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Dear Reader,

Turning through the pages of this brochure, you will understand very quickly, what a valuable asset the German Heart Centre Munich is to the Free State of Bavaria. The new department building which was constructed at a cost of more than € 115 million and put into operation in 1996 lays optimal grounds for a modern and patient-oriented top-level medical care. Highly qualified, committed and motivated staffs in all sections of the establishment do everything they can to ensure the desired medical success for the patients under their care also with the most serious illnesses. For instance, the excellent treatment opportunities and success for infants and children are highly impressive. Thus, the 11,111th pediatric cardiac operation could be celebrated of late at the German Heart Centre Munich with a grand children party. With this worldwide unique figure, the establishment occupies a leading position also by international comparison.

However, the leadership status of the German Heart Centre Munich is not confined only to medical activities. The department is involved in research and teachings at university level through a long-term working cooperation with the Technical University of Munich which spreads over several years and is supported by us on an annual basis with about € 2.5 million. This intensive scientific exchange enables the decisive contribution by the German Heart Centre, to the further development of the treatment of cardio-vascular and circulatory diseases which continue to count among the most frequent causes of death not only in Germany.

Despite the well known constraints in public funds and the difficult financial conditions of the health system, the Free State of Bavaria continues to be committed to top-level performance in medicine. The purchase of the technologically highly innovative ultra-fast computer-tomographs for the German Heart Centre Munich which enables precise picture transmission within the shortest possible time underscores our commitment. We will also do our utmost in the future to consolidate and further expand upon the peak position attained by the German Heart Centre Munich.

On this note, I wish the establishment more success, rapid and effective assistance to all patients in the establishment.

Munich, in December 2003

Dr. Thomas Goppel
Bavarian Minister of State for Science, Research and Arts
Welcome to the German Heart Centre Munich

The German Heart Centre Munich has gone down in history as a paragon for the consolidation of state of the art medical treatment of cardiovascular diseases at one centralised location.

Since its foundation in 1974 as the first heart centre in Europe, it has served as a model for other institutions numerous times. The new medical concept of treating patients of all ages with all types of cardiovascular disease at one facility has proved to be highly effective and has become accepted in other areas of medicine.

The guiding principle of the hospital is to consolidate at one location the various medical branches required for the diagnosis and treatment of cardiovascular disorders, thus providing optimal patient care through close interdisciplinary cooperation. The institution consists of the Department of Cardiovascular Surgery; the Department of Cardiac and Circulatory Diseases; the Department of Paediatric Cardiology and Congenital Heart Disease as well as the Institute for Laboratory Medicine; the Institute for Anaesthesiology and the Institute for Radiology and Nuclear Medicine.
The German Heart Centre Munich stands for the highest standard of medical excellence worldwide. Moreover, it has been a motivating force for many medical advancements. Since its foundation, more than 425,000 outpatients and over 142,000 in-patients have been treated at the hospital. More than 32,000 open-heart surgical procedures have been performed. The first successful heart transplantation in Germany was performed here in 1981.

Today every type of open-heart surgery is performed routinely. For aorto-coronary bypass surgery arterial anastomoses are used in 94% of the procedures because of their superior durability. For cardiac valve surgery, particular emphasis is placed on reconstruction of the valve rather than its replacement. However, if replacement is necessary, an implant from a wide range of prosthetic valves is selected according to individual needs and the age of the patient. The in-house Homograft bank has proved to be successful and much experience has been gained in the treatment of particularly complicated cases. Cardiovascular surgery employs the most modern technical equipment including intraoperative blood flow measurement, angiography and ultrasound examinations. In addition, new minimally invasive methods are employed.

The heart surgery robot "DaVinci" was introduced at the Heart Centre in fall of 1999. With this system only three tiny remote-controlled probes are inserted into the thorax. With sensors and special software the movements of the heart surgeon are translated from a control panel and carried out in the chest.

Paediatric cardiac surgery is one of the most important specialties. The German Heart Centre is one of the leading institutions in this field. All operative corrections of congenital heart disease, including cardiac transplantations, can be carried out. More than one-third of the patients undergoing surgery were children of whom the majority were under the age of one year. Another area of expertise is the medical treatment of newborns with a body weight of less than 2000 grams.

Focal points of the Cardiology Department are cardiac catheterisation and interventions in the coronary system for which intraluminal stenting has become an integral part. The German Heart Centre is one of the world’s leading institutions in the application of this method. The department is particularly well-known for its methods of emergency treatment of acute myocardial infarction. Another area of specialisation is the diagnosis and treatment of cardiac arrhythmias with the most up-to-date equipment and methods. In this regard, invasive methods with the use of specialised catheters plays an increasingly important role. In addi-
Diagnosis to numerous electrophysiologic procedures, routine measures include pacemaker and automatic cardioverter-defibrillator implantation.

Diagnostic and interventional procedures have assumed increasing importance in the field of paediatric cardiology and the treatment of congenital cardiac defects. The treatment possibilities include valvuloplasty, dilatation of narrowed blood vessels and closure of short-circuit connections between large blood vessels or between the atria. With the launching of the second catheterisation unit in the new facility, electrophysiologic and intravascular ultrasound procedures are also performed. The Department of Paediatric Cardiology together with the Munich Fire Department operate an emergency medical service for newborn babies.

The Heart Centre’s research laboratories and the cooperation with the Technical University of Munich, ensure the continuous development of methods and innovative, scientifically based medicine. In addition to facilities for animal experiments, the Heart Centre has its own laboratory for molecular biology. At the heart of the new complex, which opened in October 1996, are five operating theatres completely equipped for cardiovascular surgery and six cardiac catheterisation units. Three intensive care units with a total of 42 beds are equipped with state-of-the-art technology. With a fully digitized X-ray technique, a pilot project was implemented in the State of Bavaria. An image network (PACS) as well as a digital X-ray archive and a radiological information system was installed recently. At the Institute of Laboratory Medicine all data is processed electronically via the hospital information system and is immediately retrievable on the wards. The German Heart Centre also has special facilities such as its own pharmacy, helicopter landing port, social services, blood bank and physiotherapy.

Support services for the relatives of the patients is also available. A house sponsored by the Ronald McDonald Children’s Aid provides accommodations for the parents of young patients on the grounds of the hospital complex.
The German Heart Centre Munich provides state of the art medical care for children and adults with cardiovascular disorders.

**Vision**

**Humanity approach**

The German Heart Centre combines state of art medical treatment with humanity. It is the flexible, highly motivated involvement and cooperation of various professional groups working as a team that enhances the recuperation and recovery of the patients. The physical, emotional, social and cultural needs of the patients as well as their right to self-determination are fundamental to our work. Our goal is to provide diagnostic, therapeutic and other services tailored to the needs of each patient.

**Responsibility**

Above and beyond the specialisation of the various professional groups and departments, each member of the team is devoted to combining highly-technological medicine with humane care. Because of the substantial responsibility assumed by the staff members, their needs are important as well. They must be involved in the decision-making process in their own and/or related fields. Communication transcends professional hierarchies. To maintain the high standard of medicine at the Heart Centre, all staff members regularly take part in professional development programmes.
Loyalty

The professional and personal integrity of each staff member provides the basis for responsible interaction with patients, their relatives and colleagues as well as the cooperation with practitioners and other health care professionals and institutions. All staff members loyally support “enterprise” German Heart Centre Munich. We are aiming at optimal efficiency and a conscientious environmental context.

Competence

Cardiovascular disease is the most common cause of death in western industrialized nations. In Germany about 6,500 children are born annually with congenital heart defects. The German Heart Centre was one of the first "one-organ" institutions to successfully provide interdisciplinary treatment of cardiovascular diseases. It was our objective to lower the number of deaths caused by cardiovascular disorders through preventive and highly specialized medicine. Clinical research at the Heart Centre as well as research in collaboration with the Technical University of Munich solidify the centre’s leading position in the development of diagnostic and therapeutic concepts on a national and international level.
No mechanical device, no water faucet, hose or pump is a true match for the human heart; it is the most efficient pump ever created.

The size of a clenched fist, the adult heart pumps up to 8,000 litres of blood daily at a rate of 5 litres per minute. It can theoretically fill three bathtubs within an hour and fifty-five Olympic-sized swimming pools within the lifespan of a seventy-year-old. The heart and blood are essentially interconnected, they form a symbiotic relationship, a perpetual cycle working day and night shifts that they can be called, in modern business terms, a joint venture which the heart regulates and orchestrates. Thirty billion red blood cells race through the body over 96,000 kilometres of arteries, veins and capillaries, the body’s expressways, streets and alleys. The capillaries are so narrow that the blood cells can only pass through in single file. As the heart itself needs to be supplied with blood, coronary arteries encircle it like a wreath.

Every second the bone marrow produces two million new red blood cells. Each contains hemoglobin which chemically binds with oxygen. At a rate of seventy times a minute, the heart pumps the blood with its cargo of red blood cells into the lungs. There the red blood cells are loaded with oxygen and embark on a journey longer than twice around the world.

The heart is the first stop. The oxygen enriched red blood cells are pumped from the left atrium to the left ventricle. Pacemaker cells activate the contraction
of the muscular walls of the heart. The heart valves then open and red blood cells are pumped into the blood vessels. Initially, they race through the body; near the heart the vessels are like expressways. The ultimate goal of the red blood cells, however, is the each individual cell. Every single one must be supplied with oxygen and other nutrients that can be converted into energy. So their speed is reduced gradually and they are finally dispersed into even the narrowest of alleyways. After unloading their oxygen cargo, the red blood cells flow back to the heart through the veins. They are sucked into the right atrium of the heart. The right ventricle pumps the into the lungs and, once again, the red blood cells are refuelled with oxygen before they flow to the left side of the heart. Their speed depends on the heartbeat. An athlete’s heart can beat about two hundred times a minute, almost three times more quickly than the heart of an untrained person. An untrained heart pumps a good five litres per minute; the heart of an athlete pumps twenty-five litres. The athlete's heart also weighs more; the heart of a non-athlete weighs about three hundred grams while that of an athlete can weigh almost twice as much.

In ancient Egypt being athletic could have led to eternal hell and damnation. The ancient Egyptians believed that in course of a lifetime sins accumulated in the heart. The heart was weighed on the final judgement day – the heavier the heart, the more sinful it had be.

However, it was not until the English anatomist William Harvey announced his discovery of the true nature of the circulation of the blood in his “De Motu Cordis et Sanguinis” (On the Movement of the Heart and Blood) published in 1628 that the background for more understanding was established. He calculated that the heart pumped more than twice the entire blood volume of an adult in a half hour. As this volume could never be exhausted and then newly produced by the body, he concluded that there must be a finite amount of blood in a closed system of tubes within the body. This was a purely scientific observation; there was not even a hint of the heart as the chamber of sins or the seat of the soul.

Harvey broke with tradition. 2,100 years before his time, the poets of the Sumerian Gilgamesch epic viewed the heart as the symbol for emotions. The Chinese attributed to the heart an additional centre of the intellect. Greek philosophers separated formal and logical cognitive ability from the heart.
and relegated it to the brain. Aristotle proclaimed it the seat of the everlasting soul. In the Middle Ages the heart appeared as a symbol of Christian mysticism. Christian regarded the heart of Jesus as a symbol for God’s love for mankind.

"I think, therefore I am." contradicted the philosopher and scientist René Descartes in the seventeenth century. Doubtful of the faculties with which parts of the body were then thought to be endowed, he considered feelings in the heart region deceptive. These conclusions coupled with those of William Harvey changed the reflective concept of the heart in the Age of Enlightenment. The heart was no longer the seat of emotions, the soul or of conscience, but rather a perfect hydraulic pump.

The emphasis on feelings and imagination in arbitrary opposition to logic and reason during the Romantic period led to a rejection of image of the heart as a pump. The heart now stood for all things intangible, incomprehensible and otherworldly. Language itself balked at the idea of the heart as an organic pump; after all the heart can be broken, one can cry one’s heart out, lose one’s heart, or wear one’s heart on one’s sleeve. Even today these idioms are common usage. Scientists have stopped trying to fight psychological explanations since they too are at a loss to explain precisely what induces this muscular pump to do what it does. How does a pacemaker cell know it should contract seventy
times a minute? What is the essence of this mysterious force that only a few cells possess? In strictly biological terms, the sinus node in the right atrium generates electric impulses and conducts them throughout the muscle of the heart, stimulating the heart to contract and pump blood. Although this happens independently of the brain and the spinal cord, it is influenced by the nervous system. The sympathetic nervous system accelerates the heart rate while the parasympathetic nervous system, particularly the vagus nerve, decreases it. Many people have felt their heart beating in both pleasant and unpleasant situations. The parasympathetic nervous system, together with the sympathetic nervous system, constitutes the autonomic nervous system, the branch of the nervous system that performs involuntary functions. The sympathetic nervous system causes sudden heart palpitations by quickly releasing non-adrenalin at the nerve endings of the heart muscle. The vagus nerve will temporarily accelerate the heart rate as adrenalin is set free. The function of the heart, therefore, is also influenced by emotions, fears, joy and mental health.

Theoretically at least, each red blood cell can sense if a person is in an extraordinary psychological situation. The red blood cell has three months to recognise this situation and then it dies. However, the bone marrow ceaselessly produces new blood cells and the heart continues beating. Incidentally, almost always on the left.
At the Clinic for Cardiovascular Surgery the complete spectrum of cardiac surgery is performed, i.e. paediatric surgery, reconstruction and replacement of heart valves, bypass surgery, surgical reconstruction of the intrathoracic aorta, heart transplantation and implantation of artificial hearts.

In the field of acquired heart defects, more and more procedures are performed in a minimally invasive fashion. For instance, the mitral valve is reconstructed through minimal incisions on the right side of the thorax. For surgery on the ascending aorta, the sternum no longer has to be opened completely, but the operation can be performed through a partial opening of the upper part of the sternum (partial sternotomy). Thanks to state-of-the-art surgical techniques, defective heart valves can now be reconstructed instead of being replaced in an increasing number of cases.

The Clinic for Cardiovascular Surgery at the German Heart Centre Munich is a specialised clinic for the treatment of congenital and acquired cardiac defects.

At the German Heart Centre Munich all valve-preserving techniques are performed, especially with regard to the mitral valve. Furthermore, the clinic is equipped with a telemanipulator (robot) for special operations. The world’s first total endoscopic mitral valve reconstruction, a procedure which did not require opening of the thorax, was performed at the German Heart Centre Munich with such a telemanipulator in 2000. Certain procedures on the coronary vessels can also be performed in a total endoscopic fashion with the telemanipulator. Some operations on the coronary vessels can now be performed on the beating heart without the use of the heart-lung-machine, which marks another major advancement in cardiac surgery.
Various procedures are available at the Clinic for Cardiovascular Surgery to treat defects of the intrathoracic aorta. Among other things, stents (internal vascular support devices) have been implanted for several years without opening the sternum and without using the heart-lung-machine.

The Clinic for Cardiovascular Surgery is among the world’s leading institutions in the treatment of congenital heart defects in newborns, infants and children. Complex congenital heart defects can even be corrected in very small babies with a birth weight of less than 2000 grammes. This is possible by means of deep hypothermia of the organism with the aid of the heart-lung-machine. Minimally invasive procedures also play a more and more important role in paediatric cardiac surgery. The German Heart Centre has its own valve bank, where human valves are prepared for the replacement of the pulmonary valve, a frequent procedure in children with congenital heart defects.

Contributions to cardiac surgery:
- First successful heart transplantation in Germany
- Introduction of anastomosis of the mammary artery in Germany
- New methods of conserving heart transplants
- Establishment of a homograft bank for the preparation of human valves
- Use of biological valve prostheses
- Improvements in extracorporeal circulation
- Quality assurance in cardiac surgery (pilot project)
- Surgery with telemanipulators
- Development of a new centrifugal pump

International leading position in the correction of complex congenital heart defects:
- Anatomical correction of TGA (transposition of the great arteries)
- Fontan’s operation
- Operation of BWG syndrome (Bland-White-Garland syndrome)
- Vavuloplasty in patients with Ebstein’s anomaly
- Diaphragmatic pacemaker in patients with Ondine’s syndrome
- Double switch operation

The Clinic for Cardiovascular Surgery has a large experimental laboratory where numerous research projects take place, e.g. the development of an automatic heart-lung-machine, the breeding of tissue cells (tissue engineering), the experimental and clinical examination of heart valves, the development of state-of-the-art techniques for surgical robots as well as the development of an artificial heart-replacement pump. In this field, scientists work hand in hand with physicians, which guarantees an extraordinary degree of scientific efficiency.
Even as a student you were determined to be a heart surgeon. Why?
Surgery on the heart is more complex than on motionless organs. But as a student I did not know that a heart surgeon is exposed to much more stress than any other surgeon.

Stress leads to heart attacks, at least some doctors say...
Yes, OK. But I think that stress at work or stress induced by problems is not a cause of heart disease. What is more important is how the individual deals with stress. My work is very rewarding, especially the gratitude of the patients after the operation. This is a chance to transform stress into energy.

Are there times when you regret having chosen this profession?
No. Naturally, sometimes I would like to go out to eat or for a walk in the park. Just like that. There are too many days on which I get up in the morning and go to the clinic when it is dark outside and when I come home, it is dark again. But then there are the moments of thankfulness that I can help so many people.

Those who want to help must suffer?
The little free time I do have, actually has to be coordinated with my work. I perform about 450 operations each year, about two per day. On the day before an operation, I cannot do strenuous sports because I need 100% of my energy for the operation the next day. I cannot eat too much either because then I sleep restlessly.

How long does a heart operation take?
For open-heart operations the heart has to be stopped. This must not take longer than three hours.

Can you interrupt such an operation?
No.

With the need for such high concentration, do you sometimes have doubts about yourself?
No, if a race driver thinks he should...
drive more slowly, he is not very well suited for his job.

Dr. Brinkman from the Black Forest Clinic (a long-running German television series) constantly had self doubts. Heart surgeons are subjected to much more pressure than the doctors on television. In the programme, the doctors are mainly concerned with the personal problems and the everyday life of their patients. If I were to do that, I would be in need of a psychiatrist in a few months. I get a stomach-ache when I watch those programmes. But I know some colleagues who enjoy them.

Do you and your colleagues at least have enough time to deal with the psychological state of the patients? Of course. Patients with a heart problem are above all afraid when they come to such a highly specialised clinic. The first thing we do is try to alleviate their fear and create an atmosphere of trust. Not only a relationship of trust with the nursing staff and the physicians, but also trust in the healing power of modern medicine, which is our most effective tool.

There are several heart centres in Germany. Is there competition for patients? Yes, that is why additional specialisation like here at the German Heart Centre is becoming more and more important. The best possible care for and the wellbeing of our patients determine our thoughts and deeds. That is why many of our patients recommend our clinic to others.

Will genetic engineering and biotechnology change heart surgery? Both fields will certainly cause major changes in surgery. In the years to come there will be fewer operations because we will learn how to prevent diseases.

For many people the heart is not a normal organ but the site of the soul, emotions and feelings. What is the heart for you? The emotional component is based on human imagination, not reality. Still, as a physician I feel respect for the heart. It has a central position in the body. People feel that it is an organ that has a life of its own. But of course that is nonsense. We only live because the heart supports the circulation.
In industrial nations, more people die of cardiac-circulatory diseases than of all cancer diseases and accidents put together. Today, “Balloon dilatation” is complemented in most cases, by the implantation of stents (vascular supports made of fine metal network). This applies particularly, to the newly developed drug-eluting stents with which restenosis can be completely prevented in most cases. Today, “Balloon dilatation” is complemented in most cases, by the implantation of stents (vascular supports made of fine metal network).

100,000 Germans die of sudden heart failure each year. One of the duties of the German Heart Centre is to detect the inherent risk of dying through sudden heart failure. The most modern methods are available for diagnosis: Electro-physiological examinations with controllable catheters allow for a precise insight into the conditions of blood conveyance in the heart during heartbeat. Life-threatening arrhythmia can be eliminated through the implantation of pacemakers with defibrillator function. Patients with life-threatening diseases are treated in intensive-care units with new monitoring methods and techniques of diagnosis, highly-developed respiratory and dialysis devices, endoscopic techniques as well as mechanical cardio-circulatory support systems.

Emergency patients can benefit from the services of the clinic round-the-clock in seven days of the week. The clinic occupies a leading position worldwide in cardiac catheter operations in emergency cases.

In the field of science, the clinic combines cardio-vascular fundamental research with clinical research.
Contributions to adult cardiology

- Improvement of interventional treatment of acute cardiac infarction
- Optimization of the concomitant medical treatment of acute coronary syndromes
- Problem of restenosis following balloon catheter dilatation and stent implantation
- Optimization of the technique of stent implantation and long-term results
- Development and testing of drug-eluting stents
- New therapy concepts in the application of platelet aggregation inhibitors, fundamental research on the function of blood platelets and the physiology of coronary arteries
- Molecular cardiology: Identification and analysis of the vessel-constricting processes and genetic pressure factors
- Quantitative coronary arteriography, intracoronary ultrasound examination and the Doppler velocity measurement
- Regional myocardial blood flow in case of the coronary heart disease pharmaco-therapy of coronary heart disease
- Regional myocardial blood flow in case of the coronary heart disease
- Pharmaco-therapy of coronary heart disease
- Nitrate tolerance - Concepts of avoiding tolerance
- Quantification and the catheter-supported therapy of diseases associated with cardiac hypertrophy ("hypertrophy obstructive cardiomyopathy")
- Quantification of stenotic valvular diseases and valvular regurgitations by means of the Doppler and colored Doppler-Echocardiography as well as trans-esophageal echocardiography
- Criteria for the optimal period of surgery in case of cardiac valve dysfunction
- Long-term examinations after the substitution of cardiac valve and balloon catheter vavloplasty
- Pharmacotherapy and drug interactions in case of cardiac insufficiency
- Irregularity of pulse: Complex systems of pacemaker, implantable cardiovert-defibrilla tors, highly amplified ACG, catheter ablation, deflection of monophasic action potentials
In years past it was said that cardiologists are only responsible for making the diagnosis. Someone else did the treating and operating...
This is no longer the case. Most of our patients are diagnosed and treated right here in our department. In the meantime less than 10% of our patients require surgery. We treat most of the patients ourselves on a long-term basis.

One of your instruments is a balloon. What do you do with it?
This balloon is inserted with a catheter into a diseased coronary artery. Up to the point where the vessel is constricted. The balloon is then inflated and the constriction dilated so that the blood flow can be restored. This procedure is called balloon dilatation.

And it helps for severe constriction?
Yes, often. In case the balloon dilatation is not successful, we insert a fine metal tube into the vessel to provide stability and to avoid renewed constriction. The tube is called stent. Balloon dilatation and stent implantation are two of the most significant developments in our field over the past years. They have fundamentally changed the treatment of patients with coronary diseases and will also do so in the future.

Could you explain this further?
In the last few years it has been shown that drug-eluting stents are associated with a substantially lower rate of restenosis. This means that a patient rarely needs a bypass operation currently. This type of stent is increasingly replacing the uncoated stents and is, therefore, one of the most important innovations.

In spite of the advances, heart disease continues to be the number one cause of death in the industrialized nations.
Correct, heart disease is responsible for many more deaths than all forms of cancer combined. This in spite of outstanding advances in our field – as opposed to treatment of cancer in which the colleagues are still waiting for a break-through. However, I am optimistic that cardiac death will no longer be in first place in ten years time.

It is said that the technical facilities for treatment of acute myocardial infarction are already optimal?
That may be, but they are not being used or not being used early enough. The truth is that most patients have to wait too long for the right treatment or they are initially admitted to a hospital where targeted treatment is not available.

You are the initiator of the "Munich Infarction Model" intended to guarantee the best possible treatment for patients with acute myocardial infarction. What changes should this specifically bring about?

Our goal is that patients be admitted directly in the appropriate hospital. Without loss of time, we can ensure that all patients in the Munich area will be treated immediately at a qualified heart centre. The infrastructure is there, however it is not being used.

How many heart attack patients’ lives could be saved?

Of those admitted to a hospital with an acute infarction, twice as many lives could be saved. If the "Munich Infarction Model" were implemented consistently, there would be about 500 fewer deaths from myocardial infarction in the city each year.

If you treat heart attacks every day — are you afraid that you will have a heart attack yourself?

No. I follow the Mediterranean diet which is low in cholesterol. Anyone who has been on vacation in the Mediterranean area knows how good it tastes. I also recommend a glass of red wine in the evening. Prevention does not only mean limitation. Additionally, one should spend an hour jogging, riding a bike, swimming two or three times a week: simple things can lower the risk.

For decades doctors have been warning people about smoking but the number of smokers remains the same. Is that frustrating?

Yes. This demonstrates that there are not many possibilities to change behaviour.

Did you ever smoke?

Yes. When I was a student, I tried it a few times. But I noticed rather quickly that this was not for me. Luckily, I did not become addicted.

Many people are anxious about a treatment using catheterisation. It is normal to be anxious. Dealing with the heart always entails dealing with emotions. Talking with the patients is very important. The patient should have the feeling of being involved in the treatment; He should be treated as a human being, not as an object. We play music in the catheter laboratory during the procedure and I am sure that helps the patient to relax. Music also helps me relax.

Do you determine which music should be played?

It must be relaxing. Otherwise, we can fulfil almost any musical request.
When the German Heart Centre Munich was founded in 1974, the idea of diagnosing and treating any illness of the heart in any age was unique in the world and was copied by many hospitals in several countries afterwards.

The Department of Paediatric Cardiology and Congenital Heart Disease cares for patients with congenital heart defects from fetus to the adult and is one of the most active centres in Europe. Head of the Department is Prof. Dr. John Hess, who is Medical Director of the hospital and Chairman of the Hospital Board as well.

State of the art diagnosis and treatment are offered to 8,000 patients (6,000 outpatients and 2,000 inpatients) every year. More than 600 cardiac catheterizations in two digital biplane catheterization laboratories are done every year, 40% of which are therapeutic interventions like balloon dilatation and/or stent implantation of stenotic valves (aortic and pulmonic), vessels (pulmonary arteries, coarctation of the descending aorta), closure of atrial septal and ventricular septal defects as well as persisting ductus arteriosus.

"Simple" congenital lesions like ventricular septal defects, atrial septal defects not suitable for intervention, atrioventricular septal defects and hypoplastic left heart syndromes are diagnosed by echo only and surgically managed by the surgeons without diagnostic catheterization. Transesophageal echocardiography in complex lesions pre- and intraoperatively is one of the topics in the echolab. 9000 transthoracic and 500 transesophageal examinations were done in 2002.

550 patients - more than 200 younger than one year - are operated on every year. All preoperative diagnosis is done in the Department of Paediatric Cardiology and Congenital Heart disease including ultrafast computer tomography and magnetic resonance imaging if necessary. Immediately after the operation patients are treated in the intensive care unit of the paediatric department - with fully equipped 16 beds the largest one in Germany.
Specific achievements of the department

- **Interventional cardiac catheterization (repair)**
  Balloon dilation of aorta and pulmonary valves, angioplasty and “stenting” of pulmonary artery stenosis and descending aorta, catheter device closure of the atrial septal defect (ASD) and ventricular septal defects (VSD), closure of aortopulmonary collateral vessels, coronary artery fistula and patent ductus arteriosus (PDA)

- **Echocardiography**
  Fetal echocardiography (with 3-D reconstruction), transthoracic and transesophageal echocardiography (TTE)

- **Electrophysiology**
  Mapping of all primary and secondary atrial arrhythmia with the CARTO system, ablation of atrial and ventricular tachycardia in hearts with complex cardiac defects, for instance after Fontan operations or after transposition of the great arteries (TGA)

- **Paediatric Cardiac Surgery**
  Every type of reconstructive and palliative cardiac surgery, including the Norwood palliation, staged univentricular heart palliation, correction of anomalous left coronary artery from the pulmonary artery (ALCPA), Fallot' tetralogy in neonates or infants less than one year of age, AV septal defects, reconstructive surgery of Ebstein’s anomaly as well as the Ross operation (also neonatal)

As children are not just little adults a warm and familial nursing atmosphere is provided on the two standard wards. 21 beds are reserved for neonates, infants and school children - 4 rooms are specially equipped for mother and baby nursing. On the other ward 11 beds are presented for older children as well as adults in 5 single (hotel standard) and two three bed rooms. In both wards, specially trained nurses care for mothers, fathers and their children. All beds are fully equipped with ECG monitor, including 0-2 saturation and can be supervised centrally.

Psychosocial support is provided by one specialised nurse and two psychologists who care not only for the patients but also for the parents in their difficult situation before or after the operation. A teacher helps school children individually so that education can be continued in case of a longer hospital stay. In the hospital area there are two apartment houses with 27 appartments for parents and other family members located.

The Department of Paediatric Cardiology and Congenital Heart Disease is located on the third floor with all three wards (48 beds in total), two cath labs and two echolabs. The outpatient department as well as the administration are situated on the ground floor.

A 24 hours service for acute help is provided all over the year - emergency catheterizations or cardiac surgery can be done at any time. The medical staff consists of 39 medical doctors, of whom eleven are senior staff member, 14 junior staff member, but all fully trained specialists and 14 interns and fellows in training.

As part of the Technical University of Munich there are widespread research activities: Basic research in the field of pulmonary hypertension and its molecular regulation, acute inflammatory disease in children after bypass operation and capillary leak syndrome, departmental research with special interest in myocardial perfusion and cellular metabolism in congenital heart disease, haemodynamic and morphologic correlation in univentricular hearts, and specific cardiovascular monitoring on the ICU.

Specific tasks of the German Heart Centre as a university clinic:

- educational courses for medical students
- basic research in the molecular biological laboratory
- clinical long term follow up studies after specific treatment of congenital heart disease, studies on myocardial performance and myocardial perfusion
Is it different to treat children?
Oh, yes. It is very important to gain the child’s trust, otherwise the treatment has little chance of being successful. Adults cooperate because they know that it is necessary for their health. Children only cooperate if they trust the doctor.

Are children better patients?
For me, children are the more interesting patients because they are more honest than adults. If an adult does not like a doctor or a nurse, usually he or she will not say anything. Children do not try to fool you, they do not lie and they are more reliable.

How do you win the trust of children?
I am also honest. If a child gets an injection, one frequently hears the parents say “that does not hurt, you do not have to cry.” But naturally it does hurt. If one notices that a child is afraid of the injection, one should show that one knows it and try to alleviate some of the fear with a good argument. You cannot demand the child to be stronger than it is.

May there be psychological damage if a child spends a long time in hospital?
Yes, that may be possible. We need more psychologists and specialised teachers to care for these children. The government and the insurance companies do not provide us with sufficient funds for these needs. Still, we have hired two psychologists and two specialised teachers.

Sometimes clowns hop around the wards...
Yes, those are our hospital clowns, real clowns, that come once a week to cheer up the children. When the children laugh, they forget that they are sick. But we also have toys and even computers for the older children.

Do parents also provide support for their children?
Essentially, yes. But one aspect is frequently overlooked; if a three-year-old child repeatedly has to suffer and the mother is present, the child may feel somehow abandoned and think that his mother is not protecting him.
Naturally, the parents should be there, but it can be counterproductive.

The heart of a newborn is about as big as a walnut. Is it possible to work precisely with such a small organ? Yes, that is difficult, especially cardiac catheterisation. Without being able to see anything in the groin, one has to puncture two little vessels that are thinner than a matchstick. The catheters are passed through the vein and artery to the heart. One has to be very careful and watch out for resistance. Of course, this can be learned, but one should have some talent.

You have three children yourself. What goes through the mind of parents on learning that their child has a heart defect? They experience a shock. In this situation, most parents do not understand the medical aspects of what we try to explain. You have to give them time to get over the initial shock. Our doctors regularly take part in communication courses where I play the part of a mother or father of a child with a heart defect.

What are the causes of congenital cardiac defects? We know very little. The heart develops between the fourth and seventh week of pregnancy. If the mother has a viral infection such as measles during this time, a heart defect can occur. A second cause is a genetic defect. Still, we only know the cause in about 25% of the cases. We are working on it.

What goes through your mind when you cannot help a child? The worst case is when a child dies of a viral infection of the heart muscle, not a congenital defect; a completely healthy child suddenly dies. This is a catastrophic event, not only for the parents but for me as well. But thank God, such diseases are rare.

The death rate in the Department for Paediatric Cardiology is less than three percent... ...this is unique in Germany. There are only five departments in the world with such a low rate. But more interesting to me is that later the children can lead normal lives. I want to discharge healthy children with a long life expectancy.
The physicians of the Institute for Anesthesiology treat and monitor all patients that have to undergo heart-surgical operations in the operating room and in the intensive-care unit. One notable challenge in the process is also to safely guide elderly patients with a long process of illness or in a strongly impaired general departmental condition through the perioperative phase. Since 30 years, staffs of the department have been meeting the complex standards in cooperation with the affiliated blood-group-serological laboratory and blood bank, its unit for pre-surgical autologous blood donation as well as physiotherapists belonging to the institute.

Given the system of autologous blood donation which was introduced in 1989, the probability of using blood transfusion stemming from third parties in operations could be drastically reduced. The blood components donated approximately 6 weeks ahead of the surgery are mostly stored separately and made available for the operation.

After a detailed preliminary discussion with the patient in the ward, one day before the operation, all patients are given a tranquilizer for the night and a strong "pre-anesthetic medication" on the day of surgery ahead of removal to the operation room as prescribed by the anesthetist so that they are already very sleepy when the actual anesthesia is introduced in the vestibule of the operation room.

During surgery, the patients are surveyed at the highest safety level with the most modern hemodynamic interlinked monitoring system, and computer-controlled data management.

Highly specialized cardio-anesthetists render the whole spectrum of cardiac surgery as it is routinely practiced at the German Heart Centre Munich.

Institute for Anesthesiology

Prof. Dr. Peter Tassani-Prell
Director of the Institute
Milestone contributions to anesthesia

- Development and optimization of the pre-operative supply of patients during and after cardio-surgical interventions
- Introduction and further development of methods of intravenous anesthesia with ultra short acting anesthetic and analgetic agents in the sense of a total intravenous anesthesia
- Directive departmental examinations for recording the impacts of extra-corporeal circulation on the clotting system
- Examinations for the pharmacological treatment of the malfunction of blood clotting during and after operations with the aid of extra-corporeal circulation
- Introduction of mechanical blood-saving measures after heart operations
- Build-up of the system of autologous blood donation
- Working out the theoretical and technical prerequisites for the performance of hypothermal circulatory arrest for the correction of cardiac diseases
- Introduction of new techniques for the pharmacological and mechanical impacting of systemic inflammatory response during and after extra-corporeal circulation
- Introduction of the pre-operative, continuous computer-backed recording of the vital parameters of patients for documentation and quality assurance

The maintenance of sufficient circulatory conditions during cardiac surgery particularly after the deactivation of the heart-lung-machine, is mostly possible only by the use of sophisticated medication to increase the contraction force of the heart, or to regulate the diameter of the blood vessels.

Trans-esophageal echocardiography, fiber-optical bronchoscopy, transcranial Doppler-monitoring of the cerebral blood circulation and the spectral analytical evaluation of the EEG complement the possibilities of monitoring and controlling all vital functions during anesthesia.

One focal point of the department lies in the pre-surgical care and medical supply for children and babies. Far more than 11,000 children and new-born babies have been treated from 1974 to 2004. Since the middle of the 1970’s, the technique of "hypothermal circulatory arrest", i.e. temporary circulatory arrest in case of extreme hypothermia of the organism enabled the primary surgical correction of complex in-born cardiac dysfunction in paediatric age. Today, decisive advancements in the field of heart surgery, extra-corporeal circulation as well as anesthesiological management render the performance of almost all kinds of operation possible even in new-born babies and premature deliveries of up to ≤2000 grams body weight while the heart-lung-machine is running.
Laboratory medicine is indispensable in the diagnosis, prognostic assessment and monitoring of an illness as well as the identification of cardiac risk factors. The Institute generally works behind the scenes and is often not apparent to the patient. Laboratory physicians advise doctors, nursing staff and patients in all matters of this rapidly advancing interdisciplinary field. Several hundred analytical procedures for characterising naturally occurring substances, cells as well as drugs are constantly being updated and maintained at the state-of-the-art. Presently about one million individual assays in the area of hematology, hemostasis, general departmental chemistry, immunological and protein chemistry, serology, endocrinology, metabolism, gene testing and drug monitoring are carried out each year exclusively by specialists. All laboratory results pass through a multi-step technical and medical review process before the findings are made available to the physicians at the ward. The measurements obtained are put through rigorous verification and continuous internal and external quality control measures to ensure their accuracy. The findings are then validated through a patient-oriented medical assessment carried out by the doctors at the Institute.

"Only good is not quick enough" is the guiding motto of the Institute for Laboratory Medicine. With 40% intensive care patients, the ability to offer high-efficiency in tandem with the highest analytical quality is crucial.

Institute for Laboratory medicine
The modern facilities are supported by an efficient laboratory IT system that is fully integrated throughout the entire hospital information system.

The Institute has operated according to the Total Quality Management guidelines for the last ten years and was the first organisation of its type to be externally assessed according to the model of the European Foundation for Quality Management (EFQM).

Pathobiochemistry and the improvement of diagnostic techniques for heart disease remain at the forefront of research at the Institute. However, it also fosters the research of all other departments with its analytical skills.

The Institute is a leading centre for educating patients on self-management of oral anticoagulants. (Contact person: Dr. S. L. Braun)

**Contributions to Laboratory Medicine**

- Development of laboratory techniques and methods for the prophylaxis, diagnosis, therapeutic monitoring and monitoring of the course of heart diseases.
- Competence centre for laboratory medicine
- High-efficiency analysis
- Frequent and detailed advisory service
- Patient training
- Optimisation of economic efficiency by means of business administrative methods and of application of Total Quality Management (TQM)

**Scientific contributions**

- Studies conducted to investigate the pharmacokinetics of the ultra trace element vanadium and its tissue concentration in heart disease
- Changes in serum concentration of cardiac troponins relating to heart and muscle disorders
- Studies conducted to investigate the changes in blood coagulation and inflammation reaction during and after heart surgery
Radiological diagnostics offers all techniques that are of relevance to the establishment. All types of vascular presentations as well as interventional operations with catheter (also on the cervical arteries) form a part of the services rendered by the institute. Children are examined with the lowest dosage values (e.g. pulsed fluoroscopy). Since spring of 2002, the worldwide first cardiac 16-slice CT is run in the Institute in cooperation with the department of adult cardiology. The most outstanding examination in this case, is the non-invasive coronary angiography. In this respect, the department is a prominent reference address for manufacturing companies worldwide. The institute has an extensive radiological information system and a so-called PACS-system (Picture Archiving and Communication System). Both systems contain pictorial and diagnostic data of patients.

Like the department of Radiological Diagnostics, the department of Nuclear Medicine works round-the-clock. In addition to the special nuclear-cardiological techniques, the institute offers the complete spectrum of nuclear medicine. Since the start of the year...
2001, a digital dual-head camera of the most modern design is also in operation here. The focal points of diagnosis are the scintigraphic field diagnostics in case of suspected acute cardiac infarction and examinations of in-born cardiac dysfunctions. Seriously ill patients of cardiac infarction are examined with an additional gamma-camera at the cardiological intensive care unit. Since May 1998, the institute cooperates in the field of research with the Director of the Department for Nuclear Medicine (Prof. Dr. M. Schwaiger (M.D.)) of the Technical University of Munich.

Contributions to Radiological and Nuclear-Medical Diagnostics
- Co-introduction of the digital subtraction angiography in venous and arterial vascular diagnostics
- Introduction and optimization of myocardial scintigraphy in planar – as well as in SPECT-technology
- Optimization of non-invasive nuclear-medical diagnostics of complex paediatric cardiac dysfunctions
- Co-introduction and optimization of the digital x-ray technique as well as introduction of picture archiving and distribution techniques
- Introduction of non-invasive coronary angiography by means of the 16-line multi-slice CT into the diagnostic routine.

Scientific contributions
- Participation in the scientific evaluation of interventional and operative therapy concepts in myocardial revascularization particularly with nuclear-medical methods.
- Participation in the scientific evaluation and further development of the interventional treatment of carotid stenoses by means of stent implantation in cooperation with the departments of angiology and neurology of the Technical University of Munich.
- Performance of studies in the field of cardiac image transmission (atrial morphology/ coronary disease) on the 16-slice CT
A qualified and motivated nursing staff is necessary for the successful treatment and care of patients. These professionals are primarily motivated by a deep Christian need to care and look after patients.

The German Heart Centre has a staff of over 400 nurses as well as volunteers and nursing students from the Bavarian Red Cross and "Maria Regina" school of nursing. These nurses, students and auxiliary staff are responsible for the physical and emotional wellbeing of the patients.

The nursing staff is the largest of the professional groups at the German Heart Centre and it is in constant communication with the physicians and other medical staff. Patient care is also based on the best possible relationship between the nursing staff and the patient.

The high quality of patient care at the German Heart Centre can also be attributed to the excellent working conditions offered by this modern and state-of-the-art clinic. Tasks not within the sphere of patient care such as providing the Heart Centre with drugs and medical supplies or waste disposal...
are relegated to ancillary personnel. Consequently, the 400 members of the nursing staff can attend exclusively to their specific duties.

Patient care at the Heart Centre is marked by individual planning according to standard guidelines. Qualified and experienced professionals are on duty around the clock in three shifts.

Each ward has a head nurse whom the patients can contact if they have special requests and questions.

Continuity between the shifts is assured by direct interaction and a briefing on the particular care of each individual patient.

The goal of the nursing staff is to provide committed and medically supported patient care for the wellbeing of each individual.

The members of the nursing staff of the German Heart Centre are responsible for:

- Three cardiac medical and surgical adult wards
- Two intermediate care wards for adults
- Two intensive care units for adults
- Emergency admissions unit for adults
- Two cardiac wards for children
- Intensive care unit for children (divided by age)
- Central operating rooms with central sterilisation facilities
- Anaesthesiology department
- Four cardiac catheter units for intervention therapy for adults and children
Since 1999 surgical procedures at the German Heart Centre Munich have been performed with the “Da Vinci” robot. Since then the robot has continually been refined and has become an integral part of heart surgery at the institution. Previously the surgeon operated directly on the patient with scalpel and suture; to get to the heart, the thorax had to be opened. With the new robot, a “telemanipulator”, the external thorax remains almost intact.

Totally endoscopic bypass operations are new in heart surgery; three probes are inserted through centimetre-small incisions into the chest. Two are used to operate, the third contains a high-resolution 3-D camera system. On a monitor in the operating room the assistants can also constantly observe the operation. As opposed to humans, the new machine never trembles.

As opposed to offline robots, which are programmed to lathe out thigh bones for hip replacements, the online systems are always under guidance of the surgeon: the telemanipulator is not deployed by a program, but rather operated by a human. The tiny instrument moves in the thorax guided by its remote control system. This becomes possible with the aid of additional joints with six degrees of freedom (conventional endoscopes have four: transverse, horizontal, sagittal, rotational).

The movements are transmitted through sensors and special software directly and instantaneously from the hands of the surgeon on the steering console. Considerable training is required, however, as the surgeon has no direct sense of touch. For this purpose, selected surgeons from the German Heart Centre trained at Mountain View, California, where the DaVinci was developed. Among other things, they learned how to see instead of feel resistance while cutting. A force feedback circuit, which could alleviate this problem, is under development.

The use of the robot renders possible the complete spatial separation of patient and surgeon. Specialists could even perform the operation at another hospital, provided that the data transmission is ensured.

Further advantages become evident during the training of students. With coupled devices, students can feel the movements of the surgeon’s hands. With properly adjusted instruments, other types of surgery are feasible. Even surgery on the beating heart would be possible with automated endoscopes. For this purpose, the surgeon would carry out his manipulations on a “virtually” non-beating heart, while the motion of the heart can be corrected by the computer corresponding to the actual position of the tissue.

The device was developed by the California enterprise “Intuitive Surgical” in Mountain View, Silicon Valley. The original concept was developed by the United States Army. The goal was to keep the surgeons behind the front lines and still enable them to provide surgical treatment for wounded soldiers.
Since summer of 2002, the German Heart Centre has been operating the 16-slice Cardiac CT which at that time, was first of its kind worldwide and was specially designed for ultrafast heart examination.

In addition to the entire range of high-resolution Computed Tomography in general and the non-invasive vascular diagnostics of the complete body, the system also enhances a non-invasive presentation of the coronary arteries for suitable patients.

This diagnostics requires only relatively little time and is quite comfortable for the patient. It furnishes breathtaking three-dimensional reconstruction of the heart and its coronary anatomy.

Given this possibility of fast and non-invasive image transmission of the heart, the system was selected also in the year 2002 as one of the finalists of the German Future prize of the German President.

The Multi-slice Cardiac-CT is run in close cooperation with the Department of Adult Cardiology, Prof. Dr. Schömig (M.D.) and the Institute for Radiology and Nuclear Medicine, Dr. Martinoff (M.D.).
As of January 1, 2002, the responsibility for the management of the German Heart Centre was transferred to us by the Free State of Bavaria.

SANA KLINIKEN manages six highly specialized cardiac centres for babies, children and adults in Germany. The headquarters of the company is in Munich/Bavaria. As a private association of hospitals, SANA has united 60-odd hospitals into a health centre association. The successful management of these hospitals is thereby enhanced and the needs of patients and clients are met more fully. The quality standard of SANA is benchmarked solely by the best in this sphere and seeks to afford satisfaction to patients, clients and staff.

SANA is a subsidiary company of the leading private health insurance providers in Germany that strives to be an exemplar to others by proving that top-level performance in the sphere of medicine and nursing is compatible with economic business management.
Sana Mission and Vision

**Progress**

The most important service provisions are diagnostics, therapy, nursing and hospital management. SANA constantly does everything in its power to provide these services in an economically viable, state-of-the-art, manner to ensure the interests of the patients.

**Motivation**

We believe that only motivated staff is able to provide excellent solutions. Therefore SANA promotes further training and delegates as much responsibility and decision competence as possible to each employee.

**Transfer of know-how**

The SANA association promotes an exchange of know-how and experience on the basis of mutual confidence. Counselling and information exchange make success repeatable and help to avoid errors. Open communication enhances transparency of know-how.
Total Quality Management (TQM) – a puzzle with nine pieces

At the time of its founding in 1974, the German Heart Centre Munich was the first heart centre in Germany; since then many more heart centres have followed its benchmark example.

The German Heart Centre has a tradition of excellence. Since 1974 outstanding medical quality has been the overriding goal of the hospital management. As internationally recognised specialists, they motivate their co-workers to attend to critically ill patients at a first-rate, state-of-the-art institution. Each and every one is committed to the reduction of the death rate of cardiovascular disorders. Quality control has been an integral part of the medical and nursing profession for the last thirty years.

Nevertheless, medical and technological advances, the complex organisation of a hospital at which a successful medical outcome is the result of many interconnected steps, and increasing economic pressure in the field of health care call for even more effort: the key concept is quality management.

As opposed to many other countries, quality control and certified medical quality were not required by law in Germany for a long time. Often taking the initiative, the German Heart Centre’s proactive introduction of systematic quality control and extensive quality management was pioneering.

The German Heart Centre and four other clinics were at the forefront in the development of quality management for cardiovascular surgery. In 1986 the German Society of Cardiovascular Surgery set up a commission to develop quality control; the German Heart Centre was a member from the very beginning. The pilot study
QUADRA was sponsored by the German Ministry for Research and Technology as well as the Federal Ministry of Health and Social Security. Today all clinics for cardiovascular surgery in Germany participate. In the mid-nineties, the German Heart Centre was among the first to take part in the project for quality control in paediatric cardiology.

The German Heart Centre has operated according to the Total Quality Management (TQM) guidelines since 1997 and was the first hospital of its type to be internally assessed according to the model of the European Foundation for Quality Management (EFQM). This model, originally used in the industrial sector, has become widely accepted in the field of health care.

In 1999 the German Heart Centre competed for the Ludwig-Erhard Prize, the German award for outstanding quality, which requires extensive involvement with the principles of quality management. The German Heart Centre was honoured as an exemplary organisation and paragon for all health care facilities.

Quality management, Total Quality Management (TQM) and the European Foundation for Quality Management Excellence Model (EFQM-Model) are concrete tools that continually challenge us to excellence. It is a puzzle with nine pieces.

1. Leadership. We self critically assess our management style. A patriarchal system no longer meet the requirements of a modern heart centre.

2. Policy and strategy. We realize that there are heart centres other than ours. We do not fear transparency or competition and are at all times willing to have the quality of our work independently assessed.

3. People. Keeping abreast with state-of-the-art developments and advancements is imperative at a high-tech medical institution. Professional development and close collaboration with other departments is therefore crucial.

4. Partnerships and resources. National and international cooperation in research, health care as well as management is maintained and encouraged. We share information and learn from others.

5. Processes. Diagnosis and treatment is more than the sum of its individual steps. The improvement of this process is a constant obligation.

6. Customer results. Over and beyond successful medical results, we take into account of the personal opinion of our patients and the referring physicians as well as self help groups and organisations.

7. People results. The satisfaction of our patients is dependent on the satisfaction of our employees. Although not only because of this, we try to provide optimal working conditions.

8. Society results. Our mission, the state-of-the-art medical treatment and care of patients with cardiovascular disorders, is one we always have accomplished successfully. We are interested that the general public also be made aware of this.

9. Key performance results. For more than 30 years excellent medical and scientific results are a matter of course for us. We will and must continue to provide such results in accordance to our guidelines for thrift and economising requirements.
One of the main aspects of their work is to build and maintain accommodations for parents and siblings in the immediate vicinity of specialised departments so that the family can be with their child during treatment.

At the Ronald McDonald House directly next to the German Heart Centre – the sixth Ronald McDonald House in Germany – nine comfortable apartments as well as common rooms such as a kitchen, laundry room, play area, recreation room and TV room are available. The house manager lives on site. Her as well as a number of volunteers are available to help and support the families at all times.

The total costs of the House were about one million Euros and were completely financed by donations, most of which came from McDonald’s franchisees. There were also many donors and sponsors from industry and commerce. Additionally, many private individuals familiar with the McDonald’s Kinderhilfe, support the house with generous donations which are being used to maintain the existing houses and help to build new facilities.

As the Ronald McDonald’s House was not able to meet the demands of all those who needing accommodations, the German Heart Centre provided the foundation with another 1,000 square meters in the old department building – sufficient space for 18 more apartments – bringing the total to 27.

The new Ronald McDonald House was opened up in September 2000 by the former Bavarian Minister of Science, Research and Art, Dr. Hans Zehetmair.

Ronald McDonald House
German Heart Centre Munich
Lothstr. 11
80335 Munich
Germany

Telephone: +49 (0) 89 189507-0
Fax: +49 (0) 89 189507-13
Friends of the German Heart Centre Foundation

The Friends of the German Heart Centre Foundation was founded in 1986 to aid the Heart Centre in achieving its goals by providing financial support from donations and membership fees.

In the prevailing times of limited financial resources and in spite of fees for services as well as state and federal assistance, the Heart Centre is dependent on this financial support. Since its establishment, the Foundation has provided over 2.5 million Euro for the acquisition of new equipment, organisation of medical congresses, distribution of scientific publications, surgery at no cost for those unable to afford it, and accommodations for family members of hospitalised patients.

In collaboration with the departmental directors and management, the Board of Directors decide on the most meaningful and cost-effective use of the funds adhering to strict scientific and ecological considerations.

The main body of the Foundation consists of a seven member executive board, who are responsible for the annual budget, the annual report and the recruitment of new members. Along with the committee they also promote the goals of the Foundation.

Why should I become a member of the Friends of the German Heart Centre Foundation?
Cardiovascular disease in the industrialized nations is still the number one cause of illness and death. One of every two individuals in Germany will at one time or another develop some type of cardiovascular disorder.

This means that you, a member of your family or a friend or acquaintance could become afflicted.

In Germany alone, cardiovascular illnesses are responsible for about 400,000 deaths each year. It is only through intensive research, educational advertising, development of new medication and treatment, that the mortality rate has been lowered.

If you would like to support our cause with the enrolment as a member or with a donation, you will not only be making a contribution for the advancement of medicine but you will also help us in an endeavour which - as everyone knows - may be of benefit to you at one point or another.
Dear patient,

This alphabetical index is to provide you with a helpful guide and information source during your stay at the Heart Centre.

Do not hesitate to ask questions, express your wishes or make suggestions.

We wish you all the best and above all, a rapid recovery and good health during your stay in our hospital.

Yours, Management

Accompanying family:
The Ronald McDonald House is available for the accommodation of parents or relations, accompanying paediatric patients. Information on other means of accommodation can be obtained in the wards or at the office of the Head Consultant of the respective department. The social workers are also available with plenty of advice and information.

Admission:
The admission of patients is done on the ground floor opposite the main entrance.
It is open from Monday to Thursday from 07:00 - 15:45 hrs and on Fridays until 13:30 hrs.
Outside these opening hours, admission is done directly on the wards.
Food / Menu:
The aim is to offer you a high-grade and above all, variable range of delicious food. Please do not forget that the diet eventually prescribed for you during your stay may differ from your usual eating habits. The menu is valid for one week and is released on Sundays. It can be found either in the rooms or on the information board of the wards.

Hairdresser:
An appointment can be made, through the nursing staff, with a hairdresser who comes to the hospital.

Hospital volunteer service:
A volunteer service, called "Green Ladies", will be at your service to assist in minor errands or whenever you need someone to talk to. Inform the nursing staffs on your ward or leave a message at the information desk on the ground floor, whenever you wish to use the services of these volunteers.
**Patient rooms:**
The patient rooms are modern double-bed rooms. Every room has a combined shower and water closet. A cupboard and a safe is also available for your personal effects. Space is limited, kindly bring only your most necessary belongings to the hospital. The German Heart Centre cannot be liable for your valuables or cash. We offer however the option of depositing valuables in the hospital safe. The nursing staffs will gladly inform you with the necessary details.

**Physiotherapy:**
The department of physical therapy provides invaluable care especially in providing excellent post-operative therapy and treatment. A highly motivated team of physiotherapists works at the German Heart Centre.

**Information:**
The Information desk can be found in the vicinity of the main hall and is at your disposal with all necessary information.

**Mails/ Letters:**
There is unfortunately, no letterbox in the hospital. You may handover franked mail to the nursing staffs or at the information desk on the ground floor.

**Parking spaces:**
Unfortunately, there are only a limited number of parking spaces in our short-term parking space which is not free-of-charge.

**Radio:**
The transmission facility installed in the hospital is made to serve as a source of information and entertainment. The nursing staff will explain how to use the radio to you. Kindly ensure that no one is disturbed.

**Road description:**
See graphical road map page 48/ 49

**Self-help groups:**
Self-help groups have emerged for different groups. Information on the range of offers or assistance can be obtained from the relevant department. Information materials on the self-help groups can be found on the wards.
Smoking:
The German Heart Centre is a "non-smoking" hospital. Smoking is not permitted in the entire building.

Social services:
Social services can be found on the ground floor, room 0-116 beside the Coffeeshop.
It can be reached under the phone number +49 (0) 89 1218-1037 and +49 (0) 89 1218-1040.
In co-operation with the public social welfare department, the social services department provides help and advice on:
- Rightful entitlements
- Handicap registration
- Financial issues
- Official and bureaucracy issues
- Arranging follow up treatment

Spiritual welfare and Church service:
- A catholic hospital minister works in our establishment and visits the patients regularly. His office is located on the ground floor in the atrium and can be reached by phone under 089/1218-1036.
The consultation hours of the catholic minister are:
Mondays - Fridays 13.00 - 14.00 hrs
- The protestant hospital minister can be requested to visit the house on demand, through the information.
- You may also leave a message for the minister at the information.
- Church services are held every Sunday at 09.00 hrs in the worship room in the atrium on the ground floor.

Stamps:
Stamps can be obtained at the reception or at the postal station.

Taxi:
The cost of using taxis for trips to and from the hospital is assumed by the patients. Your health insurance will inform you about reimbursement options. Taxis may be ordered through the information.
Telephone/ Mobile phone:
If you have no telephone at your bedside, there are two public telephones (coin telephone, card telephone) in the atrium on the ground floor at your disposal as well as one further public telephone on the 2nd floor opposite the elevator. You may of course, be given a bedside telephone for a daily charge of € 2.30. For this purpose, you will be given a card which you may load for making calls, on the charging device on the ground floor beside the paediatric out-patient department. Kindly observe the "Information on the usage of patient telephone", which you receive on admission. For reasons of safety, the usage of mobile cellular phones is not permitted at the German Heart Centre.

Television:
Patient rooms are fitted out with televisions sets which can be used free-of-charge. Kindly ensure that your fellow patients agree with your usage of the television at all times, and that no one is disturbed. Do not forget the rest periods and use a headphone if necessary to avoid disturbing others.

Valuable personal effects:
Valuable personal effects may be deposited if necessary, at the cashier’s office. It is located at the entry lobby (also see “Hospital rooms”).

Visiting hours:
Visiting hours vary from ward to ward. Nursing staffs will provide precise information on visiting hours. In exceptional cases, visiting hours may be restricted by the physician or when a medical or nursing procedure may require visitors to leave the room. We ask for your co-operation. Children under the age of 14 are not allowed to visit the children’s ward. Children are permitted in the general wards and the intensive-care units only after consultation with the physician treating the patient concerned.
Numbers of patients and procedures
The German Heart Centre Munich is situated in **Lazarettstraße 36 in 80636 Munich**, i.e. in the heart of Munich.

You can reach us quite easily by car, rail, air or public transport:

**By rail**

Take the underground train Line U1 from the train station, to the train stop Mailingerstraße or take the Tram number 20 or 21 to Lothstraße. From here, the remaining distance is only a few minutes on foot.

**By air**

There is an S-train from the Franz-Josef-Strauss airport to the main railroad station. From there, take the underground train line U1 to the train stop of Maillingerstraße or take the Tram number 20 or 21 to Lothstraße. From here, the remaining distance is only a few minutes on foot.

**By public transport**

Take the underground train line U1 to the train stop of Maillingerstraße

Tram number 20 or 21 to Lothstraße

**By car**

Lazarettstraße can be accessed directly from Nymphenburger Straße or Dachauer Straße.

There are a limited number of parking spaces in front of the house.
A 95 from the direction of Garmisch
Take the Garmisch highway A95 heading for Munich till the end of the highway. Take a left at the Central Ring West. Follow the central ring till the bridge of Donnersberg is left behind. Exit the ring shortly before entering the tunnel and take a right into Nymphenburger Strasse in the direction of the city centre. In Nymphenburger Strasse, take a left into Lazarettstrasse (3rd street).

A 96 from the direction of Lindau
Take highway A99 to the direction of Munich until the end of the highway, this leads automatically to the central ring West. Follow the central ring until the bridge of Donnersberg is left behind. Exit the ring shortly before entering the tunnel and take a right into Nymphenburger Strasse in the direction of the city centre. In Nymphenburger Strasse, take a left into Lazarettstrasse (3rd street).

A 8 from the direction of Stuttgart
Take the highway A8 in the direction of Munich till the end of the highway. Enter the traffic circle and take the 3rd exit. Continue to follow Verdistraße. Along the line, Verdistrasse becomes Amalienburgstrasse which in turn also becomes Menzinger Strasse and finally ends up as Notburgastrasse. Take a left at the Roman square. Follow the street until it ends up automatically, in Nymphenburger Strasse. Take a left in Nymphenburger Strasse into Lazarettstrasse (3rd street).

A 9 from the direction of Nuremberg
Take the highway A99 in the direction of Munich until the end of the highway and follow the central ring West in the direction of Lindau or Garmisch-Patenkirchen. From the central ring, take a left into Nymphenburger Strasse, take a left again into Lazarettstrasse.

A 92 from the direction of Deggendorf
At the highway junction AK Neufahrn/68/Eching-Ost change over from A92 to A9 in the direction of Munich. Proceed to the end of the highway and follow the central ring West in the direction of Lindau or Garmisch-Patenkirchen. At the central ring, take a left into Nymphenburger Strasse in the direction of the city centre, take a left again into Lazarettstrasse (3rd street).

A 94 from the direction of Passau
Take the A94 until the end of the highway, this leads automatically to the central ring West. Follow the central ring until the bridge of Donnersberg is left behind. Exit the ring shortly before entering the tunnel and take a right into Nymphenburger Strasse in the direction of the city centre. In Nymphenburger Strasse, take a left into Lazarettstrasse (3rd street).

A 8 from the direction of Salzburg
Take the A8 in the direction of Munich-Giesing until the end of the highway, this leads automatically, to the central ring West. Follow the central ring until the bridge of Donnersberg is left behind. Exit the ring shortly before entering the tunnel and take a right into Nymphenburger Strasse in the direction of the city centre. In Nymphenburger Strasse, take a left into Lazarettstrasse (3rd street).
Information on the Internet

You will find more information about the German Heart Centre Munich, the departments and institutes, your hospital stay and much more.

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