists from around the world. The Convention was opened in person by Václav Havel, former president of the Czech Republic. 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 has ranked it among the foremost centers of its type worldwide.

## Teaching

In 2002, 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 Second and Third Medical Faculties of Charles University. As part of their postgraduate training, 315 trainees visited the department during 2002, 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

One grant project was completed by the Department of Stereotactic and Radiation Neurosurgery in 2002 (see annex on Grants).

## Publications and Lectures

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

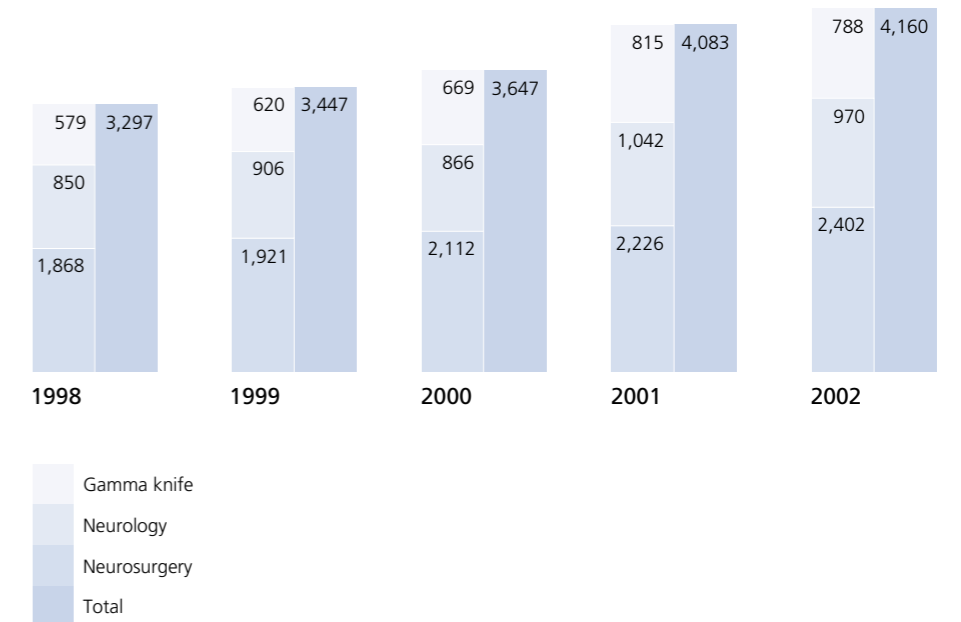
Basic data	
Number of beds	
short stay	8
Number of physicians	6
Number of other college graduates	1
Number of nurses	10
<b>Hospital ward</b>	
Number of patient admissions	788
Number of operations carried out using the Leksell gamma knife	781
Number of other stereotactic operations	167
Number of days of treatment	1,174
Bed occupancy rate (%)	73.33%
Average length of stay (in days)	1.49
<b>Outpatient clinic</b>	
Number of outpatient examinations	2,544
Number of written outpatient consultations	838
Number of patients visiting the oncological clinic	159
Number of patients visiting the eye clinic	95
Number of neurophysiological examinations	265

Number of patients treated with the Leksell gamma knife from 1992-2002										
1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
16	182	235	303	514	459	461	511	566	735	781

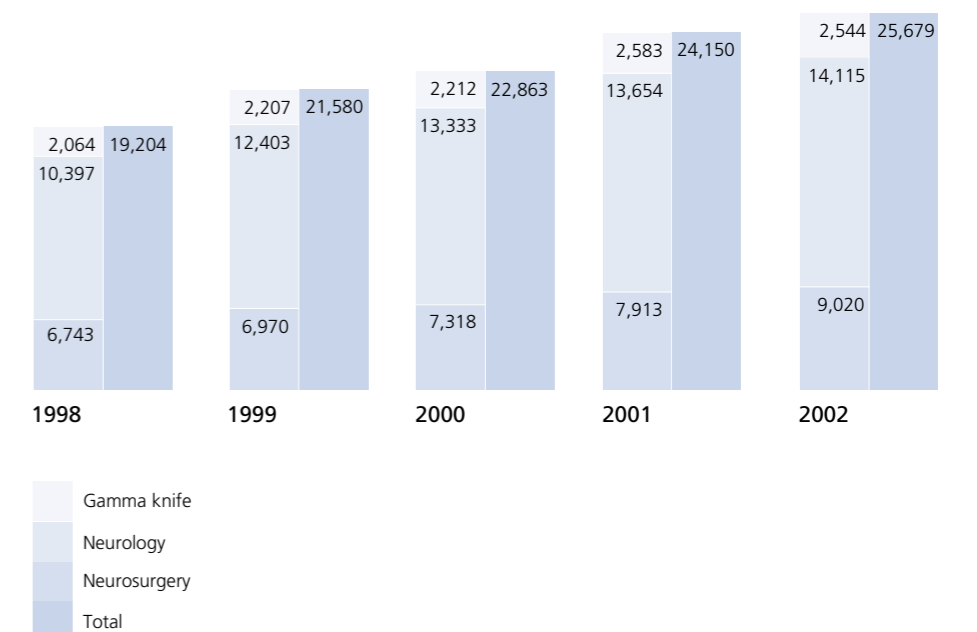
Radiosurgical treatment by Leksell gamma knife in 2002 broken down by individual diagnosis			
	2000	2001	2002
Malignant tumors of the brain	34%	30%	31%
Benign tumors of the brain	41%	34%	37%
Functional diseases of the brain	14%	16%	14%
Vascular malformations of the brain	11%	9%	9%
Eye referrals	11%	9%	

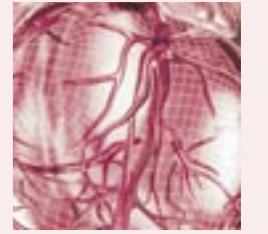
## Neuroprogram 1998 - 2002

Development in the numbers of Neuroprogram patient admissions



Development in the numbers of Neuroprogram outpatient examinations





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, several specialized areas were again fully covered in 2002. **Acute cardiology** is devoted to the examination and treatment of patients suffering from acute and severe conditions by intensive care and the monitoring of their essential vital functions. **Invasive cardiology** deals with diagnostics of diseases of the coronary arteries, including therapeutic interventions, as well as the treatment of cardiac rhythm disorders. 2002 witnessed a steep rise in the numbers of invasive cardiology examinations, including electrophysiological procedures, increasing by almost 38%.

In terms of treatment for patients suffering from atrial fibrillation, the imaging of the pulmonary vein in the left atrium by MRI (magnetic resonance) was introduced as a routine procedure.

Last year, MRI (combined with prior PET diagnostic examination) began to be used on patients referred for myocardial revascularization, as a means of evaluating the viability of the heart muscle.

The increased capacity of the Angiography Center was reflected in 2002 by the rise in the overall numbers of coronarographies performed - a total of 2,207 examinations.

**Non-invasive cardiology** continued to offer patients a wide range of diagnostics of cardiovascular diseases during this period, including ultrasound, electrocardiography exercise tests and echocardiography tests, as well as long-term monitoring of cardiac rhythm and blood pressure, among others. **Clinical cardiology** traditionally covered diagnostics and treatment of cardiovascular diseases both in the hospital wards as well as in specialized outpatient clinics, and contributed to the provision of end treatment and physiotherapy for acute conditions and in the treatment of chronic diseases of the circulatory system. The total number of hospital admissions rose by 35% in 2002, 11% of which consisted of cardiosurgical patients.

In 2002, the Department of Cardiology opened a **specialized heart failure unit**, designed to provide a range of diagnostic and therapeutic interventions in addition to standard monitoring procedures. In association with colleagues from the University of Pittsburgh Medical Center, the unit plans to offer state-of-the-art non-pharmaceutical treatment, during which the patient is connected to a supporting heart pump. This can be used as a form of long-term therapy, enabling the diseased heart to rest and thereby recuperate. These patients should no longer require heart transplants.

### Teaching

In 2002 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 2002, 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 delivered a total of forty-eight lectures at domestic professional events during 2002, and four lectures were given abroad. During the same period, forty-two works were published in Czech medical journals, and one work appeared in a foreign professional publication.

In November 2002, the Department of Cardiology organized its traditional specialized event, "Cardiological Days at Na Homolce" in collaboration with the committee of the Czech Cardiology Society.

### Basic data

Number of beds	49
standard	31
intensive care	18
day care clinic	4
Number of physicians	21
Number of nurses	86
Number of outpatient examinations	28,561
Number of patient admissions	4,564
Number of days of treatment	16,709
standard	10,234
intensive care	6,475
Bed occupancy rate (%)	98%
standard	99%
intensive care	98%
Average length of stay (in days)	4.21
standard	4.25
intensive care	3.15

### Specialized interventions in 2002

<b>Angiography Center</b>	
Coronarography (SKG)	2,207
Ventriculography (LVG)	967
Right-side angiocardiology	1
Pulmonary artery angiography	11
Catheterization R	4
Catheterization R-L	146
Coronary angioplasty (PTCA)	908
Stents	
number of patients	773
number of stents	994
Bulbus aortography	117
Alcohol septal ablation	5
Occlusion of ventricular septal defect (Amplatz)	5
FFR (measurement of coronary reserves)	4
Other angio and specialized interventions	60
Complications	
fatal	4

### Electrophysiology Center in 2002

Primary implantation and exchange of pacemakers	837
Electrophysiology	721
Implantation and reimplantation of ICDs	98
Biventricular stimulation	47
RF ablations in total	446
Extraction of electrodes	69
Right ventricle biopsy	7
Implantation of IV port for the administration of drugs	3
Implantable arrhythmia monitor (REVEAL)	15
Spinal neurostimulation	5
<b>Total</b>	<b>2,241</b>
Complications	
pneumothorax	11
A-V fistula	3
infections	47
fatal	2

### Outpatient clinics

General cardiology	10,348
Pacemakers	7,310
Angiology	1,778
Heart failure clinic	38

### Non-invasive cardiology

Echocardiography	3,993
Esophagus examination	486
Dobutamine load	9
<b>Total</b>	<b>4,486</b>
ECG exercise test	1,140
Holter ECG	1,320
Blood pressure monitoring	1,101
TT test	20

## DEPARTMENT OF CARDIAC SURGERY

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

The Department of Cardiac Surgery was detached from the cardiovascular department in March of 2002 to become an independent center. It provides complex surgical treatment of diseases of the heart and of the major intrathoracic vessels. Its activities also include the monitoring of selected groups of outpatients before and after surgical intervention.

The spectrum of cardiosurgical operations last year reflected the range of these interventions as performed elsewhere in the Czech Republic. In all, 348 cardiosurgical interventions were performed, including those carried out before March 2002 by the Department of Cardiovascular Surgery. In 2002 the Department of Cardiac Surgery initiated a program involving repair of the mitral valves and reconstruction of the left ventricle. In December last year, in association with the hospital's Department of Cardiology, the department performed the first ever intraoperative cryoablation for chronic atrial fibrillation in the Czech Republic.

### Teaching

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

Given that the department began operating as an independent unit, physicians from the Department of Cardiac Surgery did not publish any original work during 2002.

### Basic data

Number of beds	26
standard	11
intensive care	7
semi-intensive	8
Number of physicians	10
Number of nurses	43
Number of outpatient examinations	487
Number of patient admissions	325
Average length of treatment (in days)	5.18
Number of days of treatment	1,683
Bed occupancy rate (%)	87.5%
Average length of stay (in days)	5.18

### Breakdown of surgical interventions in 2002

Aortocoronary reconstructions	223
Coronary valve replacement/reconstruction	66
Operations on the ascending branch of the aorta	3
Others	3
<b>Total</b>	<b>295*</b>

\* for the period May-December 2002 after the emergence of an independent cardiac surgery service

## 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. 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*, as well as the reconstruction of the pelvic arteries and the arteries serving the lower limbs. During the course of 2002, responsibility for operations on blockages of the coronary arteries was transferred to the newly independent Department of Cardiac Surgery.

Na Homolce Hospital's Department of Vascular Surgery is the largest center in the Czech Republic independently specializing in problems of vascular surgery and 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.

In 2002, its international association with Maastricht Teaching Hospital primarily focused on problems surrounding the surgical treatment of thoracoabdominal aortic aneurysms.



## Teaching

In 2002 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 fourteen lectures at domestic professional events and six lectures abroad during 2002. Four works appeared in professional Czech publications.

Basic data	
Number of beds	65
standard	42
intensive care	11
intermediary	12
Number of physicians	19
Number of nurses	84
Number of outpatient examinations	11,116
Number of patient admissions	2,884
Number of days of treatment	17,608
standard	10,950
intensive care	3,361
intermediary	3,297
Bed occupancy rate (as a %)	88.3%
standard	87.7%
intensive care	89.3%
intermediary	89.5%
Average length of stay (in days)	6.11
standard	3.11
intensive care	2.42
intermediary	2.52

## Total number of reconstructions performed from 1990-2001

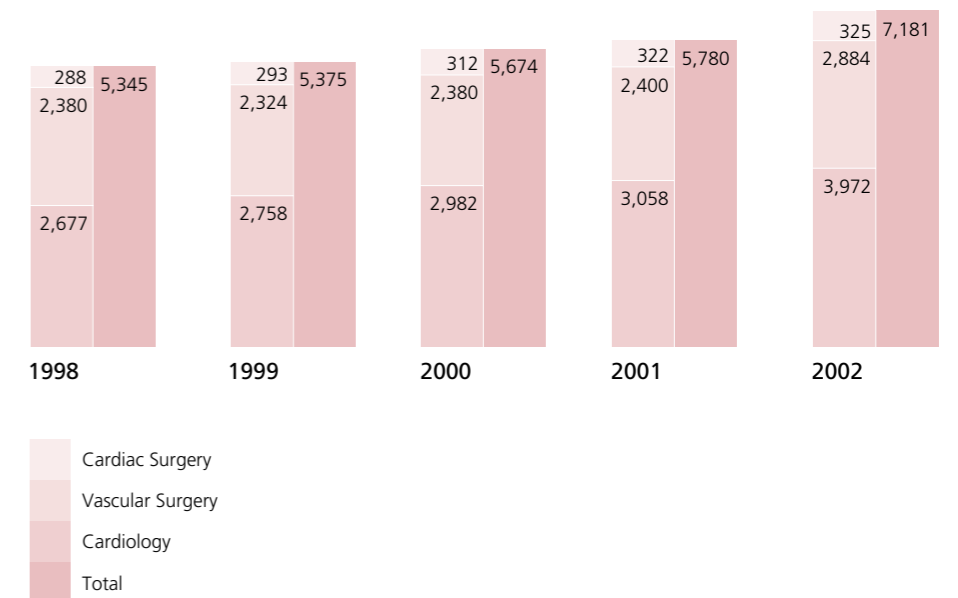
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
145	616	650	771	806	847	1,141	1,214	1,412	1,443	1,345	1,349	1,552

## Breakdown of vascular and general surgical interventions - 2002

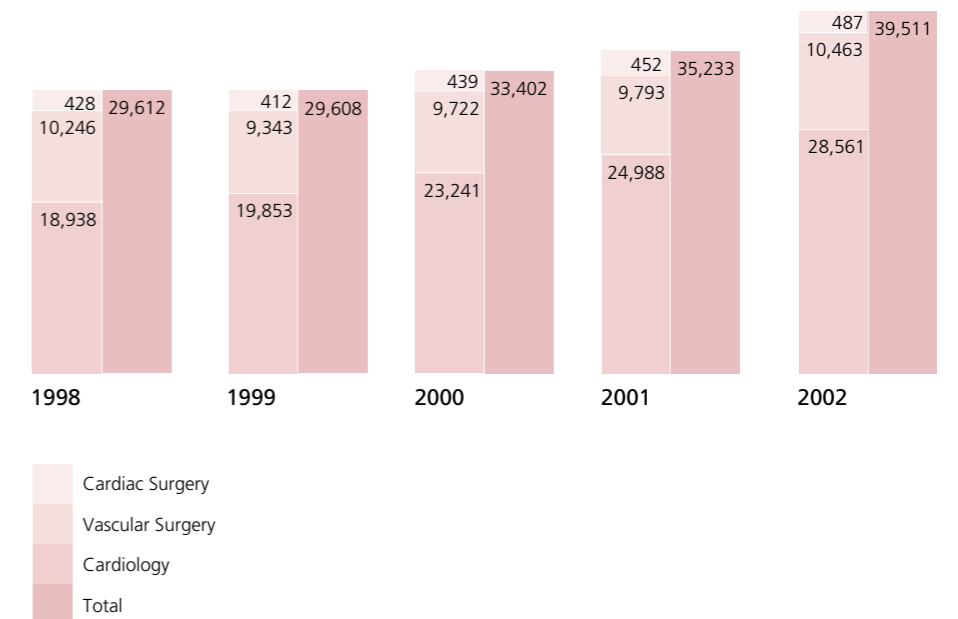
339	General vascular operations
301	Carotid arteries
243	Femoropopliteal reconstructions
132	Shin reconstructions
105	Aortofemoral reconstructions
87	Abdominal aneurysms
87	Acute revascularizations
73	Varicose vein operations
66	Pelvic reconstructions
55	Stent implants
3	Thoracoabdominal aneurysms

## Cardiovascular Program 1998 - 2002

### Development in the numbers of Cardiovascular Program patient admissions

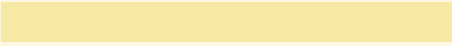


### Development in the numbers of Cardiovascular Program outpatient examinations





GENERAL  
MEDICAL CARE  
PROGRAM



## DEPARTMENT OF INTERNAL MEDICINE

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

The activities of the department consist of the provision of 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 for patients suffering from acute internal diseases. Collaboration with the Department of Nephrology led, in 2002, to the additional provision of conservative treatment to patients with diseases of the kidneys and the urinary system, while assistance was provided to the Clinical Immunology unit for patients suffering from diseases of the immune system. New national specializations have also been developed over the past year, primarily in 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.

### Teaching

During 2002, 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-seven lectures at domestic medical events during the course of 2002. They published eight works in the Czech medical press and one work was published abroad.

#### Basic data

Number of beds	29
standard	21
intensive care	8
Number of physicians	26
Number of nurses	48
Number of outpatient examinations	45,296
internal medicine outpatient clinic	31,857
general practice outpatient clinic	7,856
Number of patient admissions	1,006
Number of days of treatment	9,554
standard	6,895
intensive care	2,659
Bed occupancy rate (%)	91.43%
standard	89.95%
intensive care	95.51%
Average length of stay (in days)	9.50
standard	7.24
intensive care	8.08

#### Specialized interventions in 2002

2,300	Gastroscopy
1,840	Endoscopic sonography
286	Coloscopy
263	ERCP
132	Endoscopic papillosphincterotomy
28	PEG

## 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*.

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 developed to meet European standards. Care continued to be provided in oncological surgery of the digestive system and mammology. In 2002, *the surgical team* introduced a method of intraoperative radiofrequency ablation for the treatment of liver metastases in colorectal carcinoma and 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 second pilot study of these surgical techniques. 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 2002. The orthopedic unit was the only center in the Czech Republic last year to continue 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 as a routine operation 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.

*Urological operations* included, as in previous years, open and endoscopic surgery on the urinary system, including urological oncosurgery, using modern 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 ureterorenoscopic techniques were fully developed.

### Teaching

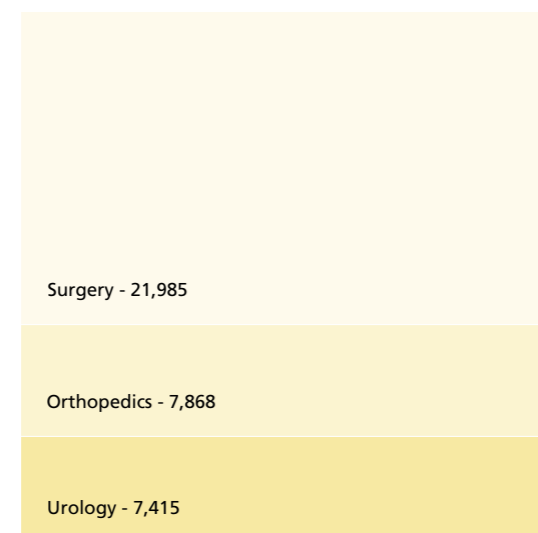
Physicians from the Department of Surgery were particularly active in 2002 in undergraduate teaching programs for students from the Third Medical Faculty of Charles University and in the postgraduate training of physicians in surgery within the programs provided by the Institute of Health Care Postgraduate Education. During the year they also organized two national training programs on CT navigation during operations on the ankle following de Puy and hemorrhoid operations using the Long technique. The Na Homolce Hospital Department of Surgery is a reference and training center in the Czech Republic for ankle joint surgery and knee joint surgery using a LCS rotating plate and the Ortopilot orthopedic navigation system.

### Publications and Lectures

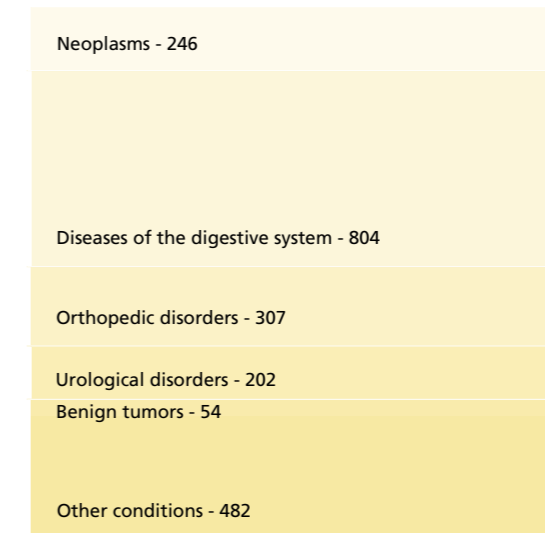
During 2002 physicians from the Department of Surgery gave a total of six lectures at medical congresses in the Czech Republic and two lectures abroad. Four works were published in the Czech medical press during 2002.

Basic data	
Number of beds	31
standard	26
intensive care	5
Number of physicians	17
Number of nurses	39
Number of outpatient examinations	37,268
Number of patient admissions	2,095
Number of surgical interventions	2,457
minor outpatient interventions	671
Number of days of treatment	9,883
standard	8,220
intensive care	1,663
Bed occupancy rate (%)	97.46%
standard	98.49%
intensive care	92.65%
Average length of stay (in days)	4.72
standard	3.49
intensive care	4.08

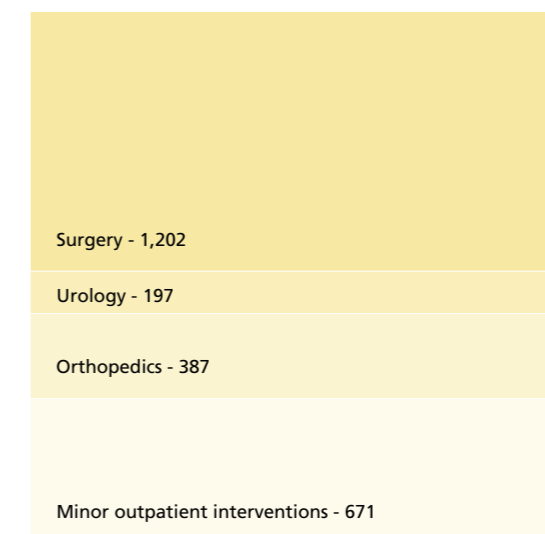
### Number of outpatient examinations



### Number of admissions by diagnosis - 2002



### Number of surgical interventions - 2002



## 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 range of pelvic and gynecological surgery was concentrated into four clinical programs last year.

*The Oncological and Oncolaparoscopic program* includes classic and oncolaparoscopic radical surgery for malignant tumors of the cervix, ovaries, endometrium, vulva and contributes to breast carcinoma treatment. The cutaneous ultra-sound aspiration dissector (CUSA) was used as a surgical technique last year, resulting in significant improvements in the speed and precision of oncolaparoscopic interventions. The range of laparoscopic electro-surgery was also expanded. The introduction of these new techniques has placed the department amongst the best equipped centers for radical and advanced laparoscopic surgery in the Czech Republic. In 2002 the Department of Gynecology and Minimally Invasive Therapy was accredited by the Oncological Section of the ČGPS as an oncological center for complex surgery and treatment of gynecological patients suffering from the oncological disorders described above.

**Urogynecological and reconstructive surgery** covers surgical treatment of incontinence and complex surgical procedures in cases of prolapses of the pelvic organs and incontinence, where emphasis is placed on finding a laparoscopic solution to the problems which arise. In 2002 this program completed the research and development of a global laparoscopic solution for total prolapse of the female organs, including incontinence, by using CUSA and techniques involving a network of prostheses and tackers. The development of a laparoscopic extraperitoneal sling technique to treat female incontinence was also completed.

**General gynecological surgery** deals with surgery for endometriosis, infertility, myomatosis of the uterus, adnextumors 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.

Overall, *during 2002, 86.5% of all surgery, including oncological interventions, was performed laparoscopically* or hysteroscopically, i.e. by what are referred to as minimally invasive methods. For the first time in its history, 2002 saw the center pass the level of 2,000 operations performed annually.

#### Teaching

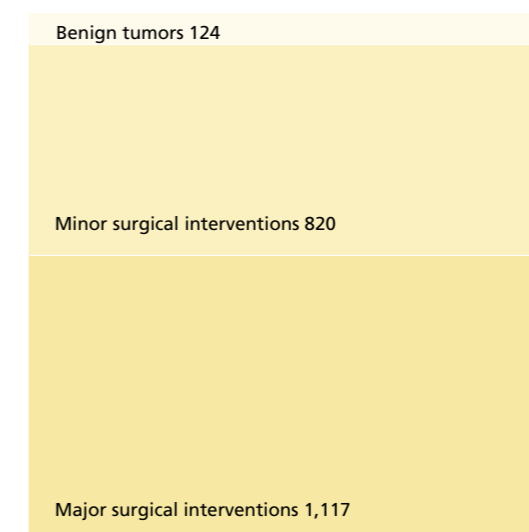
The Department of Gynecology and Minimally Invasive Surgery is a department member of the Institute of Health Care Postgraduate Education and a teaching center for laparoscopic gynecology in its postgraduate medical teaching programs. In 2002 the center organized the Fourth International Congress on Gynecological Laparoscopy which was attended by over 300 foreign delegates.

#### Publications and Lectures

In 2002, the department's physicians gave a total of twenty-four lectures, of which seven were delivered at European and International medical events. Over the same period, eight works were published in the medical press.

Basic data	
Number of beds	23
standard	19
intensive care	4
Number of physicians	9
Number of nurses	19
Number of outpatient examinations	22,768
Total number of surgical interventions	2,061
of which minor operations	118
Number of days of treatment	7,306
standard	5,894
intensive care	1,412
Bed occupancy rate (%)	98.62%
standard	97.65%
intensive care	98.50%
Average length of stay (in days)	3.62
standard	2.13
intensive care	1.85

#### Number of surgical interventions 2002



#### 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 2002 included what is referred to as *one-day surgery*, as well as a complete range of head and neck surgery, concentrating on comprehensive oncological surgery in the area of ENT, 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 using mini and microplate technology. Navigation techniques were introduced into the operating theater for the first time. During the period under review, there was an increase in the number of multidisciplinary surgical interventions, particularly in association with neurosurgery and stomatology.

The department's outpatient clinic again provided a comprehensive range of services during 2002, 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 2002 the ENT Department of Na Homolce Hospital organized the Second National ENT Symposium at which its members gave a total of seven lectures. The physicians also gave a further sixteen lectures at separate domestic professional events. They published two works in the Czech medical press.

Basic data	
Number of beds	10
standard	8
intensive care	2
Number of physicians	8
Number of nurses	19
Number of outpatient examinations	29,327
Number of patient admissions	788
Number of surgical interventions	1,225
Number of days of treatment	3,074
standard	2,422
intensive care	652
Bed occupancy rate (%)	91.43%
standard	90.85%
intensive care	93.68%
Average length of stay (in days)	3.90
standard	3.50
intensive care	4.13

### Number of surgical interventions 2002

Adenotomies - 375
Operations under local anesthetic - 184
Operations under general anesthetic - 1,059

## DEPARTMENT OF NEPHROLOGY

Head of Department: Lukáš Svoboda, M.D.

The Department of Nephrology provides *outpatient nephrological care, a 24-hour emergency transplantation unit* for patients on the waiting list for kidney transplants from donor cadavers and the entire range of *hemopurification treatments* for chronic and acute patients. Care also comprises the preparation of patients with irreversible kidney failure for organ transplant. The department also includes a nephrological outpatients clinic for the diagnostics and treatment of kidney disease as well as a specialized counseling unit for ischemic 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 2002 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 (11% 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 (see the chapter entitled "It was a wonderful day").

### Teaching

In 2002, 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 2002 physicians and nurses from the Department of Nephrology gave a total of fourteen lectures at domestic, and three lectures at foreign medical events.

Basic data	
Number of full-time physicians	3
Number of nurses	18
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

Interventions performed in 2002	
Number of nephrological examinations	1,357

Number of procedures performed 2002	
Hemodialysis	7,848
of which, in the acute program	405
Hemofiltration	640
Plasmaphoresis	27
Continuous methods (CVVHD, CVVH, DVVHDF)	163
Number of transplanted patients	3
Number of patients undergoing peritoneal dialysis treatment	3

Clinical activities	
Number of dialysis patients over the age of 80	11.0%
Number of dialysis patients over the age of 90	1 person

## DEPARTMENT OF PNEUMOLOGY

Head of Department: Assoc. Prof. Boris Šťastný, M.D., Ph.D.

On May 15<sup>th</sup> 2002, the Czech Ministry of Health passed a measure to transfer responsibility for the Pneumological Clinic of Charles University's First Medical Faculty, which had been up to that time a state organization, under the direct control of the Ministry of Health, to Na Homolce Hospital. During the third quarter of last year, Na Homolce managed to bring financial equilibrium in the Department of Pneumology, while maintaining the

breakdown of services and has settled any debts that arose before the transfer, including the return of equipment borrowed from Motol Teaching Hospital.

The range of care provided by Na Homolce Hospital's Department of Pneumology covers the full spectrum of diagnostic and treatment methods for diseases of the respiratory system in the fields of pneumology, phthisiology, lung oncology and intensive pneumological care. An important part of the department is the bronchoscopic unit, equipped with autofluorescent bronchoscopic equipment, which, together with endoscopic sonography, enables the diagnosis of early stages of lung cancer and provides a precise assessment of the operability of the disease. The application of the results of prospective clinical studies, carried out by the Department of Pneumology in 2002, will bring patients an even higher quality of care, particularly in chemotherapy for lung cancer and the use of more effective radiotherapeutic methods (see annex on Grants).

#### Teaching

In 2002, the Department of Pneumology provided undergraduate teaching programs for students from the First Medical Faculty of Charles University and post-graduate training for the Institute of Health Care Post Graduate Education educational program. As traditional, it also organized regular educational seminars for physicians in health care institutions throughout central Bohemia. The Na Homolce Hospital Department of Pneumology is a training center for the ERS (the European Respiratory Society).

#### Research

One grant project was completed by the Department of Pneumology in 2002 (see annex on Grants).

#### Publications and Lectures

In 2002, physicians from the Department of Pneumology published six works in the professional press at home and abroad.

#### Basic data

Number of full-time physicians	12
Number of nurses	40
Number of beds	64
standard	59
intensive care	5
Bed occupancy rate (as a %)	73%
Average length of treatment (in days)	16.56
Number of days of treatment	2,105
standard	1,963
intensive care	142
Number of outpatient examinations	6,458
Number of additional examinations	18,025
Number of patient admissions	1,485
intensive care admissions	179

#### Interventions performed 2002

Bronchoscopy	1,274
under general anesthetic	294
under local anesthetic	908
autofluorescent bronchoscopy	72
Laser operations	29
Puncture of pleural secretions	316
Number of newly diagnosed lung cancers	201
Number of referrals for lung surgery	35
Number of chemotherapy programs initiated	117

## DEPARTMENT OF ANESTHESIOLOGY AND RESUSCITATION (ARO)

Head of Department: Milan Ročň, 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. The Resuscitation unit provides comprehensive diagnostics and treatment of patients whose general state of health is affected by disorders to their basic vital functions which are 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 state-of-the-art 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 2002, 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 twenty contributions to domestic and five contributions to foreign medical events. During the same period they published twenty-six papers in domestic medical journals and four in the foreign medical press.

#### Basic data

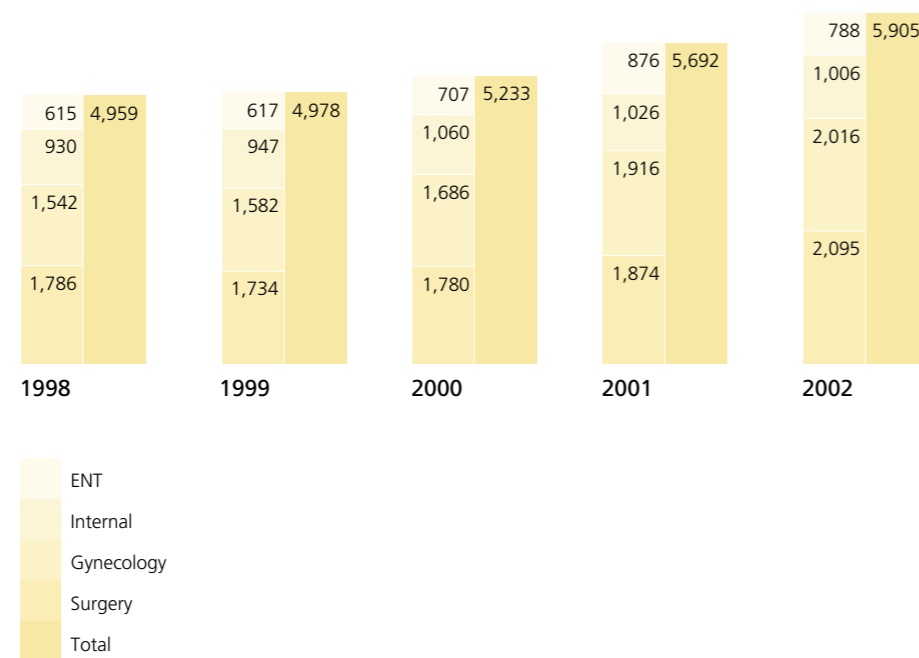
Number of beds	10
Number of physicians	24
Number of nurses	52
Number of outpatient examinations	1,242
Number of patient admissions	125
Number of days of treatment	3,253
Bed occupancy rate (%)	96.02%
Average length of stay (in days)	27.8
Breakdown of Units	
2 resuscitation units	
6 central operating theaters	
(neurosurgery, cardiovascular surgery)	
3 operating theaters for general surgery	
2 operating theaters for gynecology	
6 other operating theaters	
pain management clinic	

#### Breakdown of selected anesthesiology interventions 2002

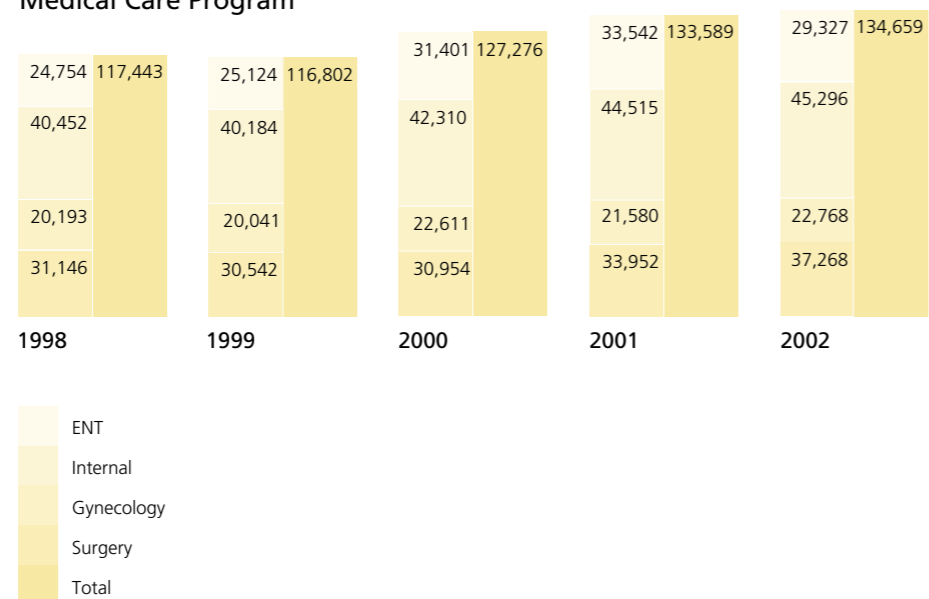
Numbers anesthetized for interventions lasting longer than 2 hours	2,990
Number of local anesthetics	906
Number of patients over the age of 70 anesthetized	1,443
Number of children anesthetized	423
Number of anesthetics administered for acute interventions	1,016
<b>Total number of all anesthesiology interventions</b>	<b>8,617</b>

## General Medical Care Program 1998 – 2002

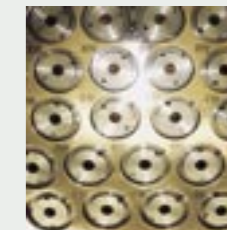
Development in the numbers of patient admissions in the General Medical Care Program



Development in the numbers of outpatient examinations in the General Medical Care Program



Note: The graphs do not include data from the Department of Pneumology, which was attached to Na Homolce Hospital on May 15 th 2002 (see p. 43).



COMPLEMENTARY SERVICES





## COMPLEMENTARY SERVICES

Department of Radiodiagnostics  
 Department of Nuclear Medicine  
 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.**

During 2002, the unit continued to provide services both to its own hospital and also to other health care facilities. 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 intervention treatment.

It continued to apply vascular techniques over the past year, working closely with the vascular surgery program on the implantation of stentgraphs in aneurysms of the abdominal and thoracic aorta and the pelvic circulatory system. Na Homolce Hospital is one of four centers in the Czech Republic where these interventions are performed, and is ranked first in terms of the numbers of implantations carried out. It also continued the program of endovascular treatment of cerebral aneurysms with GDC, with the new introduction of remodelling techniques in the treatment of wide-necked aneurysms. Similarly, treatment of local intracranial thrombolysis continued for cases of acute occlusion of the cerebral arteries. The results of a grant research study, completed in 2002, were put into application in organizing the care of patients suffering from this type of disorder (see annex on Grants).

A new procedure of percutaneous and intraoperational radiofrequency ablation of tumors was added to the range of *non-vascular methods* as well as percutaneous vertebroplasty for the treatment of compress fractures of the vertebra, caused either by osteoporosis or tumors. A mammograph screening program was launched in 2002, involving collaboration with the surgical, pathological and oncological services.

The most significant event in the past year in the area of *magnetic resonance imaging* was the introduction of a new MR machine allowing non-invasive MR angiography of the peripheral arteries. Other procedures that were newly brought into practice during 2002 included methods to image perfusion of the heart muscle, MR imaging of patients suffering from cerebral tumors in functionally important areas of the brain, and the imaging of cerebral perfusion and diffusion.

In the field of *ultrasound examination*, 2002 saw progress in ultrasound indications for carotid endarterectomy, and echocontrasts were more frequently used for diagnosing diseases of the peripheral vessels. Ultrasound testing during breast puncture biopsies began to be performed regularly.

### Teaching

In 2002, 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.

### Research

During 2002 the Department of Radiodiagnostics contributed to the completion of one grant project (see annex on Grants).

## Publications and Lectures

In 2002, physicians from the Department of Radiodiagnostics published a total of twenty works in the medical press, one which of was published abroad. Lecturing activities during the same year included twenty-two lectures given at domestic professional events, and four 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 radiosopic and radiographic units, mobile x-ray unit

### Basic data

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

### Specialized therapeutic interventions - 2002

PTA	316
Implantation of vascular stents	131
Implantation of stentgraphs into abdominal and thoracic aortal aneurysms	68
Endovascular treatment of cerebral aneurysms using GDC	21
Local intraarterial thrombolysis in cerebral vascular events	17
Vascular embolization and interventions to the head	34
CT-guided radicular injections	287
Chemical sympathectomy	43
Drainage of abscesses and cysts, guided biopsies	27
Vertebroplasty	1
Radiofrequency ablations	14

### Selected radiodiagnostic examinations - 2002

Computer tomography	8,458
Magnetic resonance	9,960
Angiography	15,854
Ultrasound examinations	18,446
Mammography	5,170
<b>Total number of all RDG examinations</b>	<b>107,473</b>

## DEPARTMENT OF NUCLEAR MEDICINE/PET CENTER

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

Since 1999 the center has not only provided the usual range of examination methods found in nuclear medicine, which include *scintigraphic functional imaging* and *immunoanalytic laboratory testing techniques* (RSA - radiosaturation analysis and chemiluminescence), but the Center is the only unit in the Czech Republic to offer *PET positron emission tomography*, mainly used to diagnose disorders of an oncological, neurological and cardiovascular nature. During 2002, the Department of Nuclear Medicine/PET Center not only served patients at Na Homolce Hospital, but also patients in other health care facilities throughout the Czech Republic (primarily in providing PET examinations). Throughout the year we recorded a growing interest in the examinations provided, which resulted in a further rise in the numbers of all diagnostic services provided by the department. In scintigraphic examinations, the increase during the year was of the order of 18%, in PET examinations 15% and in immunoanalysis 12%. The immunoanalytic laboratory introduced three new types of assay and in total performed forty different types of in vitro assay. Nonetheless, problems in the areas of endocrinology (primarily thyreology) and oncology still tended to dominate. During the past year the laboratory maintained its position with regard to gynecological tests, with emphasis placed on prenatal screening for congenital defects and a quantification of their level of risk, where it works in close collaboration with the Motol Teaching Hospital genetics unit.

### Teaching

In 2002 the Department of Nuclear Medicine/PET Center contributed to the undergraduate teaching program in nuclear medicine for the Third Medical Faculty at Charles University and postgraduate courses 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.

### Research

The Center concluded two grant projects during the course of 2002 (see annex on Grants).

#### Basic data

Number of physicians	5
Number of other college graduates	2
Number of nurses and laboratory technicians	13
Technical equipment instruments	
2 x scintillation camera	
1 x positron emission tomography camera	
Imaging station	
Immunoanalysers	

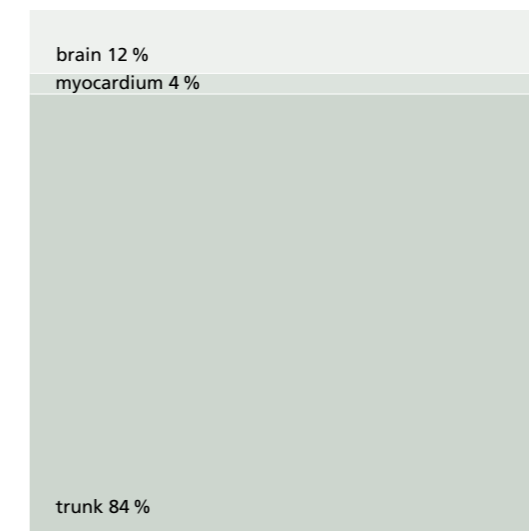
#### Number of interventions/examinations - 2002

Scintigraphy	
number of interventions	6,743
number of examinations	2,118
Positron emission tomography	
number of interventions/examinations	2,265
Laboratory tests	
number of interventions	110,093
number of assays	85,089

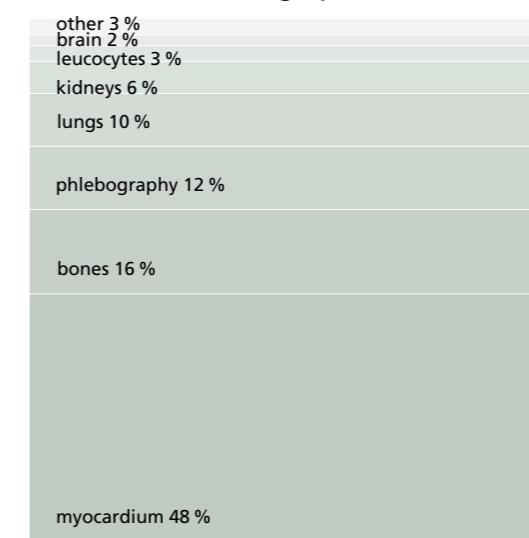
### Publications and Lectures

Physicians and other health care professionals from the Department of Nuclear Medicine/PET Center delivered a total of ten lectures at professional events, of which one was given abroad. Twenty-three papers appeared in medical publications, of which eight were published in foreign journals.

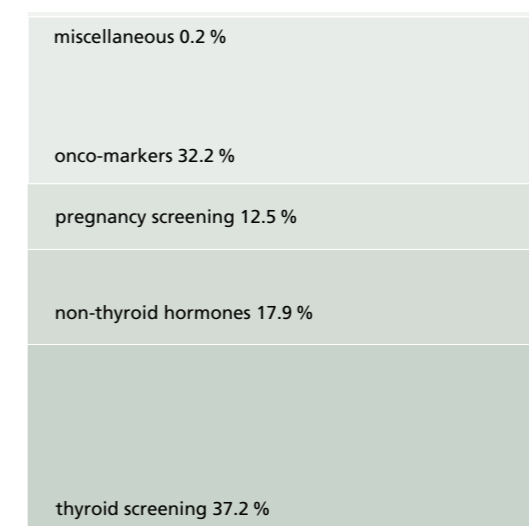
#### Breakdown of PET examinations - 2002



#### Breakdown of scintigraphic examinations 2002



#### Breakdown of immunoanalytic assays



## 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 diagnostics and treatment of critically ill patients admitted to the hospital. Where patients are in a critical state, testing is carried out directly in the wards (POCT diagnostics), as well as analysis of cardiomarkers, amino acid and drug levels. In 2002, the biochemical unit brought a new analyser into operation for routine and research biochemical testing and also began analysing second generation cardiomarkers to enable a faster and more precise diagnosis of damage to the heart muscle, as well as a series of other metabolic markers. During 2002, 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 the 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, particularly in the area of rehabilitation, reconditioning and educational activities for club members. In the area of *hematology*, it 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 2002 used a wide spectrum of serological and cytological examination methods in the fields of immunology and allergology. Specialized activities were focused on the diagnosis of 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 the cerebrospinal fluid laboratory in the Czech Republic in the area of cytological analysis.

In 2002 the Molecular-genetic Laboratory was established and began to perform molecular genetic analyses of thromboembolic syndrome for clinical units, aimed at the treatment of patients with an increased, genetically determined, risk of deep vein thrombosis.

### Teaching

In 2002, 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 2002, 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-four lectures at domestic events and gave six papers at international congresses. In the same year they published seventeen papers in the Czech medical press and seven papers were published in foreign medical journals and two monographs.

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, as well as the subject of cerebrospinal fluid and its cytology.

### Basic data

Number of physicians	13
Number of other college graduates	4
Number of laboratory technicians	44
Number of nurses	6
Total number of examinations	3,110,709

### Breakdown of examinations - 2002

Laboratory	
Urine examinations	71,307
POCT	56,414
Drug laboratory	4,821
Cerebrospinal fluid examinations	66,322
Routine and research biochemistry	1,856,343
Total BIOCHEMISTRY	2,057,119
HEMATOLOGY	852,239
IMMUNOLOGY	112,800
BLOOD BANK AND TRANSFUSIONS	74,125
<b>Total</b>	<b>3,096,283</b>
Outpatient clinics	
Metabolic disorders	6,541
Hematology	1,239
Immunology and allergology	5,170
Neurology	1,476
<b>Total</b>	<b>14,426</b>

## 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 hospitalized patients and outpatients. In 2002 there was an increase in the volume of examinations performed by the laboratory diagnostic service, which has traditionally been provided both to Na Homolce Hospital as well as to primary care general practitioners and specialists.

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. During the past year the department has also been involved in or has directly organized four projects of national importance. Last year the results were published of the first consecutive audit, involving an element of intervention, in the multicentric project "Influencing the use of antibiotics in primary pediatric care by prescription audits", which was carried out in association with the Professional Society of General Pediatricians and a Working Group to monitor resistance to antibiotics. A wider-scale project on *influencing resistance to antibiotics* by the quality of antibiotics used is awaiting approval by the Czech Ministry of Health. In 2002 initial studies for a project on quality were completed (Center for Quality Health Care at the State Institute of Health) entitled "*Surveillance of nosocomial infections and managing hospital epidemiology in health care facilities*". The department also participated in another project for the Czech Ministry of Health in 2002, on a "*National Register of Nosocomial Infections*", which is ready for pilot studies to begin on infections of the blood system. Both the last projects are being carried out in association with the interdisciplinary Working Group for nosocomial infections.

### Teaching

In 2002, 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 and the treatment of infections. Together with other units, the department also organized a week-long course for the IHCPe on "Clinical microbiology of infections in hospitalized patients" for clinical microbiology units throughout the Czech Republic.

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

### Publications and Lectures

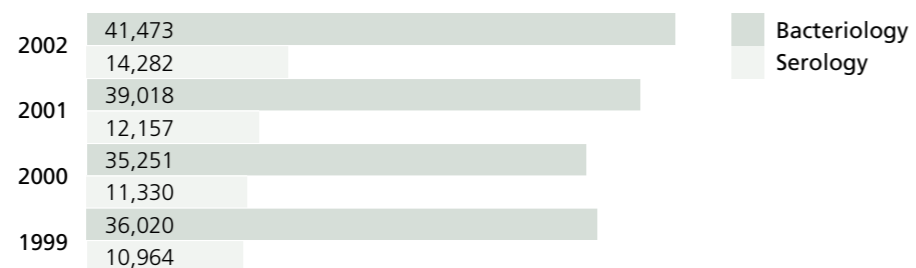
During 2002, physicians from the Department of Clinical Microbiology delivered a total of sixty-one lectures at Czech medical events and two of their works appeared in the Czech medical press.

Basic data	
Number of physicians	3
Number of other college graduates	1
Number of laboratory technicians	16
Number of examinations	114,110

Consultations for antimicrobial therapy in admitted patients				
	1999	2000	2001	2002
Number of consultations	4,370	4,287	5,069	6,076
Number of patients consulted	967	905	1,024	1,266
Proportion of patients consulted out a the total of admitted patients	7.3%	6.5%	6.8%	7.5%

### Number of examinations performed between 1999 and 2002

#### Na Homolce Hospital



#### External clients



#### Total number of microbiological examinations



## Economic Information

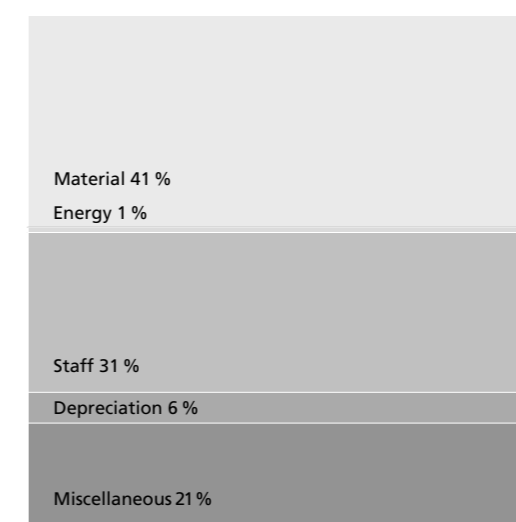
### BALANCE SHEET to December 31st, 2002 in thousands of CZK

ASSETS	as of 1. 1. 02	as of 31. 12. 02
<b>A. Fixed assets</b>	<b>1,497,176</b>	<b>1,530,357</b>
1. Intangible fixed assets	26,389	29,971
2. Accumulated depreciation of intangible fixed assets	- 15, 043	- 20,971
3. Tangible fixed assets	2,307,460	2,441,428
4. Accumulated depreciation of tangible fixed assets	- 914,916	- 1,013,358
5. Financial investments	93,286	93,286
<b>B. Current assets</b>	<b>389,755</b>	<b>458,616</b>
1. Inventory	12,544	12,120
2. Receivables	56,037	166,360
3. Financial assets	198,333	130,041
5. Temporary credit accounts	122,841	150,095
<b>TOTAL ASSETS</b>	<b>1,886,931</b>	<b>1,988,973</b>
<b>LIABILITIES</b>		
<b>C. Own resources</b>	<b>1,686,369</b>	<b>1,776,120</b>
1. Property funds	1,537,023	1 562,541
2. Financial funds	123,731	155,303
5. Net income	25,615	58,276
<b>D. Other resources</b>	<b>200,562</b>	<b>212,853</b>
1. Reserves	6,550	22,300
3. Short-term liabilities	179,480	177,053
4. Bank credits		
5. Temporary debit accounts	14,532	13,500
<b>TOTAL LIABILITIES</b>	<b>1,886,931</b>	<b>1,988,973</b>

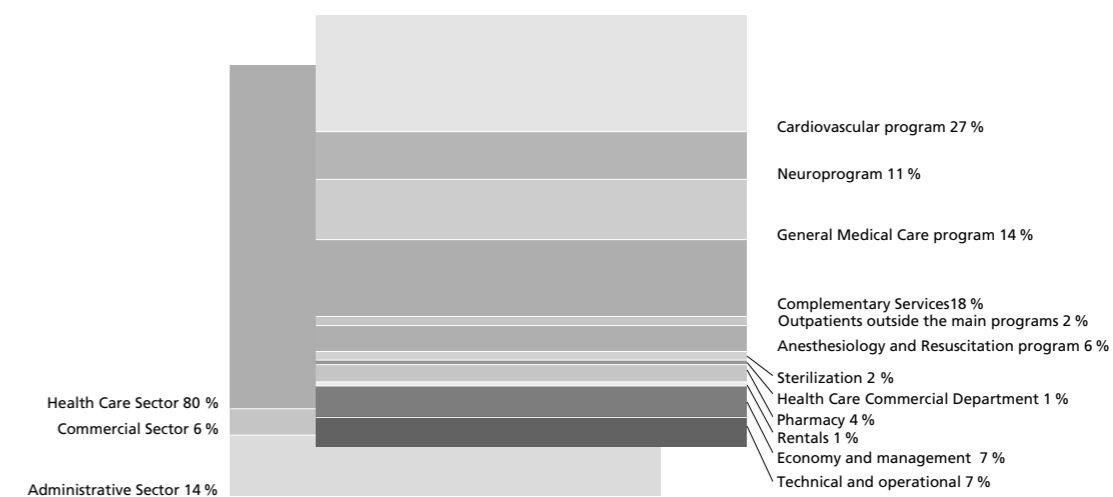
### PROFIT AND LOSS STATEMENT as of December 31st 2002, in thousands of CZK

	Activity
<b>I. Revenue from merchandise</b>	<b>112,492</b>
A. Cost of goods sold	94,304
Sales margin	18,188
<b>II. Production</b>	<b>1,830,706</b>
1. Revenue from own products and services	1,830,706
B. 1. Material and energy consumption	829,441
2. Services	172,847
Value added	846,606
<b>III. Operating costs</b>	<b>9,002</b>
C. Personnel expenses	609,055
1. Wages and salaries	428,142
2. Social security expenses	155,458
3. Social expenses	25,456
D. Taxes and fees	174
<b>GROSS OPERATING REVENUE</b>	<b>246,379</b>
E. Depreciation of tangible and intangible fixed assets	119,270
<b>IV. Revenue from sales of tangible and intangible fixed assets and materials</b>	<b>137</b>
F. Net book value of tangible and intangible fixed assets sold	35
Revenue from tangible and intangible fixed asset sales	102
<b>V. Accounting for reserves and accruals and deferrals</b>	<b>4,400</b>
G. Additions to reserves and accruals and deferrals	20,150
Difference between accounted reserves, accruals and deferrals	-15,750
<b>VI. Revenue from sales of securities</b>	<b>0</b>
Securities sold	0
<b>VIII. Other revenue</b>	<b>25,264</b>
I. Other operating expenses	56,457
J. Income tax	21,990
<b>PROFIT FOR THE CURRENT ACCOUNTING PERIOD</b>	<b>58,276</b>

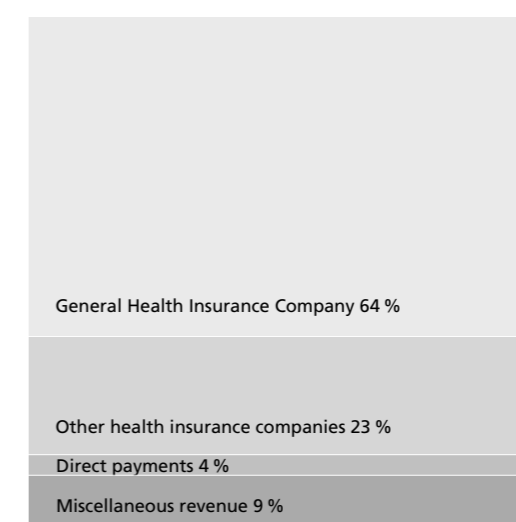
### Breakdown of costs by type in 2002



### Breakdown of costs by unit in 2002



### Breakdown of revenue in 2002



### Na Homolce Hospital benchmarking

© ÚZIS ČR, 2001

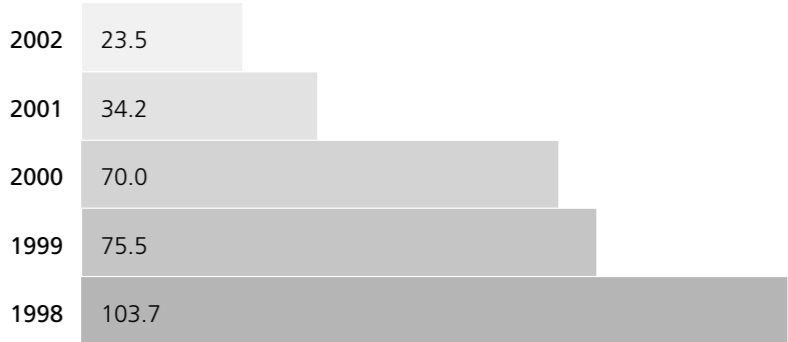
Costs and revenue from 1998-2002 (in millions of CZK)



Cost effectiveness from 1998-2002 (as a %)



Development in overdue receivables from 1998-2002 (in millions of CZK)



Bed occupancy rate (as a %)



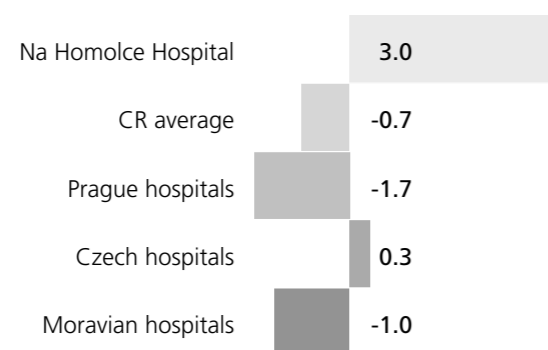
Average length of stay (in days)



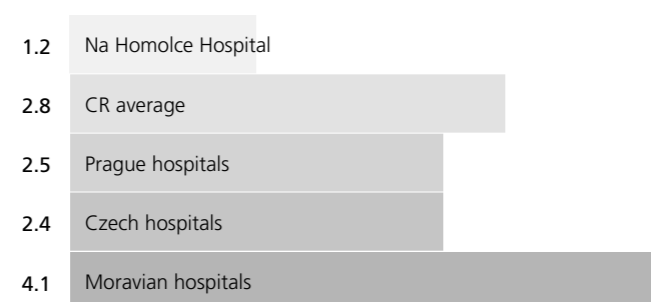
Average monthly salary (in CZK)



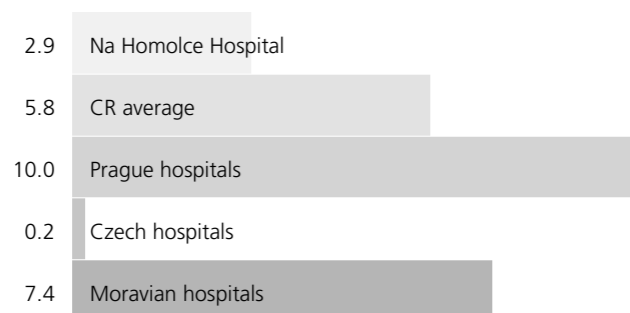
### Cost effectiveness (as a %)



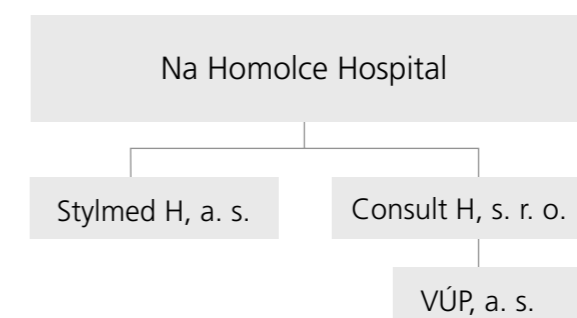
### Overdue receivables as a percentage of total costs



### Overdue payables as a percentage of total costs



### ECONOMIC STRUCTURE OF NA HOMOLCE HOSPITAL



#### Stylmed H. a.s.

Roentgenova 2, Prague 5

Date established: January 7th, 1998

Ownership structure to December 31st, 2002: 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 maximizing turnover on purchases of health care materials and pharmaceuticals needed by Na Homolce Hospital. As the hospital's primary supplier, the company guarantees it low prices year-round through a number of discounts as well as reductions based on the volume of turnover. It is contractually obliged to maintain price rises to within the annual inflation rate. Over the past three years these prices have actually fallen by 2% year on year. Stylmed H, a.s. currently supplies more than ten other hospitals in addition to Na Homolce. In 2002 the company reported a profit.

#### Consult H, s.r.o.

Roentgenova 2, Prague 5

Date established: June 20th, 1998

Ownership structure to December 31st, 2002: Na Homolce Hospital 100%

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

The company provides advisory services for the health care sector. 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 2002 financial year.

#### Výzkumný ústav pletářský, a.s.

Šujanovo nám. 3, Brno

Date established: March 20th, 1991

Ownership structure to December 31st, 2002: 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's core business covers the production of knitted vascular prostheses, and it is one of the four largest producers of vascular prosthetics worldwide. In 2002 it achieved a turnover of 22 million CZK in this sector. In its second major area of business - the production of functional clothing under the brand name Klimatex - its 2002 turnover reached a total of 37 million CZK. The company closed its 2002 accounting period with profits of 2.5 million CZK

## PERSONNEL AND SOCIAL POLICIES

Na Homolce Hospital's personnel and social policies were significantly impacted in 2002 by the incorporation of the former Veleslavin Pneumological Clinic. This was not only reflected in the increases in numbers of employees in individual staff categories, but also in the effect it had on the average salaries within these categories.

Within human resources there has been a clear and long-term trend towards a rise in the number of physicians, whose professional performance lays the foundations for the economic stability of the hospital. This has been matched by a relatively steep rise in the average salaries of physicians - the aim of the hospital management is to provide the best possible compensation for this professional group.

Dynamic salary rises were also registered by nurses, and the hospital plans in future to enable this group to earn higher salaries, primarily as compensation for higher qualifications and also to reward more efficient work organization.

In 2002, the hospital's social policies were mainly directed towards helping its employees deal with the aftermath of the floods by providing refundable and non-refundable loans. Significant help was also provided by the allocation of part of the money collected by hospital employees, the provision of alternative accommodation for evacuated employees, as well as the provision of paid leave.

Almost 8 million CZK was donated by the Fund for Cultural and Social Needs to social, educational, sporting and cultural activities. This trend towards increasing the contribution to social policies will continue for the foreseeable future to allow the personnel and social policies to actively help the hospital achieve the same excellent results as were recorded in 2002.

### Staff numbers

In 2002 Na Homolce Hospital employed 1,624 people.

Staff numbers		
	Numbers	%
<b>Total numbers to December 31st 2002</b>	<b>1,624</b>	
Physicians	240	14.8
Pharmacists	7	0.4
Other graduates and professionals (non medical)	22	1.4
Nurses	801	49.3
Other nursing staff	14	0.9
Assistant nursing staff	125	7.7
Technical and administrative staff	238	14.7
Operational and general service staff	177	10.9
<b>Increase in staff numbers in 2002</b>		
Physicians	+29	
Pharmacists	0	
Other graduates and professionals (non medical)	+5	
Nurses	+96	
Other nursing staff	-1	
Assistant nursing staff	+19	
Technical and administrative staff	+13	
Operational and general service staff	+18	

## Salaries

Na Homolce spent a total of 443,783,571 CZK on salaries in 2002. 100,830,973 CZK was paid out in the form of special bonuses.

The gross average salary for Na Homolce employees in 2002 amounted to 23,551 CZK..

Average pay by individual category	
Total expenditure on salaries	443,783,571
Special bonuses	100,830,973
<b>Average salaries</b>	<b>2002</b>
Physicians	51,409
Pharmacists	35,786
Other graduates and professionals (non medical)	35,858
Nurses	19,542
Other nursing staff	15,766
Assistant nursing staff	13,050
Technical and administrative staff	20,203
Operational and general service staff	15,367



# AUDITOR'S CERTIFICATE

**The balance sheet  
for Na Homolce Hospital  
to December 31st 2002  
is hereby certified**

**“without reservation”.**

Grounds for the decision:

On the basis of our verification, the bookkeeping and the annual balance sheet comply in all essential aspects to the relevant legal regulations. The annual balance sheet has been drawn up in accordance with the principles of good accounting practice and, in all important aspects, provides a true and faithful representation of the assets, liabilities and financial situation of the organization in compliance with Act no. 563/1991 Sb., on accounting, as well as with any other applicable regulations.

Drawn up in Čelákovice, March 31st, 2003.



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

GRANTS

## RESEARCH GRANTS IN NA HOMOLCE HOSPITAL IN 2002

Total number: 12

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 REVASCLARIZATION 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 Stehliková  
*Department of Internal Medicine, Na Homolce Hospital*

The project aims to research the most effective method of treating ischemic 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 ischemic heart disorder affects patients with type 2 diabetes at an early age two to three times more frequently than the healthy population. The study will investigate whether better results are produced through the early treatment of ischemic heart disorder by angioplasty, coronary bypass or pharmaceuticals. 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 ischemic heart disorder.

Grant NS 1295 (Na Homolce Hospital and Elekta)

**Title:** TREATMENT OF ADVANCED GLAUCOMA WITH THE LEKSELL GAMMA KNIFE  
**Period:** 2000-2002  
**Authors:** Assoc. Prof. V. Vladyka, M.D., Ph.D.  
*Department of Stereotactic and Radiation Neurosurgery, Na Homolce*  
Roman Liščák, M.D., Ph.D.  
*Department of Stereotactic and Radiation Neurosurgery, Na Homolce*  
Gabriela Šimonová, M.D., Ph.D.  
*Department of Stereotactic and Radiation Neurosurgery, Na Homolce*  
Josef Vymazal, M.D., Ph.D.,  
*Department of Radiodiagnostics, Na Homolce*  
Jiří Pilbauer, M.D.  
*Střešovice ÚVN Eye Clinic, Prague*  
Iveta Hejduková, M.D.  
*Střešovice ÚVN Eye Clinic, Prague*  
Pavel Němec, M.D.  
*Střešovice ÚVN Eye Clinic, Prague*

The objective of this grant project is to define appropriate suitable indications for, and to analyze the results from the treatment of different types of glaucoma using the Leksell gamma knife. Glaucoma is a chronic disease that leads to the degeneration of the optic nerve. It is the second most common disease causing blindness. One of the main pathogenic mechanisms is the increase in intra-ocular pressure which is brought on by the overproduction of aqueous humor by the ciliary body, or its insufficient resorption. Previous methods of treatment, entailing reducing the production of intra-ocular fluid or assisting its drainage, are pharmacological, laser, by spot freezing or intra-ocular filtration operations. Their effect may, however, begin to wear off and the eye can

## Grant IGA NA 6216-3

become enormously painful, with progressive blindness following. At this point, the only option remaining is enucleation. Ten percent of patients suffering from glaucoma reach this phase. During therapy of inner eye tumors using the Leksell gamma knife, we noted that when the ciliary body was partially impacted by focal irradiation, several patients who had associated glaucoma registered a definite improvement in their condition. Therefore, irradiation by the gamma knife may halt the progress of glaucoma in patients where traditional forms of treatment have failed. Over a period of three years, 102 patients, most with advanced glaucoma, had their ciliary bodies irradiated by gamma knife. Where there had been persistent pain, this either disappeared or was considerably reduced. This was accompanied by a reduction in the intra-ocular pressure, which eliminated the need to perform any extraction of the eye. The question now arises as to whether the same non-invasive treatment, performed at an earlier stage of the disease, would help stabilize the ocular pressure, thus preserving the remaining vision. This would then provide an alternative to the unsuccessful conservative treatments. It would take another five years of research to verify this possibility.

**Title:** LOCAL INTRAARTERIAL THROMBOLYSIS IN ACUTE VASCULAR CEREBRAL EVENTS CAUSED BY OCCLUSION OF THE CAROTID OR VERTEBROBASAL CIRCULATION  
**Period:** 2000-2002  
**Authors:** Ladislava Janoušková, M.D.  
*Department of Radiodiagnostics, Na Homolce*  
Vladimír Borůvka, M.D.  
*Department of Radiodiagnostics, Na Homolce*  
Miroslav Kalina, M.D., Ph.D.  
*Department of Neurology, Na Homolce*  
Denisa Vondráčková, M.D.  
*Department of Neurology, Na Homolce*

The aim of the project is to introduce local intraarterial thrombolysis (LIT) in cases of acute cerebral vascular events (CVE) caused by arterial closure. The incidence of CVE caused by the closure of some of the major cerebral arteries occurs frequently and is associated with high mortality and a considerable morbidity rate. The conservative treatment used hitherto has proved relatively ineffective despite improvements in intensive care, more alternatives for drug therapy and excellent physiotherapy treatment. Intravenous thrombolytic treatment suffers from the high risk of complications and low and late local efficiency. LIT, in which the thrombolytic agent is administered directly into the thrombus of the closed artery, enables rapid recanalization and resumption of blood flow in the affected part of the brain. This minimizes the extent to which brain tissue is damaged. In patients referred for this treatment, this method means a significant reversal of the prognosis, which would otherwise be poor. The algorithm of admission diagnostics was calculated and, in indicated cases, the procedures include a CT perfusion examination in order to create a precise outline of the extent of the ischemic site and ischemic penumbra. LIT referral criteria were specified, and in our experience the most important factors affecting the prognosis are the time period since the closure as well as any development of clinical manifestations and the condition of the collateral circulation. A newly-developed In-Time catheter was used for the treatment in order to reduce the duration of the intervention.

The results of the study confirmed the advantages of this treatment method for patients with acute occlusion of the cerebral arteries. Recommendations for the care of these patients in Central Bohemia have been developed on the basis of its conclusions.

## Grant IGA NF 6377-3

**Title:** METHODOLOGY OF FUNCTIONAL IMAGING BY MAGNETIC RESONANCE  
**Period:** 2000-2002  
**Author:** Jaroslav Tintěra, M.D., Ph.D.  
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The ideal of neurosurgery, both traditional and stereotactic, is to eliminate or to disintegrate the pathological site, or site in general, responsible for abnormal functions, while at the same time avoiding damaging structures essential for important functions (movement, speech, sensitivity). The introduction of functional methods to neurological science (functional MR and PET) enables a much more precise mapping of these centers and a definition of how they relate to the site of the pathological morphology or function. The grant project focuses on the development of functional magnetic resonance, and particularly on its applications, which are useful for neurosurgical planning of interventions close to the centers of movement and speech. The technique it uses to enable this mapping is based on the different magnetic properties of oxygenated and deoxygenated blood which can be imaged when certain parts of the brain are working intensively. This type of examination does not require the administration of a contrast substance, and is non-invasive of the patient.

During the course of the project, a methodology was developed to enable data from functional magnetic resonance to be analyzed on-line and incorporated not only into 2D, but also into 3D MR images. This has made a significant impact on the planning of neurosurgical interventions as it enables the exact placing of the resultant functional map into a three-dimensional brain, which the neurosurgeon can then use during the operation in what is known as a navigation system. This method is extremely important for neuronavigation, which has now been brought into routine operation.

#### Grant IGA NC/5975-3

**Title:** THE ROLE OF POSITRON EMISSION TOMOGRAPHY IN THE DIAGNOSIS OF RECURRENT CEREBRAL TUMOR

**Period:** 2000-2002

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The ability to differentiate between the recurrence or persistence of cerebral tumor and the conditions of necrosis or fibrosis, induced by therapy, presents a considerable clinical problem which fundamentally influences the selection of future treatment. Conventional imaging methods bring few benefits in these cases and published opinions differ on the suitability of using FDG PET.

The scope of the project consists of the introduction of cerebral FDG PET into clinical practice for the first time in the history of the Czech Republic. The essential infrastructure has now been put in place to enable the development of PET imaging of other organs.

The fact that this method has been included in the diagnostic chain currently used to identify recurrent cerebral tumors has resulted in:

- a) Improved treatment of patients suffering from cerebral tumors. The correct indication for FDG PET helps to define further therapeutic procedures for recurrent cerebral tumors. This results in an improvement of the state of health of individual patients.
- b) Because FDG PET of the brain is clinically significant for only a small subgroup of patients, society benefits as a whole from the greater precision of referrals for examination. The range of patient examinations can then be partially restructured, which leads to:
  - a reduction in the population of patients and hospital workers irradiated by ionizing radiation equipment
  - the more effective use of public finances.

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

**Title:** CENTER OF NEUROPSYCHIATRIC STUDIES.  
Participation of Na Homolce Hospital in the project: Utilization of positron emission tomography in the study of neuropsychiatric disorders.

**Period:** 2000-2004

**Author:** Cyril Höschl, M.D., Ph.D. -  
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**Co-author:** Otakar Bělohávek, M.D., Ph.D. -  
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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, D.Ph.  
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**Co-authors:** Andre A. Fenton, D.Ph.  
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Iva Holmerová, M.D.  
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The study of the development of the memory nerve mechanisms, 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.

#### Grant NM 6548-3

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

**Period:** 2001-2003

**Author:** Viktor Kožick, M.D., Ph.D. -  
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**Co-author:** Prof. J. Hyánek, M.D., Ph.D. -  
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The project covers three objectives related to complications in pregnancy and hyperhomocysteinemia:

- 1) To find new human variations within the Czech population for genes contributing to the metabolism of homocystein (CTH, GNMT, MAT1A, MAT2A, AHCY, PK).
- 2) To determine whether the selected genetic variations contribute to the pathogenesis of defects of the neural tube, orofacial clefts and preeclampsia.
- 3) To determine whether genes from the methionine cycle contribute to the development of the complications in pregnancy under study.

**Grant IGA NA 6497-3**

**Title:** PART PLAYED BY HYPERHOMOCYSTEINEMIA IN THE INCIDENCE OF CARDIOVASCULAR AND THROMBOEMBOLIC COMPLICATIONS IN INTENSIVE CARE PATIENTS

**Period:** 2001-2003

**Author:** Prof. J. Hyánek, M.D., Ph.D. -  
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**Co-author:** Prof Milan Macek, M.D., Ph.D. -  
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An increase in homocystein (Hcy) levels in plasma (hyperhomocysteinemia - HHC), occurring in 12-16% of the population, is currently recognized as an independent risk factor of endothelial damage leading to the frequent occurrence of thromboembolic and cardiovascular diseases. The assumed multifactorial etiology derives from the gene mutation MTHFR and a vitamin deficiency (folate, pyridoxine, cobalamin) in food. It is possible, by supplementing these vitamins to reduce the level of Hcy and thus prevent direct damage to the endothelium, maintain thrombostatic balance, prevent oxidative damage to the cellular component, slow down the atherosclerotic process of lipid oxidation, disinherit thrombolysis, etc. Results of pilot studies to test for mild HHC in 5,000 patients from Na Homolce Hospital, found a occurrence of 1:52 in patients with indications for peripheral or coronary bypass operations and diagnosed pronounced HHC in 1:1,255. This leads us to assume that increased Hcy must necessarily contribute to thromboembolic and cardiovascular complications, primarily during the course of treatment of patients in intensive care units. Here, HHC presence may be accentuated during amino acid parenteral alimentation. Admission examinations for intensive care patients will be supplemented by routine tests for Hcy, an evaluation will be made of its effect on the progress of treatment and any eventual appearance of thromboembolic complications.

**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

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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, which is very laborious. Preliminary results from the project indicate that certain cerebrospinal fluid protein markers could be used in routine cerebrospinal fluid diagnostics, which would undoubtedly be an improvement. The results of the progress of this project are regularly published in domestic and foreign publications.

**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

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**Co-author:** Petr Čáp, M.D.  
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**Associate of the co-author:** František Pehal, M.Sc.  
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**Grant MSM 111100005**

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 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.

**Title:** PROBLEMS OF TRACHEAL STENTS

**Period:** 1999-2004

**Authors:** Assoc. Prof. Boris Šťastný, M.D., Ph.D.  
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*Department of Pneumology, Na Homolce*

Constriction of the major air passages is a clear threat to one of the basic vital functions - ventilation. The recanalization of these air passages is a life-saving exercise. Over recent years interventional bronchoscopy has provided a solution to stenosis of the air passages (benign - post-intubation and malign) using stents. The implantation of stents is a technically demanding intervention, and a number of complications can hinder treatment.

The aim of this study is the judge the type and frequency of complications occurring after the implantation of stents - both early and late - and to draw conclusions based on the analysis. The result of the study should be a precise specification of indications for this therapy and an explanation of the ways of minimizing possible complications.

SELECTION OF  
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