UNIVERSITY
HOSPITAL FRANKFURT
GOETHE UNIVERSITY

WHERE KNOWLEDGE
BECOMES HEALTH

OUTSTANDING MEDICAL CARE FOR INTERNATIONAL PATIENTS

Index

Greetings

GREETING FROM THE CHAIRMAN OF THE BOARD
WELCOME

We are delighted to present this brochure for the University Hospital Frankfurt. Our motto of "Where Knowledge becomes Health" is the statement we use to communicate our core vision: to incorporate scientific knowledge into medical practice for the direct benefit of our patients. This is achieved through close cooperation between clinical research and treatment practices.

As a maximum care centre, we offer state-of-the-art treatments in all medical fields. In many areas, you have access to internationally leading innovative therapies, including techniques that are unique to the University Hospital Frankfurt on both a regional and international level. A selection of these therapies are presented on the following pages, after which we provide an introduction to the individual specialist departments and the comprehensive range of treatments offered at our hospital.

As modern-day cutting-edge medicine can only be provided with interdisciplinary cooperation, the university hospital has numerous interdisciplinary centres, such as the University Cancer Center, the Center of Neurovascular Diseases and the Transplant Center. These aim to ensure smooth cooperation between the various specialist areas to provide you, the patient, with individual treatment from one single source.

Frankfurt also has a great deal to offer as a location. As a European transport hub and financial centre, the city lies within easy reach. The rich culture and international atmosphere provide the perfect backdrop for comfort and relaxation. Accommodation to suit all needs is available. The University Hospital Frankfurt will do all in its power to make your stay as pleasant as possible. The International Office is on hand to advise and support you in all aspects relating to your treatment and to ensure you receive the optimal care.

It would be a pleasure to welcome you to Frankfurt.

Prof. Dr. Jürgen Schölmerich
Chairman of the Board and Medical Director

GREETING FROM THE INTERNATIONAL OFFICE
DEAR PATIENT

The International Office is the first point of contact for international patients interested in obtaining treatment or already undergoing treatment at the University Hospital Frankfurt. We would therefore like to present our varied services to you. Our aim is for you to be able to concentrate fully on your recovery while we take care of the necessary paperwork. Thus our support naturally already begins before the actual start of treatment. Please do not hesitate to contact us at any time with your treatment query. We will confer with the head physician of the department concerned to propose the treatment most appropriate to you. You will receive a cost estimate in English, German or Russian on this basis.

We will also support you in preparation of your stay, and are gladly on hand to assist with your visa application or extension, and with the search for suitable accommodation, an interpreter or translation services. We will provide on-site support, take care for any pressing needs you may have, and facilitate transparent invoicing to ensure that you are kept informed of all cost developments throughout your treatment. You will be presented with a clearly-organised final invoice upon completion of your treatment.

In short: from planning to invoicing, we take care of all aspects of your treatment – wherever possible, also in your native language. Please do not hesitate to conduct us should you be interested in obtaining treatment at the University Hospital Frankfurt.

We look forward to hearing from you.

Best wishes

Olaf Gaedicke
Head of the International Office

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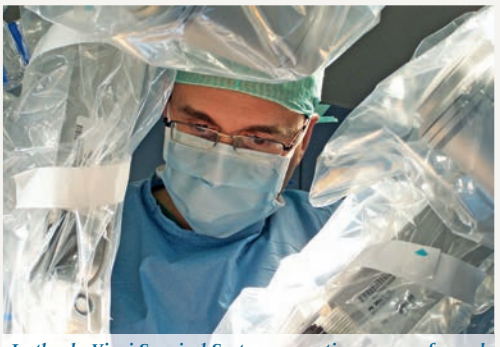
Outstanding medical care – in the region and beyond



In the da Vinci Surgical System, operations are performed via tiny incisions in the skin using robotic arms.

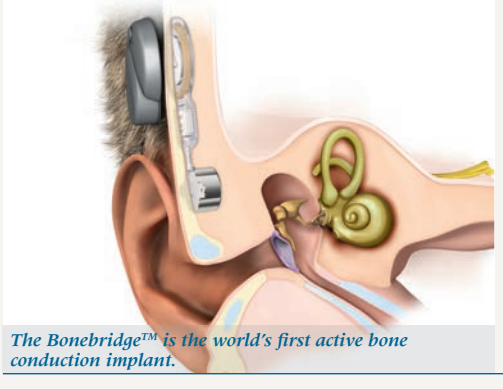
Minimally-invasive lobectomy: low-impact surgery for lung cancer

During a lobectomy, parts of the lung affected by cancer are exposed and removed via the tiniest of incisions in the thorax. In Frankfurt, this operation is performed using the da Vinci Surgical System, whereby the surgeon uses robotic arms to operate via tiny incisions in the skin. This new technique is possible thanks to technological advances such as three-dimensional high-definition video transmission and special instruments that enable a greater range of motion than the human wrist. "Compared to standard endoscopic surgery, the da Vinci Surgical System offers patients the advantage of complete tumour removal in a safer and less invasive procedure," explains Professor Peter Kleine, a surgeon and Director of the Thoracic Surgery Unit within the Department of Thoracic, Cardiac and Vascular Surgery. Patients can mostly be discharged from hospital within a matter of days. Doctors from across Europe come to Frankfurt to receive training in the procedure.

Intraoperative magnetic resonance imaging: hunting for brain tumours

The University Hospital Frankfurt has an intraoperative magnetic resonance imaging (MRI) system for neurosurgery. The PoleStar® N 30 is the only one of its kind in Germany. With its enhanced imaging capabilities, the device can even detect poorly visible brain tumours. Similar to X-rays, MRI systems generate images of the inside of the body. However, the technique is safer as no harmful radiation is used, and the images obtained are more accurate and even three-dimensional. The PoleStar® N 30 can also be used to monitor the tumour tissue during surgery. These intraoperative image updates allow the success of surgery to be determined during the procedure itself, meaning malignant tissue can be entirely removed in one single operation. Complete removal of the tumour increases life expectancy by several years. Moreover, subsequent operations with renewed opening of the skull can be avoided. This also eliminates the risks associated with the repeated use of anaesthetic and increased psychological strain.

Intraoperative set-up with an operating microscope and the PoleStar®.



The Bonebridge™ is the world's first active bone conduction implant.

Hearing implants: unique hearing systems

A combination of the latest cochlear implant and the hearing preservation surgery developed in Frankfurt allows patients, who have partially or entirely lost their hearing, to hear again. While the remaining acoustic hearing ability is often destroyed during the conventional cochlear implant procedure, this can be preserved in the Frankfurt technique. Individuals, who would be severely limited due to profound hearing loss or deafness otherwise, are able to lead a largely normal life at school, work and privately thanks to this procedure. As a pioneer in this field, the Department of Otolaryngology is one of the leading clinics in Germany, fitting over 150 cochlear implants every year. The team comprising doctors, engineers, hearing aid acousticians and audiologists is able to offer the best possible treatment options for all kinds of hearing impairments – from hearing aids to bone conduction implants to electronic inner ear prostheses. Patients are also guaranteed optimal care beyond their inpatient stay thanks to the extensive cooperation with associated rehabilitation facilities.

Patient blood management: safe blood management to patients' benefit

Since 2011, the World Health Organization has encouraged the introduction of patient blood management (PBM). Due to medical, social and economic changes, blood is becoming an increasingly rare commodity – and this on a global scale. At the same time, current studies indicate that blood transfusions may involve greater risks than previously thought. To remedy these issues, the University Hospital Frankfurt introduced PBM in 2013 in cooperation with the university hospitals in Bonn, Kiel and Münster. Frankfurt is a pioneer in Germany in this area of health services research. The focus is on the optimised use of blood transfusions through three central measures: special pre-treatment of risk patients prior to surgery, standardised assessment of whether blood transfusion is actually worthwhile, and minimisation of blood loss during and after surgery.

Patient blood management: "We're on board".

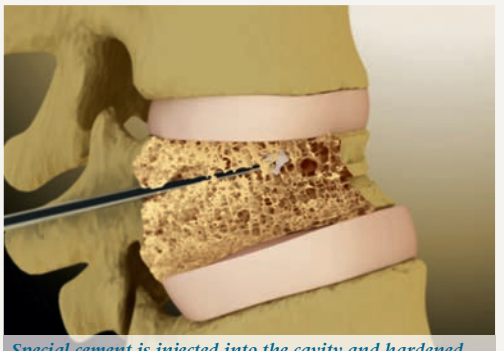
In microwave ablation, diseased cells are heated in a targeted manner and subsequently broken down by the body.

Microwave ablation of thyroid nodules: low impact and effective

Around 100,000 thyroid operations are performed and 50,000 radioactive iodine therapies conducted in Germany every year. In many cases, a mix of hot and cold nodules is established. Hot thyroid nodes are benign growths that can be treated with the established radioactive iodine therapy. In many cases, cold nodules are removed surgically. A patient at the University Hospital Frankfurt with one hot and one cold nodule was the first in the world to be treated with a combined procedure involving both radioactive iodine therapy and microwave ablation. During microwave ablation, a probe is inserted through the skin under local anaesthetic and microwaves focused directly on the thyroid nodule to eliminate it. Since the procedure is performed with a thin needle, the cosmetic result is outstanding. The hot nodule was subsequently treated with radioactive iodine. No operation is required for either of these procedures, both of which have very few side effects.

Kyphoplasty: radiofrequency energy to stabilise brittle bones

One in three women over the age of 50 experiences a bone fracture due to osteoporosis. In most cases, the result is intense pain. However, a low-impact, high-tech procedure can help. So-called radiofrequency kyphoplasty involves injecting a special viscous cement into the fractured vertebra in a safe and controlled manner using a hydraulic injection system. The cement in the bone is then irradiated with radiofrequency energy, causing it to harden. Just a single small incision that does not even need stitching is required for the procedure. What's more, significant pain relief is achieved very rapidly. Exclusively at the University Hospital Frankfurt, this procedure can be combined with radiofrequency treatment for bone cancer. The method is also particularly safe here, as the treatment's success can be monitored during the operation using a special MRI system. Besides the high degree of safety, patients additionally benefit from a short surgery time and rapid recovery.



Special cement is injected into the cavity and hardened using radiofrequency energy.

The LenSx® femtosecond laser is more precise, less invasive and safer than alternative techniques.

Femtosecond laser: enhanced precision in the treatment of cataracts and failing eyesight

The Department of Ophthalmology at the University Hospital Frankfurt has long been one of the leading and most innovative centres in the treatment of cataracts and failing eyesight in Germany, Europe and the world. With acquisition of the LenSx® femtosecond laser in 2012, the department continues to make headway. In addition to the now standard ultrasound technique, the highly innovative femtosecond laser technique is meanwhile also used in the treatment of cataracts and in lens surgery for the correction of both short and long-sightedness as well as age-related long-sightedness. Patients benefit from less invasive and safe surgery with enhanced precision. Preliminary studies have shown that the accuracy of the results is significantly improved with laser surgery compared to manual surgical methods. The operation is also less invasive than the classic ultrasound method.

Active neuroprostheses: allowing stroke victims to walk properly again

Many stroke survivors suffer from a chronic walking impairment known as dorsiflexion weakness for the rest of their lives, lacking the motor skills to place their foot correct when walking. They must concentrate intensely to avoid stumbling or even falling. In the system now being offered at the University Hospital Frankfurt, a muscle stimulator is implanted in the fibular nerve. The patient additionally wears a small external control unit at their hip and a sensor at their heel. When they lift their foot from the floor, the heel switch communicates this information to the control unit. The latter sends a signal to the implant that the heel has left the ground. The muscle is then activated by means of an electrical impulse and the foot thus lifted. This technique allows patients with dorsiflexion weakness due to a stroke to walk more easily and fluidly. An improvement in the patients' quality of life could be established in a comparison study.

The sensor at the heel communicates with the muscle stimulator implanted in the fibular nerve.

A pump draws the treated blood out of the body for cleaning in a filtration unit.

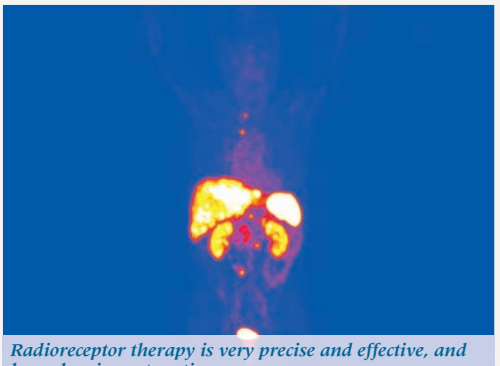
Chemosaturation: a chemotherapy filtration unit to combat liver cancer

The University Hospital Frankfurt is offering a type of chemotherapy that greatly reduces unwanted side effects thanks to its localised method of action. Chemosaturation was developed in the USA together with the company Delcath Systems, Inc., and Frankfurt has been the first hospital in Germany to implement it. Professor Thomas J. Vogl, Director of the Department of Diagnostic and Interventional Radiology, explains: "Chemosaturation has great potential to control cancer in the liver." Chemosaturation uses a special filter that helps remove the drug from the body again. A catheter system first isolates the blood flow to the liver to this end. The blood treated with a chemotherapy agent is then drawn from the liver and cleaned outside of the body in a filtration unit. Chemotherapy can thus be performed on the liver without any side effects on other organs.

DaVinci and Gemini ESWL: high-tech technology for low-impact urology

The Dornier Gemini medical shock wave system is able to remove kidneys stones using just shock waves in a procedure known as extracorporeal shock wave lithotripsy (ESWL). The Gemini has a far greater range of applications than existing devices, and can be used to eradicate stones that have in the past proved hard to reach (e.g. in obese patients). The system also affords a patented ergonomic design that greatly enhances patient comfort during treatment. The DaVinci-S HD surgical system has been used in Frankfurt for surgical procedures since August 2010. The system uses a console to transfer the surgeon's hand and foot movements to the instruments, thus enabling precision surgery to be performed using the smallest of incisions in the skin. This yields excellent results – also in terms of the aesthetics – and has a very low impact on patients. The technique is particularly beneficial for patients requiring radical removal of the prostate, though it is also used for other standard urological procedures.

The DaVinci system enables precision surgery via the smallest of skin incisions.



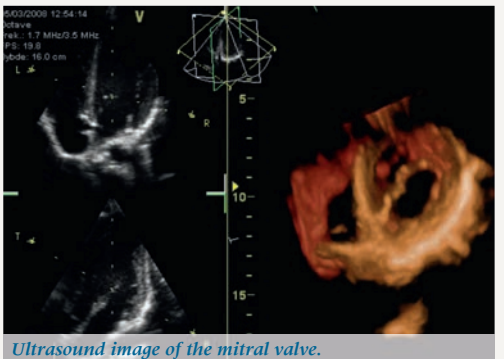
Radioreceptor therapy is very precise and effective, and has a low impact on tissue.

Radioreceptor therapy: a nuclear procedure on gastrointestinal tumours

Neuroendocrine tumours primarily occur in the gastrointestinal tract, with metastases spreading to the liver, bones and lymphatic system. They develop from hormone-producing cells. The alteration in hormone production due to the tumours can lead to stomach cramps, diarrhoea, sudden redness (flushes) or heart failure. If the tumours are inactive, they are often only detected at a late stage because of their size or as a result of metastases, and are then extremely life-threatening. The surface of the diseased tissue is covered with a multitude of receptors, which attract the hormone somatostatin. Radioreceptor therapy takes advantage of this mechanism. A substance very similar to the hormone somatostatin is developed pharmaceutically and used to transport a radioactive agent. When the carrier substance with its radioactive charge is transported through the body, the receptor's attraction causes it to dock on the tumour cells, leading to targeted irradiation. The therapy is very precise and effective, and has a low impact on tissue.

Complex heart valve reconstruction: outstanding results through continuous development

An aortic aneurysm is an enlargement of the aorta. It can lead to the aortic valve no longer closing properly, resulting in a leaky valve. The so-called David procedure can be used in such medically-challenging cases. This involves reconstruction during which the natural aortic valve is preserved. The aortic valve is almost completely detached from the surrounding structures, and a prosthesis is sewn into position. The branches of the coronary vessels are then reimplanted to re-establish blood flow to the heart. At the University Hospital Frankfurt, this sophisticated aortic valve reconstruction technique has been developed further and optimised as part of clinical trials over a period of many years. Through modification and refinement of the technique, it has been possible to reduce the re-operation rate to a small number of cases of valve inflammation, and to significantly improve the long-term success of treatment.



Ultrasound image of the mitral valve.

Specialist departments

Director: Prof. Dr. Dr. Kai Zacharowski FRCA

DEPARTMENT OF ANAESTHESIA, INTENSIVE CARE MEDICINE AND PAIN THERAPY

IN SAFE HANDS FOR YOUR SURGERY AND INTENSIVE CARE

With over 100 medical and technical staff and more than 150 nurses and non-medical staff, we are the largest department at the University Hospital Frankfurt. Our range of services covers intra-operative and post-operative care in the recovery room and the intensive and intermediate care units, and we also work in close collaboration with all other hospital departments. Every year, we administer general anaesthetics to approximately 30,000 patients of all ages for operations large and small as well as for diagnostic procedures. State-of-the-art equipment allows us to monitor patients' safely during general anaesthesia and in the intensive care unit, allowing diagnostic and therapeutic procedures to be conducted immediately should the need arise. We regularly and routinely administer all types of anaesthesia in line with the latest medical findings. If intensive care is required following a major operation, serious disease or injury, we can provide all kinds of organ replacement therapy, with medical and nursing care guaranteed around the clock. Other focuses of our work are emergency medicine and pain therapy. The role of the acute pain service is to consistently ensure that patients remain pain-free after surgery. Our outpatient pain clinic provides outpatient and inpatient treatment for chronic pain. Due to our skills in emergency medicine, we play an important role in emergency medical care in the city of Frankfurt as well as in air rescue. A team is on standby at the hospital at all times to treat medical emergencies. We consider use of the latest knowledge and state-of-the-art equipment to support you through your condition to be a matter of course, hence we will organise an interpreter for you should language barriers exist.

Director: Prof. Dr. Thomas Kohnen

DEPARTMENT OF OPHTHALMOLOGY

KEEPING SIGHT OF THE LATEST ADVANCES

Established in 1914, the Department of Ophthalmology is today one of the largest departments of its kind in Germany and covers all the main treatment areas in ophthalmology: cataract, refractive and corneal surgery using excimer and femtosecond lasers, glaucoma surgery, retinal and vitreous humour surgery, paediatric ophthalmology, treatment of strabismus, eyelid surgery and reconstruction of the eye adnexa. The department offers patients state-of-the-art diagnostics, treatment and research. All senior physicians working in the Department of Ophthalmology have gained experience at the world's leading eye hospitals, and many are influential figures in their respective fields. The department participates in various national and international studies with the aim of implementing the latest findings in daily practice as soon as possible. This link between research and clinical practice allows patients to be treated using the latest scientific findings.

The department currently has three laser systems for treatment of the cornea and eye lens. Among those worthy of particular note are the AMARIS® 750 Hz UV excimer laser and the IntraLase™ FS60 femtosecond laser for the keratorefractive correction of refractive errors (short and long-sightedness, and astigmatism). The latter allows for incisions to be made on the cornea with accuracy to the nearest µm, which is also useful for keratoplasty and the implantation of various corneal implants. In contrast, the latest LenSx® femtosecond laser is used in refractive lens exchange and cataract surgery for high-precision lens fragmentation and opening of the lens capsule with a closed eye. It can also make corneal incisions to correct astigmatism or implant intraocular lenses (including multifocal lenses for the correction of presbyopia).

DEPARTMENT OF VASCULAR AND ENDOVASCULAR SURGERY

VASCULAR AND ENDOVASCULAR TREATMENT OF ALL ARTERIAL AND VENOUS CIRCULATION PROBLEMS

Director: Prof. Dr. Thomas Schmitz-Rixen

The department focus lies in the diagnosis, medical indication, risk evaluation, operation and aftercare of around 1,500 inpatients every year. Comprehensive patient care is enabled here, integrated into the first university vascular centre. Outpatient treatment is currently being provided to over 3,500 patients. The certified aorta centre specialises in the endovascular treatment of aneurysms and dissection of the main arteries of the thoracic and/or abdominal cavities. Intensive interdisciplinary cooperation has led to a significant increase in the number of patients treated in recent years.

The range of treatments offered is highly diverse: aneurysms; stenoses; closures; thromboses; dissections of the cerebral arteries – from the arteries of the arms, abdomen and pelvis to those of the toes, kidneys and visceral system; reconstructions and wound management in diabetic feet; relief for congenital or constitutional constriction of the arteries, veins or nerves; paediatric vascular surgery; varicose veins; ulcerated legs and venous thromboses as well as tissue transplants and free flap plasty. The treatment of congenital vascular diseases and malformations forms one special focus.

The department is a recognised centre of excellence for the implantation of dialysis stents, whereby the focus is on endovascular techniques or a combination of these techniques with open surgical procedures (hybrid) in all types of therapies.

The treatment of chronic and complex wounds requires interprofessional, cross-sectoral cooperation between the different specialist disciplines. This cooperation is coordinated by the University Wound Centre (UWZ) at the University Hospital Frankfurt to ensure optimal patient care. The UWZ works with all hospital departments, operating both internally and externally as a service department. It receives extensive support from the Department of Vascular and Endovascular Surgery.

DEPARTMENT OF GENERAL AND VISCERAL SURGERY

SURGICAL ONCOLOGY AND TRANSPLANTATIONS AT THE HIGHEST LEVEL

Director: Prof. Dr. Wolf-Otto Bechstein

The focus of the Department of General and Visceral Surgery lies in the surgical treatment of cancers of the abdomen, endocrine surgery and minimally-invasive surgery. It is also the only medical facility in Hesse to perform liver, pancreas and small intestine transplantations. All modern methods of liver transplantation are practiced, including live donor liver transplantation. Since 2010, all types of kidney transplantation as well as laparoscopy-assisted live donor transplantation have been performed here. The department holds specialist endocrine, hepatobiliary, colorectal and proctology, pancreas and transplantation consultation sessions. Extensive pre-operative diagnostics for tumour diseases, tumour aftercare, and pre- and post-operative chemotherapy are provided in the department's surgical-oncological inpatient unit run in cooperation with the unit for gastroenterology. The Department of General and Visceral Surgery at the University Hospital Frankfurt is the only medical facility in Hesse to perform liver, pancreas and small intestine transplantations.

Director: Prof. Dr. Anton Moritz

DEPARTMENT OF THORACIC, CARDIAC AND VASCULAR SURGERY

MINIMALLY-INVASIVE, ENDOSCOPIC AND ROBOT-ASSISTED PROCEDURES ON THE INCREASE

With its outstanding breadth and level of innovation in surgical procedures, the Department of Thoracic, Cardiac and Vascular Surgery has established itself as a maximum care centre in the Frankfurt/Rhine-Main metropolitan region. Coronary revascularisation with arterial bypass grafts counts among the core procedures performed in the department, as is cardiac surgery without the use of a heart-lung machine (off-pump surgery) and the reconstruction of aortic and mitral valves, during which almost exclusively minimally-invasive techniques are used. Younger patients are also offered aortic valve replacement with their own pulmonary valve, known as the Ross procedure. For the surgical treatment of thoracic aneurysms, the department is leading a recognised project for aortic arch surgery investigating a number of different approaches for reconfiguration of the failing left ventricle in primary or secondary cardiomyopathy. If organ-preserving surgery is not possible, the implantation of artificial heart systems or thoracic transplantation is offered. Particularly the field of minimally-invasive, endoscopic surgery including endoscopic lobectomy has benefitted from the tremendous advances in lung surgery in recent years. Thus the da Vinci Surgical System is now increasingly being used for complicated thoracic procedures following intensive training for the surgical team. With regard to heart rhythm management, the department also implants pacemakers and defibrillators and performs surgical ablation techniques. The expertise in revision surgery for laser-assisted lead extraction, procedures in patients with systemic infections and endocarditis, and minimally-invasive thoracoscopic or robot-assisted implantation of endocardial, mostly left ventricular pacemaker electrodes has seen outstanding advances and development in particular. Interdisciplinary patient care in the intensive care unit means patients are able to benefit from specialist knowledge in both cardiac surgery and intensive medical care. In terms of clinical research, collaborative projects (in particular between anaesthesiology, radiology and cardiology) have yielded useful insights and solutions for day-to-day clinical problems.

Director: Prof. Dr. Ingo Marzi

DEPARTMENT OF TRAUMA, HAND AND RECONSTRUCTIVE SURGERY

TREATMENT OF INJURIES FROM ADMISSION TO DISCHARGE: THE MAXIMUM CARE TRAUMA CENTRE

The Department of Trauma, Hand and Reconstructive Surgery is the region's university hospital trauma centre. It is committed to the care of injured patients – from admission through to discharge. The department's physicians are responsible for conducting all types of surgical procedures, the emergency doctor services, the central emergency surgical ward, intensive care, and inpatient treatment. The provision of adequate rehabilitation as well as treatment of all occupational and commuting accidents also count among the department's fields of responsibility. Treatment from one single source allows the department to offer patients who have had an accident or are suffering from diseases of the musculoskeletal system comprehensive, modern treatment with targeted, meaningful diagnostics and therapy. The operating theatres are equipped for intraoperative three-dimensional imaging, computer navigation and minimally-invasive surgical procedures, and enable the full range of surgical procedures on the musculoskeletal system and spine – from arthroscopy and joint replacement to reconstructive and plastic surgery – as well as on consequential and chronic damage, and instabilities and inflammations of the joints.

Special consultation sessions are held, covering all types of sports injuries and related consequential damage; injuries and diseases from the field of hand and foot surgery; spinal fractures and instabilities; arthroscopic joint procedures and joint replacement (endoprostheses); childhood injuries; osteoporosis and geriatric traumatology; occupational accidents including expert evaluations; and physical therapy for the musculoskeletal system.

The department is a certified cross-regional trauma centre within the Hessian trauma network, and certified to the latest standards within the Centre of Surgery. According to the German trauma register, university hospital patients rate the department more highly than the national average.

DEPARTMENT OF UROLOGY AND PAEDIATRIC UROLOGY

MAXIMUM CARE: UROLOGICAL TREATMENTS OF THE HIGHEST QUALITY

Director: Prof. Dr. Axel Haferkamp

As a maximum care centre, the department offers patients a comprehensive range of urological treatments of the highest quality. The guiding principles of the staff in the Department of Urology and Paediatric Urology at the University Hospital Frankfurt are to provide all patients with the best possible personalised care, offer state-of-the-art therapies, guarantee the highest standard of technology, and transfer the latest findings and knowledge from science and research directly to clinical practice. Special focuses of the department lie in the treatment of urological cancers, including the administration of chemotherapies, endourology with cutting-edge stone therapy and the treatment of benign prostate enlargement, and reconstructive urology with the subareas of urinary diversion, incontinence treatment, urethral surgery and prosthetics. Whenever possible, our surgeons use minimally-invasive surgical techniques, such as the computer-assisted DaVinci technology or other laparoscopic surgical techniques (keyhole surgery).

Close cooperation with the other departments at the university hospital – particularly the surgical, nephrology, radiotherapy and oncology departments – helps ensure the optimal conditions for highly-qualified care for critically ill patients. This excellent cooperation with the different departments is also reflected in the work of the University Cancer Center (UCT), within which the Department of Urology plays a decisive role in the specialist field of urogenital cancers. Patients are offered individually optimised interdisciplinary treatment concepts here in weekly tumour board reviews.

The certified centres for prostate cancer and urinary and pelvic floor disorders managed by the Department of Urology guarantee care of the highest quality in these fields for patients.

DEPARTMENT OF ORAL, MAXILLOFACIAL AND FACIAL PLASTIC SURGERY

IT'S ALL IN THE HEAD: FROM SURGERY TO RECONSTRUCTION

Director: Prof. Dr. Dr. Dr. Robert Sader

The field of oral, maxillofacial and facial plastic surgery forms the link between medicine and dentistry. The department's services range from complex dental surgery, through the treatment of traumatic injuries to the jaw, facial bones and covering soft tissue in Frankfurt's emergency department, to the treatment of all cancers of the lip, oral cavity, face and surrounding structure as well as infections. The department offers the whole spectrum of surgical and conservative care for the diagnosis and treatment of conditions and injuries within the specialist field of oral, maxillofacial and facial plastic surgery. Further competences include reconstructive and aesthetic facial surgery.

The department operates one of the largest interdisciplinary treatment centres for facial malformations, whereby unilateral cleft lip is by far the commonest condition. In oncology, the department uses innovative procedures such as the minimally-invasive sentinel technique and microsurgical reconstructions with 3D planning. Surgery is underpinned by numerous clinical trials. While surgical procedures from arthroscopy to joint replacement are performed on the jaw joint, innovative implant systems and procedures for restoring the jawbone are used in dental implantology. Severe morphological and positional abnormalities of the jaw can be planned in 3D with computer support and corrected surgically. During operations, the jaw joint can be positioned precisely using ultrasound, and the latest resorbable osteosynthesis materials used for fixation. The focus for the treatment of conditions affecting the jaw joint is total jaw joint replacement, which is performed when a patient continues to suffer from severe joint pain despite the conventional surgeries having been performed. Operations on the jaw joint are performed every week, and total jaw joint replacement has been offered since 1999. The department is the leading clinic in Germany for total jaw joint replacement.

Director: Prof. Dr. Udo Rolle

DEPARTMENT OF PAEDIATRIC SURGERY

GREAT PROSPECTS FOR THE YOUNG

Academically, the Department of Paediatric Surgery is affiliated with the Surgical Department; in terms of medical care, it is based within the Centre for Paediatric Medicine. The Department of Paediatric Surgery additionally forms part of the University Hospital Frankfurt's Department of Perinatal Care. The range of treatments offered by the Department of Paediatric Surgery includes the surgical correction of congenital malformations, neonatal surgery, paediatric visceral surgery, surgical treatment of childhood cancers, paediatric urology, and the surgical treatment of paediatric haemangioma and vascular malformations. Specialisms within the Department of Paediatric Surgery include the surgical treatment of childhood tumours and reconstructive surgery for congenital malformations. Thoracic procedures and the treatment of paediatric organ trauma are conducted with interdisciplinary collaboration between specialists in thoracic and trauma surgery.

Children requiring surgery receive both inpatient and outpatient care in the Surgical Department with the involvement of specially trained paediatric anaesthesiologists. Those requiring hospitalisation are cared for on a paediatric surgery ward within the Department of Paediatric Medicine. They receive interdisciplinary care here, alongside patients from other surgical disciplines (e.g. oral and maxillofacial surgery, trauma surgery). Children requiring intensive care are treated in collaboration with colleagues from paediatric intensive care and neonatal medicine. Although established in 1973, it was not until November 2008 that the Paediatric Surgery Unit became an independent department and the only faculty of paediatric surgery in the state of Hesse. The number of patients receiving inpatient treatment within the department has grown constantly ever since (2010: 491 patients; 2011: 508 patients; 2012: 532 patients). A total of 1,025 operations were performed here in 2012.

Director: Prof. Dr. Roland Kaufmann

DEPARTMENT OF DERMATOLOGY, VENEREOLOGY, AND ALLERGOLOGY

SKIN HEALTH: COMPREHENSIVE RANGE OF TREATMENTS AND SPECIAL CONSULTATION SESSIONS

The Department of Dermatology, Venereology, and Allergology is dedicated to the diagnosis and treatment of diseases from the entire spectrum of conservative and operative dermatology, venereology, allergology, phlebology, proctology and andrology. Inpatient treatment is provided in the specialist conservative-allergology unit for chronic inflammatory and allergological skin diseases, which includes an integrated paediatric ward. Skin tumour patients are treated in the specialist operative-oncology unit.

The university outpatient clinic offers a number of different specialist consultation sessions for tumour diseases, chronic wounds, laser therapy, phlebology, proctology and allergology. Interdisciplinary care is available to andrology (fertility) patients. Special dermatological diagnostics such as histology, andrology, biochemistry and mycology are performed in specialist laboratories optimally coordinated with the department. Soft laser and X-ray therapy as well as all modern light therapies are offered.

The department's predominantly oncological-operative focus is reflected in the close to 3,000 mainly multiple inpatient and outpatient surgical procedures performed here every year as part of the growing number of complex microscopic surgical procedures. The amount of patients with complex and advanced tumours is also increasing. The skin cancer centre was recently involved in the clinical trials and approval of a new drug to treat melanoma known as ipilimumab, developing an algorithm in side effect management. The innovative drug ustekinumab for the treatment of moderate to severe psoriasis and alitretinoin for refractory chronic hand eczema (CHE) are now integral components of the treatment algorithms in their respective functional areas.

DEPARTMENT OF GYNAECOLOGY AND OBSTETRICS

CERTIFIED BREAST CANCER, GYNAECOLOGICAL CANCER AND PERINATAL CENTRE

Director: Prof. Dr. Sven Becker

The Department of Gynaecology and Obstetrics is a centre for gynaecological oncology, breast cancer and obstetrics of national and international acclaim. It is one of the few gynaecology departments in Germany still able to provide a full range of specialist care services. One of our primary aims is to offer the highest level of care, taking the latest research findings and treatment methods into account. In recent years, the introduction of new techniques, increased use of minimally-invasive surgeries, and improved anaesthesia and pain therapy have led to a steady decrease in the amount and duration of inpatient treatment. The department makes a decisive contribution to these advances, placing great emphasis on the promotion of organ and function-preserving cancer surgeries.

The specialist unit for gynaecological endocrinology and reproductive medicine offers couples wishing to conceive a comprehensive range of modern reproductive medicine procedures.

The perinatal centre functions as an independent unit and is the leading centre in the region, offering the highest level of care (Level 1). A centre for congenital malformations has been established for children requiring neonatal care for diseases and malformations. Support for risk pregnancies in patients with maternal diseases counts among our priorities, and obstetric care for multiple and breech births constitutes one further specialism. Our high level of expertise is reflected in the fact that we have the best results in Europe for the vaginal delivery of breech births. We are also the leading perinatal centre for the treatment of multiple pregnancies.

Certification of the gynaecological cancer, breast cancer and perinatal centres confirms that the gynaecological care provided at the University Hospital Frankfurt is outstanding on both a regional and national level.

DEPARTMENT OF OTOLARYNGOLOGY

A PIONEER IN COCHLEAR IMPLANT SURGERY IN WHICH RESIDUAL HEARING IS PRESERVED

Director: Prof. Dr. Timo Stöver

The Department of Otolaryngology offers a comprehensive range of otolaryngology treatments, and has an outstanding international reputation in the development and furthering of cochlear implant surgery in which residual hearing is preserved. Further surgical expertise worthy of note includes tumour surgery encompassing plastic aesthetic and plastic reconstructive procedures, laser-assisted procedures on the throat and paranasal sinuses, endoscopic and microscopic operations on the paranasal sinuses, navigation-assisted procedures, and the use of neuromonitoring. Complex reconstruction of the facial skull and skull base within the scope of oncological procedures also count among the services offered, as do plastic aesthetic procedures. Complex procedures on the head and neck often require interdisciplinary cooperation with other specialist departments – one of the department's distinguishing features is its close cooperation with the University Cancer Center (UCT) in the treatment of tumours and development of individual, interdisciplinary treatment concepts for patients.

The Department of Otolaryngology additionally has two clinical focuses: audiological acoustics, and phoniatry and paedaudiology. These two highly specialised units within the Department of Otolaryngology enable the diagnosis of hearing damage in adults, children and infants.

Director: Prof. Dr. Stefan Zeuzem

DEPARTMENT OF MEDICINE I

INTERNATIONAL CENTRE OF EXCELLENCE FOR LIVER DISEASES AND GASTROINTESTINAL CANCERS

The Department of Medicine I manages more than 100 beds on normal, intermediate and intensive care wards. The unit for gastroenterology and hepatology is responsible for the diagnosis, treatment and prevention of diseases of the gastrointestinal tract, pancreas, liver and biliary tract. All pathological changes in the organs of the gastrointestinal tract can be treated in the endoscopy unit using cutting-edge endoscopic, (endo-)ultrasonic and X-ray-assisted procedures in line with the latest medical knowledge. The certified interdisciplinary centre for bowel and pancreatic cancer and the University Cancer Center (UCT) conduct tumour board reviews to determine the necessary diagnostic and therapeutic steps on a case-by-case basis for patients with cancers of the gastrointestinal tract, lungs and endocrine organs. The interdisciplinary liver board ensures optimal care for patients with chronic liver conditions and liver tumours. The specialists in respiratory and allergy medicine treat patients with a whole range of diseases of the lungs and respiratory tract. There is also a certified lung cancer centre and an interdisciplinary reference centre for rare diseases (FRZSE). The unit for endocrinology and diabetology provides treatment for patients with all hormone-related conditions. Patients with diabetes are treated in the certified diabetes treatment centre. The services provided in nutritional medicine range from the identification of risk patients through the development of specific dietary plans to the transitioning of patients to the outpatient clinics.

Modern and highly effective treatment is based on fundamental theoretical and clinical research. The research activities of the Department of Medicine I are recognised internationally, particularly in the fields of viral hepatitis, gastrointestinal oncology, endoscopic and ultrasound imaging, cystic fibrosis and other rare diseases, and vitamin D research.

Director: Prof. Dr. Hubert Serve

DEPARTMENT OF MEDICINE II

MAXIMUM CARE FOR HAEMATOLOGY AND ONCOLOGY PATIENTS

The Department of Medicine II is responsible for the three specialist fields within internal medicine of haematology/oncology, rheumatology and infectious diseases/HIV. Besides comprehensive patient care, the department is very active in fundamental research and translational clinical research, and sets itself apart through its participation in and initiation of countless research groups and national and international multicentre studies. The Department of Medicine II is one the leading centres for the development of complex treatment strategies for acute myeloid leukaemia (AML) and acute lymphoblastic leukaemia (ALL).

The haematology/oncology unit comprises two general wards and one stem cell transplant unit with a total of 48 beds. The department has successfully been conducting stem cell transplants for more than 20 years now, and makes an important contribution to interdisciplinary patient care and patient-centred research through its work in the University Cancer Centre (UCC), which is supported by German Cancer Aid (Deutsche Krebshilfe). It is also a partner of the German Cancer Research Center (DKTK).

The specialist unit for infectious diseases has a contagious diseases ward with 18 beds, as well as an isolation ward for intensive medical treatment of highly infectious, life-threatening diseases. In its own clinical trial centre, patients with HIV infection are treated by a team that forms part of an international network; the unit is also successful in the introduction of new treatment concepts. Patients with tropical infections or other complex infections receive care in a specialist outpatient clinic. The latter also offers advice about tropical medicine and travel, including all vaccinations.

The specialist rheumatology unit cares for patients with inflammatory joint and spinal conditions, systemic connective tissue disorders, vasculitis and periodic fever syndromes. Since 2010, it has also treated patients with hereditary immune deficiencies.

DEPARTMENT OF MEDICINE III

INVASIVE HEART PROCEDURES IN STATE-OF-THE-ART CARDIAC CATHETERISATION LABORATORIES

Director: Prof. Dr. Andreas M. Zeiher

The emphasis within the Department of Medicine III/Cardiology is on the treatment of all diseases of the cardiovascular system. As a maximum care unit to which patients from all across Germany and abroad are referred, the department offers the latest diagnostic and therapeutic methods and equipment. These include four state-of-the-art cardiac catheterisation laboratories in which all types of invasive cardiac procedures are performed. Round-the-clock emergency care is available for heart attack sufferers. In addition to the catheter-based treatment of aortic stenosis and the treatment of congenital heart defects, the department also has specialist skills in the implantation of stents for both coronary heart disease and peripheral artery occlusive disease, invasive electrophysiology with ablation of cardiac arrhythmias including atrial fibrillation, and all of the latest invasive diagnostic procedures. These include intracoronary blood-flow measurements, ultrasound imaging, and pressure measurement for the assessment of narrowing in the coronary artery system.

A total of six highly modern ultrasound devices are available for non-invasive diagnostics. Comprehensive cardiovascular diagnostics are guaranteed thanks to function tests and duplex scans of the vessels. The department is the world's leading centre for the use of stem cell therapy for acute and chronic heart failure and the top German centre for the catheter-based treatment of aortic stenosis.

In collaboration with the Institute for Cardiovascular Regeneration, the cardiology department has for years pioneered cardiovascular research in Germany. The directors of both establishments are among the top three German-speaking scientists in the field of cardiology, based on the frequency with which their research is cited.

DEPARTMENT OF NEPHROLOGY

RENAL DISEASES AND HYPERTENSION

Director: Prof. Dr. Helmut Geiger

The unit for renal diseases and hypertension of the Centre for Internal Medicine performs dialysis for acute or chronic kidney failure, intermittent and continuous renal replacement therapy, apheresis and liver dialysis. The department cares for patients before, during and after deceased or living donor kidney transplantation or blood group incompatible kidney transplantation.

The University Hospital Frankfurt has a long tradition of kidney transplantation and is the largest transplant centre in Hesse. The first kidney transplant was performed here in 1968, and the first living donation took place in 1973. In total, more than 2,000 kidney transplants have been performed to date in addition to over 200 living kidney donations. The department has offered simultaneous pancreas-kidney transplantation since 2003, and ABO-incompatible living kidney donation since 2005. Between 70 and 80 kidney transplants are performed in Frankfurt every year, including living donations and simultaneous pancreas-kidney transplants.

The Department of Nephrology recently conducted clinical trials on patients with autoimmune diseases and hypertension following renal transplantation. The study was complemented with experiments on cell cultures and animal models conducted in the nephrology research laboratory. The pathogenesis and treatment of hypertension, differentiation of adult human stem cells using lipoaspirate from epithelial cells, prevention of rejection following renal transplantation, and progression of kidney disease are being investigated.

The nephrology clinic was one of the first in Germany to be recognised as a certified hypertension centre (Zertifiziertes Hypertonie-Zentrum DHL®) by the German Society for the Prevention and Treatment of Hypertension (Deutsche Hochdruckliga e.V. DHL – Deutsche Gesellschaft für Hypertonie und Prävention). The society has also certified the department a specialist university nephrology centre (Universitäre Nephrologische Schwerpunktklinik). The nephrology unit's director, Professor Helmut Geiger, is listed as one of the best doctors in his field for what is already the third time in the latest edition of the prestigious doctors list published by Focus magazine.

Director: Prof. Dr. Thomas Klingebiel

DEPARTMENT OF PAEDIATRIC AND ADOLESCENT MEDICINE

INTERDISCIPLINARY THERAPIES FOR CHILDREN AND ADOLESCENTS

The Department of Paediatric and Adolescent Medicine has five specialist clinical units and an interdisciplinary intensive care ward. It also affords a high level of expertise in paediatric cardiology, particularly in the field of interventional cardiac catheterisation.

Our neonatal unit provides care for countless high-risk births, and a centre for congenital malformations has been established to treat children with conditions and malformations requiring neonatal care.

The specialist unit for neurology, neurometabolic disorders and prevention diagnoses and treats children with unexplained developmental retardation, epilepsy, metabolic conditions, traumatic brain injuries, central nervous system malformations, neuromuscular conditions and movement disorders.

The unit for allergy medicine, respiratory diseases and cystic fibrosis treats patients with infections and diseases of the respiratory tract. Our reference centre cares for patients with the rare condition ataxia telangiectasia.

The conditions covered by the specialist unit for stem cell transplantation and immunology range from acute leukaemias through solid tumours to serious immune disorders and AIDS. The specialist clinic is one of the largest paediatric transplant centres in Europe and the first purely paediatric transplant centre to be accredited by the Joint Accreditation Committee ISH-EBMT (JACIE).

The specialist oncology, haematology and haemostaseology unit is the only centre in the region for paediatric cancers and haematological conditions. It focuses on the diagnosis and treatment of all haematological and oncological conditions in childhood and adolescence. These include acquired and congenital disorders of blood formation and clotting, immune deficiencies, systemic malignant diseases and solid tumours. The unit has two wards and several outpatient clinics. Special clinics are held for patients with cancer, clotting disorders and chronic anaemia, and in particular thalassemia and sickle cell anaemia.

Director: Prof. Dr. Dipl. theol. Christine M. Freitag

DEPARTMENT OF PAEDIATRIC AND ADOLESCENT PSYCHIATRY, PSYCHOSOMATIC MEDICINE AND PSYCHOTHERAPY

TREATMENT FOR ALL PSYCHIATRIC CONDITIONS IN CHILDHOOD AND ADOLESCENCE

The department provides diagnostics, counselling and treatment for all psychiatric conditions in childhood and adolescence. It offers a broad range of outpatient and inpatient services for both short and long-term treatment of children and adolescents with psychiatric and psychosomatic conditions.

Patients are normally first seen on an outpatient basis and assessed thoroughly by a specialist in paediatric and adolescent psychiatry (including internal medicine and neurological examinations, and psychological testing). A personalised treatment approach is planned on the basis of the results from these diagnostic procedures. Treatment can then be provided on an outpatient basis, as inpatient therapy, or in a day clinic setting. Specialists in private practice and approved psychotherapists can also refer their patients to the wards directly for treatment. Diagnosis and treatment are always based on state-of-the-art research and oriented to tried and tested treatment methods.

Special focus areas in both inpatient treatment and therapy in a day clinic setting are multimodal treatment for eating disorders, anxiety and depressive disorders, obsessive compulsive disorders, selective mutism, emotionally unstable and externalising behaviour problems, and psychotic conditions.

The focus of research within the department includes autism and activity and attention disorders. The research concentrates on both fundamental scientific principles and important clinical questions, and thus has a direct impact on treatment practices. The department's molecular genetics and neurophysiology research laboratories work closely with other scientific laboratories and the hospital's Brain Imaging Center.

DEPARTMENT OF NEUROLOGY

CENTRE OF EXCELLENCE FOR INTERDISCIPLINARY SPECIALIST TREATMENT – FROM ONE SINGLE SOURCE

Director: Prof. Dr. Helmuth Steinmetz

The significance of neurology has grown continuously over the past 20 years. This is primarily due to the diagnostic and therapeutic advances in neuromedicine. Among the focuses of the Department of Neurology count diseases of the cerebral vessels (e.g. strokes), neurological movement disorders (e.g. Parkinson's disease), multiple sclerosis, cognitive neurology (e.g. dementia), epilepsies, and the treatment of brain tumours (Dr. Senckenberg Institute for Neurooncology). Particularly close cooperation with the Department of Neurosurgery and Institute for Neuroradiology means we are able to offer both invasive and specialist neurointensive medical procedures. Besides treating 3,500 patients in our inpatient ward every year, we also offer special outpatient services for all neurological diseases.

Proximity to research as a sign of quality
The Department of Neurology is one of the most research-focused departments at the University Hospital Frankfurt. It has specialist neurological consultants, associate professors or full professors in all of the specialisations listed above. We provide inpatient care in our specialist units (e.g. the comprehensive stroke unit, neurooncology unit, epiletology video EEG monitoring unit and neurointensive care unit). Innovative new treatment concepts are evaluated here scientifically so as to be able to implement research-related medicine as rapidly as possible to the benefit of our patients.

DR. SENCKENBERG INSTITUTE OF NEUROONCOLOGY

THE CHALLENGES OF BRAIN TUMOUR MEDICINE

Director: Prof. Dr. Joachim Steinbach

The institute is committed to providing interdisciplinary care for brain tumour patients – from diagnosis through multimodal therapies and aftercare to palliative care – and constitutes a core element of the brain tumour centre. It currently has 12 beds and an outpatient brain tumour ward, which enables interdisciplinary inpatient and outpatient care thanks to the close collaboration with the Centre for Neurosurgery.

The number of patients discussed during the interdisciplinary neurooncological meeting is forever growing. The continuous presence of the core disciplines of neuroradiology, neurosurgery, neuropathology, radiation therapy, haematology and oncology, radiosurgery and neurooncology reflects the high demand for quality in the case discussions of the entire team at the brain tumour centre. The latter is a pilot project in Frankfurt that conducts research in the field of brain tumour medicine and applies its findings to clinical practice. It is supported by the Dr. Senckenberg Foundation and the non-profit Hertie Foundation.

In recent years, the neurooncology emphasis has made the institute one of Germany's most active centres for clinical trials on brain tumours. Thanks to the exemplary interdisciplinary cooperation, it was once again possible to include a large number of patients in clinical trials as well as to launch new studies. Worthy of special mention here is the ERGO-2 study, which is a randomised phase II study investigating re-irradiation for patients with recurrent glioblastoma in combination with a calorie-restricted ketogenic diet.

Translational studies are primarily conducted on the use of biomarkers and innovative imaging. Experimental and molecular fundamental research focuses on the development of new treatment strategies based on findings on signal transduction and the metabolism of glioma cells.

Director: Prof. Dr. Volker Seifert

DEPARTMENT OF NEUROSURGERY

INTERNATIONAL REFERENCE CENTRE FOR THE SURGICAL TREATMENT OF NEUROLOGICAL DISEASES

In the Department of Neurosurgery, patients are provided with a whole range of neurosurgical treatments at the highest level in three general wards and one neurosurgical intensive care unit. The clinical focus lies in the treatment of patients with brain tumours, cerebrovascular diseases and complex vertebral diseases involving the spinal cord and spinal nerves.

Cutting-edge operating microscopes and neuronavigation systems are available for minimally-invasive, function-preserving neurosurgery. The Department of Neurosurgery is one of the world's leading institutions in the field of peri and intraoperative imaging and intraoperative neurophysiological monitoring. This enables better assessment of the pre-operative risk of a procedure, and operations deemed unthinkable just a few years ago are now possible in routine daily practice. The department has been involved in the clinical testing of intraoperative fluorescence imaging for the enhanced detection of brain tumours under the operating microscope. It is the only neurosurgical department in Germany to have a mobile intraoperative low-field MRI scanner specially developed for neurosurgical operations at its disposal.

An infrared system developed within the department is used for intraoperative vascular imaging that has drastically increased the safety and success of operations. The Department of Neurosurgery was one of the first in Germany to be certified as a Vascular Centre by the German Society of Neurosurgery (Deutsche Gesellschaft für Neurochirurgie – DGNC).

With regard to vertebral diseases, the department's focus lies in minimally-invasive microsurgery on herniated discs and degenerative diseases, surgical treatment of complex spinal tumours, and inflammatory and traumatic diseases of the spinal column including complex stabilisation surgery.

Director: Dr. Stefan Hornung

DEPARTMENT OF PSYCHIATRY, PSYCHOSOMATIC MEDICINE AND PSYCHOTHERAPY

FOCUS ON THE PATIENT

The department has 151 beds and 33 day hospital places. Our team comprises a range of care professionals, including nurses and specialist nurses, social workers, occupational therapists, art and music therapists, and physiotherapists in addition to doctors and psychotherapists.

The Department of Psychiatry offers comprehensive diagnostics and treatment for all psychiatric conditions, in particular depression, bipolar disorder, anxiety disorders, obsessive-compulsive disorders, psychoses (e.g. schizophrenia), memory disorders and addictions. Besides targeted medical therapy and cognitive behavioural therapy on a one-to-one and group basis, the range of therapies offered also includes relaxation techniques, physiotherapy, massage, sports therapy, occupational therapy, and a professional social services team for advice and assistance.

Clinical care in the psychosomatic unit covers the whole range of neurotic disorders, as well as psychosomatic and somatopsychic conditions. The focus of treatment is on various psychotherapeutic techniques, whereby the primary aim is to integrate somatic and psychic treatment levels into a harmonised therapy model based on psychodynamic principles.

The research focus mainly lies in methods for the diagnosis and treatment of schizophrenic, affective (bipolar disorder, late-life depression) and neurodegenerative disorders and addictions. The development of innovative treatment approaches for psychiatric conditions has been advanced, specifically with the establishment of combined cognitive and physical training techniques. Such techniques can yield improvements in cognitive deficits and psychopathological disease symptoms in psychiatric conditions, and thus constitute a conservative and effective complement to established pharmacological methods of treatment.

DEPARTMENT OF DIAGNOSTIC AND INTERVENTIONAL RADIOLOGY

CUTTING-EDGE IMAGING TECHNIQUES FOR PROMPT AND ACCURATE DIAGNOSES AND MINIMALLY-INVASIVE TREATMENT

Director: Prof. Dr. Thomas J. Vogl

The Department of Diagnostic and Interventional Radiology is equipped with cutting-edge technology for all imaging procedures, offering patients prompt and accurate diagnostics. The range of interventional techniques includes the whole spectrum of treatments for vascular conditions, including PTA, stenting, coiling and embolisation. The field of interventional oncology is integrated into the University Cancer Center (Universitäres Centrum für Tumorerkrankungen – UCT). Patients are treated there with localised chemotherapy techniques such as chemoperfusion, chemoembolisation, chemosaturation, radioembolisation (SIRT), thermoradiotherapy techniques such as laser-induced thermotherapy (LITT), radiofrequency ablation (RFA), microwave ablation (MWA), and vertebroplasty. Minimally-invasive guided biopsies using various imaging methods complete the range of services offered.

The Department of Diagnostic and Interventional Radiology performs more than 110,000 examinations every year, using a wide range of imaging techniques. The emphasis is on early detection, more in-depth diagnosis using ultrasound, magnetic resonance imaging, computed tomography and angiography. More extensive diagnostics also involve interventional studies and therapies.

Since 2012, a new kind of computer tomographic machine has been available to patients in the trauma room, which can be moved back and forth between the examining room and trauma room by means of a sliding gantry. For mobile visits to the intensive care unit, a new kind of system has been implemented to permit the rapid transmission of image data from the ward to the X-ray department and hospital IT system via a secure WLAN connection.

In terms of clinical research, the department was involved in a project instigated by the German Federal Ministry of Economics and Technology (BMWi) for the development of a highly-sensitive human model with in vivo characteristics for crash simulations.

INSTITUTE OF NEURORADIOLOGY

HIGHLY-QUALIFIED DIAGNOSTIC IMAGING OF THE CENTRAL NERVOUS SYSTEM

Director: Prof. Dr. Friedhelm Zanella

The Institute of Neuroradiology provides the hospital with diagnostic imaging and interventional treatment for patients with diseases of the central nervous system. It employs highly-qualified specialists for neuroradiological CT and MRI diagnostic imaging and catheterisation procedures on the blood vessels supplying the brain. Highly-specialised, complex interventions are performed here, such as the interventional treatment of intracranial aneurysms, vascular malformations and vessel obstructions. Particularly noteworthy is the diagnosis and treatment of dural arteriovenous fistulas, as only a handful of hospitals are able to offer this.

In addition to interventional neuroradiology, the department's research focus centres on the development of MRI methods. Specifically, this includes quantitative imaging in the Brain Imaging Center (BIC), non-invasive research into cerebral metabolism in neurological diseases, diagnostic imaging of cerebral ischemia, and endovascular stoke treatment. Our department's high level of expertise in the use of and research into magnetic resonance spectroscopy (including phosphorus spectroscopy) is worthy of special mention here. The neurovascular research team takes a method-oriented approach to studying angiography units, and is currently conducting studies to validate and expand the diagnostic potential of flat-panel detector CT angiography and perfusion measurement. These studies recently led to the establishment of a new method for measuring blood volumes in flat-panel detector angiography. The department is also conducting multicentre clinical studies into the use of MRI and angiography.

Director: Prof. Dr. Frank Grünwald

DEPARTMENT OF NUCLEAR MEDICINE

FOCUS ON THE TREATMENT OF THYROID DISORDERS WITH RADIOACTIVE ISOTOPES

The Department of Nuclear Medicine offers a broad range of diagnostics and therapies. One focus is on the treatment of thyroid disorders, in particular with radioactive isotopes. The department additionally provides the full spectrum of conventional nuclear medicine diagnostics such as skeletal, renal and myocardial scintigraphy, and is involved in countless complex procedures, such as receptor diagnostics.

One further focus is on PET/CT in oncology, infectiology and neuropsychiatric conditions, performed in cooperation with the radiological institute.

Benign and malignant thyroid disorders are treated with radioactive iodine, and therapies with radioactive substances are also offered for other malignant diseases. The department treats around 500 inpatients and 10,000 outpatients every year.

The Department of Nuclear Medicine is a pioneer in multimodal imaging for oncology, Parkinson's disease and dementia as well as in the use of new tracers in the imaging of organ function and tumour spread. Countless projects have been realised for optimisation of the interdisciplinary treatment of thyroid disorders. Moreover, the offers for the therapeutic application of radionuclides specifically for joint conditions and the treatment of liver tumours using SIRT have been expanded. In 2012, the Department of Nuclear Medicine became the first in Europe to use microwave ablation on a thyroid nodule. A patient at the University Hospital Frankfurt with one hot and one cold nodule was subsequently the first in the world to be treated with a combined procedure involving both radioactive iodine therapy and microwave ablation. The new combined treatment is considerably safer and more comfortable for patients compared to the standard procedure.

Director: Prof. Dr. Claus Rödel

DEPARTMENT OF RADIATION THERAPY AND ONCOLOGY

ENTIRE SPECTRUM OF RADIATION THERAPY

The department offers the entire spectrum of percutaneous, intracavity and interstitial radiation therapy. This includes specialist radiation techniques such as total body irradiation and intensity-modulated, image-guided, stereotactic and intraoperative radiation therapy. The department has three modern accelerators with multileaf collimators and portal imaging, as well as an integrated cone beam CT unit for image-guided radiation therapy and radiosurgery at its disposal. Chemotherapy as well as nutritional, pain and supportive therapy are provided in the department's ward within the framework of standardised radiation oncology treatment concepts. The focus of clinical research lies in combining radiation therapy with new chemotherapy agents and targeted cancer therapies, as well as organ and function-preserving multimodal treatment concepts, in particular for gastrointestinal tumours and bladder cancer. Doctors, medical physicists, radiobiologists, medical technicians and nursing staff work in close collaboration with other specialist departments at the university hospital as well as with external partners.

The department also makes an important contribution to patient-friendly interdisciplinary care and research through its work at the University Cancer Center (Universitäres Centrum für Tumorerkrankungen – UCT), which is supported by German Cancer Aid (Deutsche Krebshilfe). Following consultation with patients receiving treatment within the context of tumour board reviews, all patients receive quality-assured guideline-based treatment and sometimes in accordance with the latest findings within the framework of innovative clinical trials.

In 2012, the department began using a new Agility™ beam shaping solution by the company Elekta. Together with the new possibilities of targeted, stereotactic, high-precision radiation therapy using the CyberKnife® and Gamma Knife® systems, patients of the university department in Frankfurt can now be treated for all indications using the most cutting-edge radiotherapy techniques.

OUR ETHOS

Together with 31 other university hospitals in Germany, the University Hospital Frankfurt has the special task of conducting research and delivering teaching based on excellent medical care in order to make headway in the battle against disease and disability, and to train the next generation of doctors. All staff from every occupational group are entirely committed to this goal.

Comprehensive further education and training ensure our staff can use the cutting-edge technologies and methods at the highest level to benefit patients' health.

Close cooperation with hospitals of various care levels throughout the region means we are able to provide comprehensive medical care for the Frankfurt/Rhine-Main metropolitan region as well as to maintain a fair partnership with all parties involved in the health care system.

Many of our methods and treatments are unique on a national, European and even global level. As a university hospital in an international city at a global hub and part of a prestigious university, we treat patients from a wide range of ethnic backgrounds. This multicultural environment is reflected in the fact that we employ staff from more than 80 countries.

We are proud to be one of the best university hospitals in Germany and to at the same time uphold the highest principle of medicine – humanity at all times – alongside our pioneering technologies and research.

Our motto of "Where Knowledge becomes Health" reflects this ethos.

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