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Editorial

Medical Competence in Northern Germany

Dear readers,

the University Medical Center of the State of Schleswig-Holstein (UKSH) with locations in Kiel and Lübeck, on the northern German Baltic Sea Coast, offers medical care of the highest standard. With more than 81 clinics and institutes, and with more than 13,500 employees, including 2,000 physicians, scientists, researchers, and a medical staff of 3,600, we treat nearly 450,000 outpatients and inpatients, annually. We ensure not only maximum medical care for our National but also for our international Patients. Our medical staff and scientist are well known internationally for their leadership in medical care as well as excellent research results.

The UKSH guarantees highly individualized as well as interdisciplinary diagnostics and therapy. Research results are passed directly to our patients. It is our responsibility to provide our patients with the utmost quality of treatment as well as providing them with new diagnostic and therapeutic options.

The UKSH is characterized by a cosmopolitan, tolerant and multicultural environment. Our colleagues and staff derive from more than 112 different countries. This cosmopolitan environment ensures our strengths in the international world of expertise. Specialization and further training are part of their professional lives. One central focus of our maximum care is also to provide our international Patients outstanding services and medical care, which is the core mission of the International Department with its multilingual team.

With the following pages, we would like to introduce to you our wide range of excellent medical services, where superb medicine and teaching is brought more personal and faster to our international Patients.

Sincerely yours,

Prof. Dr. Jens Scholz
CEO, Universitätsklinikum Schleswig-Holstein
The UKSH International Department provides special services for international patients. A multilingual team informs patients of the wide range of medical services provided in our clinics and takes care of them. We are here to prepare the individual patient’s visit from A to Z, and upon arrival, take care of each patient in the best possible way. Our range of medical services are targeted to the needs of our patients – these include outpatient consultations, medical checkups, and inpatient admission. Your health is our concern, feel free to contact us. We are happy to answer any questions you may have.

**Prior to arrival**

**Your inquiry** – First we will need a current medical report with full details of your medical problem in English or German.

**Our offer** – After carefully evaluating your medical report, our medical team will prepare an individual and comprehensive proposal outlining the type of the treatment, the expected duration of the treatment, as well as the costs of the treatment.

**Costs** – Once you have agreed to the treatment at UKSH, the costs of your treatment as outlined in the cost estimate must be paid in full before your appointment has been arranged.

**During your stay in UKSH, Germany**

**Arrival** – If desired, the International Department staff will arrange transportation for you to and from the airport. This service is also provided for ferry or train arrivals.

**Interpreters** – If needed, interpreters will be available to help you to ensure smooth and accurate communication with the physicians and health care staff.

**Accompanying person** – We are happy to arrange accommodations and, if desired, excursions for people accompanying you.

**After your departure**

**Invoice** – Once treatment is over and approximately eight weeks after the conclusion of the treatment, we will send you or your health insurance provider an itemized invoice. Included will be the treatments and services provided during your stay. If necessary, we will arrange a follow-up appointment for you.
## Facts and Figures

### Births/infants

<table>
<thead>
<tr>
<th>Campus Kiel</th>
<th>Campus Lübeck</th>
<th>Total (UKSH)</th>
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<tbody>
<tr>
<td>3.349</td>
<td>3.505</td>
<td>6.854</td>
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</table>

*and the UKSH had the highest birth rate in 15 years

### Emergencies

<table>
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<tr>
<th>Campus Kiel</th>
<th>Campus Lübeck</th>
<th>Total</th>
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<tbody>
<tr>
<td>47,169</td>
<td>56,538</td>
<td>103,707</td>
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</tbody>
</table>

25% of all hospital patients in Schleswig-Holstein

### Beds

<table>
<thead>
<tr>
<th>Campus Kiel</th>
<th>Campus Lübeck</th>
<th>Total</th>
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<tbody>
<tr>
<td>1,321</td>
<td>1,200</td>
<td>2,560</td>
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</table>

### Treatment places (Dialysis and day clinics)

<table>
<thead>
<tr>
<th>Campus Kiel</th>
<th>Campus Lübeck</th>
<th>Total</th>
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<tbody>
<tr>
<td>164</td>
<td>136</td>
<td>300</td>
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### Patients

<table>
<thead>
<tr>
<th>Treatment cases outpatient</th>
<th>Campus Kiel</th>
<th>Campus Lübeck</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>187,764</td>
<td>170,605</td>
<td>358,369</td>
<td></td>
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<tr>
<th>Inpatient treatment cases</th>
<th>Campus Kiel</th>
<th>Campus Lübeck</th>
<th>Total</th>
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<tbody>
<tr>
<td>51,986</td>
<td>56,538</td>
<td>108,524</td>
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Research and Care

The Medical Faculty of the Christian-Albrechts-University of Kiel and the Medical Section of the University of Lübeck are responsible for research and teaching university medicine in Schleswig-Holstein. In cooperation with the universities, the UKSH provides the clinical foundations for research and teaching. The close interaction of interdisciplinary research and patient care enables us to quickly transfer current research findings into modern diagnostic and therapeutic procedures for the benefit of our patients.

With inflammation research, neurology and oncology, the Medical Faculty of Kiel has three established scientific profile areas, which are integrated into the overarching research vision „Digital Medicine - Recognition, Understanding, and Healing“. These have been in place since 2016. The main research areas of the Medical Section at the University of Lübeck are: “Infection and Inflammation”, “Brain, Hormones, Behavior”, “Medical Genetics”, “Translational Oncology” as well as Population Medicine and Health Services Research.

Since 2007, the Schleswig-Holstein Cluster of Excellence „Inflammation at Interfaces“ with its more than 300 members has been researching the causes of chronic inflammatory diseases of barrier organs such as skin, lungs, and intestines. At the end of September 2018, the research association received a positive vote of the German Research Foundation for a third funding period within the excellence strategy of the federal and state governments, as „Precision Medicine in Chronic Inflammation“.

UKSH physicians are involved in four German Centers for Health Research funded by the Federal Ministry of Education and Research: German Centre for Cardiovascular Research (Kiel, Lübeck in cooperation with Hamburg), German Center for Lung Research (Kiel, Lübeck in cooperation with the Borstel Research Centre) and German Center for Infection Research (Lübeck in cooperation with Hamburg and the Borstel Research Centre). The University of Lübeck has also been a partner in the German Center for Diabetes Research since 2015. The results of interdisciplinary oncological research and therapy are also incorporated into the organ cancer centers and oncological centers of the UKSH, which are certified by the German Cancer Society.

For students of human medicine, dentistry, and nursing science, the medical departments of the Universities of Kiel and Lübeck offer excellent teaching quality.
Hospital of the Future

UKSH is fit for the future: With its new central clinic buildings, opening in 2019, UKSH is one of the most modern medical centers in Europe. The impressive new buildings will meet the highest standards of top university medicine. In order to effectively diagnose and treat increasingly complex disease states, the disciplines that belong together for patient care are now located in close proximity to each other. Patients can expect a highly holistic architecture that supports recovery processes - with the shortest routes to diagnostics and therapy, innovative service technologies and a high level of comfort.

Digital service technologies

UKSH plays a pioneering role in digitization in the German healthcare system. In the company study "Digital Champions 2021 - Companies with a Future", UKSH is one of the three best digitalized hospitals in Germany and thus achieves the top position in the north. In the new buildings, UKSH’s digitization strategy was consistently implemented to make outpatient and inpatient patient care even more effective - in an IT network that meets the highest security standards. In the same year, the news magazine “Focus” ranked UKSH among the top 3 hospitals in Germany.

Patients experience the digital services in a variety of ways: a UKSH navigation app for iOS and Android guides users to their appointment location at UKSH - even within the hospital building. At self-check-in terminals in the hospital’s admission areas, automatic registration via health insurance card takes just a few minutes. In the hospital room, patients have access to the UKSH infotainment system with TV, Internet, e-paper and films in many languages via a tablet PC at their bedside. Clinical staff are supported by the bedside terminals during mobile rounds to call up findings and discuss treatment with the patient. Location-based services allow patients to move freely around the hospital buildings, with permanent monitoring of vital signs. Should an emergency occur, the patient can be precisely located. UKSH is also continuously developing apps and offering video consultations for telemedical treatment from home.

Patient portal “My UKSH”

Every patient at UKSH is provided with the digital patient portal “My UKSH”. The free multilingual service makes it possible to view and securely manage documents created during the hospital stay, such as doctor’s
Hospital of the Future

letters and medication plans as well as X-ray images, from home or on a cell phone. Patients are already given access to “My UKSH” when they make an appointment. The portal automatically sends them questionnaires for the planned hospital stay, which patients can fill out online and send electronically to UKSH. Appointment management is also included – so patients can view any follow-up appointments or request them themselves online. Those who wish can make the health data in “My UKSH” available to their doctor in private practice who will take over further treatment.

Digital medicine

The experts at UKSH use the possibilities of digital technologies to gain new insights and make precisely tailored diagnostic and therapeutic decisions. The examples from clinical practice are numerous: With the help of augmented reality and robotic navigation, surgical techniques are improved. Digital and AI-supported endoscopic procedures make it possible to detect tissue changes even more precisely and earlier. Neurosurgeons use a mobile Computer-Tomograph with navigation software for highly precise and fast intraoperative image control. Cardiovascular surgeons are developing bypasses from the 3D printer. In dermatology, a body scanner supports early melanoma detection. Tumor patients benefit from highly focused ultrasound. Critically located tumors are treated with robotic high-precision radiation. With each new application, the chances of curing even rare, severe and chronic diseases grow. UKSH is pursuing the goal of expanding the digital networking of medicine in the north and bringing new methods of artificial intelligence safely into clinical application - for the benefit of patients. The experts are also working on this in large collaborative projects, funded by the Federal Ministry of Education and Research (BMBF) and the Federal Ministry for Economic Affairs and Energy (BMWi). Many digital innovations at UKSH take place in the background. The automated unit-dose system, for example, guarantees that all medicines are compiled by the hospital pharmacy for individual patients, packaged and delivered directly to the wards. The system’s connection to prescription software checks the medication plan for interactions. In the reprocessing unit for medical devices, UKSH relies on fully automated storage in the sterilization department - a first. Operating theater instruments and materials are assembled by autonomously operating robots on so-called trolleys according to the specific use and subject.
Discover Schleswig-Holstein

Schleswig-Holstein offers many outdoor leisure activities. There are endless beaches which are usually lined up with beach baskets (Strandkoerbe), and special beach chairs, to protect our guests from the fresh wind in the North. There are numerous high class Golf courses with fabulous views. Also available are horse riding, breeding as well as hunting, which are some of the most popular hobbies for the natives.

Schleswig-Holstein is the northernmost part of Germany and hosts the world famous “Schleswig-Holstein Music Festival”. Founded by Leonard Bernstein who conducted several concerts in Schleswig-Holstein, the festival takes place in the summer months. Internationally known artists, musicians, conductors and actors present their performing talents in picturesque surroundings like ancient barns, castles, or manor houses.
The university hospital is located in the vicinity of the old town center of Kiel on the western side of Kiel Bay on the Baltic Sea. Kiel is the host of the world’s biggest sailing event, Kiel Week (Kieler Woche). In the last week of June world famous sailors are welcomed in town.

The hospital with its breathtaking views over the quayside promenade and the Kiel Bay is surrounded by a beautiful garden and park district including the “Old Botanic Garden” with its unique exotic old trees. The city center is within walking distance of the hospital and offers a wide selection of fine restaurants and shopping facilities. From here, you can reach Norway or Sweden, with luxurious ferries, in just a few hours.

Campus Kiel

Universitätsklinikum Schleswig-Holstein
Campus Kiel
Arnold-Heller-Strasse 3
D-24105 Kiel

Campus Lübeck

Universitätsklinikum Schleswig-Holstein
Dept. of Anesthesiology
Director
Prof. Dr. Carla Nau
Contact
UKSH International
+49 451 500-10735
international@uksh.de
www.uksh.de/international_department/en
Campus Lübeck

Only a few minutes from the center of Lübeck is the idyllic park where the University Hospital is located. Historical buildings surround the largest building in Schleswig-Holstein, the modern Central Clinic. Lübeck, an old Hanseatic city, is a beautiful and picturesque historical place. It is the home of famous German Nobel Prize winners Thomas Mann and Willy Brandt.

Visitors can expect a diverse cultural life with exhibitions and music. Old houses and Lübeck’s famous 7-tower silhouettes of monumental churches characterize the image of the city center, which is recognized as a Unesco World Heritage Site. From here you can easily reach Hamburg or take the ferry to Sweden, Finland and the Baltic States. Lübeck also has a rapidly growing regional airport.

Universitätsklinikum Schleswig-Holstein
Campus Lübeck
Ratzeburger Allee 160
D-23538 Lübeck
Organisational Chart Campi and Centers

Kiel Campus

Libereck Campus

Cross-campus Diagnostic Center

Cross-campus Radiology Center

Campus Kiel

Campus Libereck
Department of Anesthesiology and Surgical Intensive Care

Emphases in Patient Care
- All modern anesthetic procedures (24,000 narcotics per year, including high-risk patients and transplant emphasis), supported by invasive and non-invasive monitoring procedures (transesophageal echocardiography, neuromonitoring, etc)
- Surgical intensive care (about 3,000 patients per year), including treatment of severe injuries
- Sepsis Center, with special respiratory therapy and complex organ replacement procedures
- Emergency and acute medicine, with ground and air transport for Kiel and surrounding areas, including a mobile intensive care unit for trans-regional patients
- Inpatient and out-patient pain Palliative care (including interdisciplinary pain and palliative care center with facilities for invasive multimodal diagnostics and treatment of chronic pain) with approximately 3,000 patients per year
- 24-hour acute pain therapy service with specially qualified Anesthesiologists
- Inner hospital-emergency management for the entire Kiel campus
- Outpatient Anesthesiology

Emphases in Research
- Clinical research:
  - Multicenter studies, clinical drug trials, application studies for new anesthetics (Nitrogen, etc.), invasive and noninvasive hemodynamic monitoring
- Experimental research:
  - Molecular mechanisms and molecular biological basic research in Anesthesia, Intensive Care and Emergency Medicine, development of innovative ventilation techniques and novel treatment approaches in Sepsis, functional imaging of the Lungs Shock and resuscitation research in animal models
- Perioperative care research:
  - Patient-risk management, patient surveys, process reorganization, surgical management, cost and revenue calculations

Emphases in Education
- Anesthesiology and Operative Intensive Care
- Interdisciplinary courses: Emergency Medicine, Health Economics, Infectious Disease, Ethics
- Elective courses: Pain, Neuromuscular system
- Skills lab: interdisciplinary examination course
- Simulator training for the training of standardized treatment procedures (algorithms) for complex life-threatening situations

Additional Information/Services
- Additional courses: “Specialized Pain Therapy”, “Chief Emergency Doctor”, “Palliative Medicine” and “Transesophageal Echocardiography”
- Organization of an annual trans-regional AINS conference
- Weekly training events with designated external speakers (in cooperation with the academic teaching hospitals of Schleswig-Holstein)
Emphases in Patient Care

• Anti-Inflammatory treatment concepts (pH-balancing Intravenous Infusions)
• Balance of the metabolism (sugars, carbohydrates, fat and proteins)
• Balance of the Microbiome (Gut, Lung, and Skin)
• Hormone replacement therapy with bioidentical hormones
• Anti-Oxidant treatments
• Heavy metal detoxification
• Complimentary treatments for patients suffering from adverse effects due to ongoing Allopathic Medications

Emphases in Research

• It’s major task is the launch of clinically conducted trials in order to test and validate cellular products for the treatment of chronic inflammatory diseases.
• A first indication which will be tested in a multicentre clinical trial is the efficacy and safety of anti-inflammatory, regulatory macrophages for the treatment of advanced diabetic ulcers and ischemic limb diseases

Additional Information/Services

• The Clinic of Applied Cellular Medicine was established to bridge the gap between academic research, the development of new innovative treatment concepts in the field of immunotherapy and the translation of these concepts into clinical application.
• Monitoring of the patient’s proteomic parameters which allows to customize-treatment regiments to a personalized individual level
Emphases in Patient Care

- Coronary surgery: - Complete Arterial Revascularisation - Minimally invasive bypass surgery
- Heart Valve surgery: - Complicated Heart Valve reconstruction - Minimally invasive Heart Valve Surgery
- Aortic surgery: - Complex surgery for Aneurysms and Dissections - Aortic Base reconstruction
- Arrhythmia surgery: - MAZE procedures for Atrial Fibrillation - Implantation of Cardiac Pacemakers and Defibrillators
- Transplant surgery: - Heart, Lung, and Heart-Lung Transplants
- Congenital Heart Defect surgery: - Operation of complex malformations of the heart and the proximal cardiac - Blood vessels from the neonatal period
- Vascular surgery: - Complex Atherosclerotic Surgery - Endoluminal Aortic Implants

- Cardiovascular Intensive Care Unit
- Ambulance for Terminal Heart Failure, and Thoracic Organ Transplantation
- Ambulance for vascular surgery
- Ambulance for cardiac surgery

Emphases in Research

- Endovascular Cardiac Valve replacement
- Minimally invasive Coronary Surgery
- Acute Myocardial Infarction
- Atrial fibrillation
- Cardiac Surgery Intensive Care
- Terminal Heart Failure
- Endovascular treatment of Aortic Aneurysms
- Neangiogenesis using stem cells
- Biological Bypass using tissue engineering

Emphases in Education

- Lectures
- Bedside teaching
- Supervision of interns
- Practical training year
- Preclinical and clinical skills lab

Additional Information/Services

- Only medical center in Schleswig-Holstein which performs thoracic transplant and pediatric cardiac surgery

Contact
UKSH International
+49 431 500-10730
international@uksh.de
www.uksh.de/international_department/en
Institute of Clinical Molecular Biology

Emphases in Patient Care
• Clinical study center for Chronic Inflammatory Bowel diseases (together with head of the Department of General Internal Medicine)
• Priority care of patients with bowel diseases
• Gastroenterology

Emphases in Research
• Genetic causes and molecular Pathophysiology of Chronic Inflammatory Barrier Disease, Gallstone Disease, Colon CA, Varices, and longevity
• Operation of the national population-based biobank “popgen”
• “Next generation” ultra-high-throughput sequencing
• Genotyping platform in the National Genome Research Network
• Focus on “environmental health” with investigation of microbial interactions on barrier organs
• Clinical study center for Chronic Inflammatory Bowel Diseases (together with section head of the Department of General Internal Medicine)

Emphases in Education
• Organisation of the compulsory elective course “Genetic Basis for Diseases of Civilization”
• Involvement in Biochemistry courses and the teaching of the graduate school

Additional Information/Services
• Networking of patient-oriented research and patient care
• Excellence Cluster “Inflammation at Interfaces”
Emphases in Patient Care
- All types of direct and indirect restorations
- Highly aesthetic composite restorations
- Minimally invasive approach
- Cutting minimization technique
- Cutting risk reduction and monitoring
- All types manual and power driven root canal treatment
- Lateral and vertical condensation methods
- Removal of fractured instruments
- Closure of perforations with MTA
- All preventive and therapeutic measures in the deciduous and mixed dentition
- All non-surgical and surgical techniques for root canal treatment with manual and power driven instruments
- Restorative and regenerative therapies
- Long-term supporting therapy

Special focuses:
- Preservation of natural tooth structure
- Prevention of (further) decay
- Therapy with surgical microscope
- Severely Periodontitis

Emphases in Research
- Prevention of caries
- Analysis of Intracanalicular Biofilms in success and failure
- Psychological concepts for guidance in pediatric dentistry
- Long-term outcome of Periodontal therapy
- Etiology and Pathogenesis of aggressive and chronic Periodontitis
- Prevention of Periodontitis
- Interactions between Periodontal and systemic health
Department of Dental, Oral and Maxillofacial Surgery

Emphases in Patient Care
- Cleft Lip, Palate, and Infants Malformation surgery
- Center for skull base diseases, including the surgical treatment of Craniosynostosis
- Clinical center for reconstructive surgery and tissue engineering
- Facial plastic surgery
- Craniofacial traumatology
- Orthodontic surgery
- Pro-Prosthetic surgery, Dental implantology
- Maxillofacial rehabilitation and Epithetic rehabilitation
- Surgery of the Temporomandibular Joint
- Oncology
- Surgery of malformations
- Treatment of inflammations by dental surgery
- Treatment of Maxillofacial cancer
- Treatment of Maxillofacial injuries and reconstructive surgery

Emphases in Research
- Tissue engineering and gene therapy with Osteogenic protein-1 tissue engineering
- Stem cell therapy with Maxillary defects, Collagen research, Isolation and Cloning of more highly efficient, Archaic Antimicrobial Peptides (highly-funded projects)
- Company funded biomaterials research
- Special labs for tumour diagnostics
- Special labs for Osseous Biology

Emphases in Education
- Education in Dentistry and Medicine, including lecture, seminars and practical training
- Interactive small group bedside training
- Complete surgical curriculum for dental licensing
- Cooperation with the faculty of medicine
- Postgraduate courses of study for dental medicine and dental implantology
- Postgraduate master’s courses of study (MASDER)

Additional Information/Services
- The department is the only one in Schleswig-Holstein teaching Dental and Medical students
- The Department of Maxillofacial Surgery of Kiel (MKG) covers the whole scope of Maxillofacial surgery, including Plastic, Reconstructive and Aesthetic surgery
- Received several teaching awards
Department of Dermatology, Venereology and Allergology

Emphases in Patient Care
- Dermato-oncology
- Dermatological surgery
- Chronic inflammatory skin diseases (Psoriasis, Atopic Dermatitis, Autoimmune diseases)
- Skin ulcers
- Allergies and environmental medicine
- Dermatopathology
- Mycology
- Photodiagnostics
- Photopheresis
- Skin infections
- Phlebology
- Sexually transmitted diseases

Emphases in Research
- Basic research: Photobiology and photocarcinogenesis, Inflammation and antimicrobial skin function, Genetics of Psoriasis and Atopic dermatitis, Protease inhibitors, Mycoses, Skin barrier function
- Clinical research: cutaneous lymphoma, Melanoma, Psoriasis, Atopic Dermatitis, Wound care, Phototherapy and Photochemotherapy, Allergies, Mycoses, Biology of skin infections

Emphases in Education
- Surgical dermatology, dermatopathology
- Clinical dermatology
- Dermato-oncology
- Allergology/environmental medicine
- Bedside teaching
- Genetics and epidemiology of skin diseases

Additional Information/Services
- Leading German clinical trial center for dermat-oncology and inflammatory Diseases
Department of Diagnostic Radiology

Emphases in Patient Care
- Intimately involved in the treatment of patients by means of image-guided diagnostic and therapeutic measures
- Non-invasive and invasive diagnostic, and therapeutic radiology of all organs and body regions for all clinicians of the Kiel campus Campus Kiel 24 hours a day (X-ray, ultrasound, CT, MRI, DSA)
- Special Radiological services for external referring physicians
- Interventional Radiology (for example PTA and stent application for all vascular territories, Abdominal and Thoracic Aortic Prosthesis Transplants, TIPPS, Myoma Embolization, Tumor Embolization, Chemoembolization, Restoration of Hemodialysis shunts, RF ablation of tumors (Liver, Lung, Kidney, Skeletal), PTCD, Drainage, Organ Punctures and Biopsies, Dacryocystography and Dacryocystoplasty, Sialography, Vertebroplasty)
- Breast diagnostics
- Pediatric radiology
- Osteoporosis diagnostics

Emphases in Research
- Diagnosis and interventional therapy of Degenerative and Inflammatory Vascular Diseases
- Morphological and Functional diagnosis of the Lungs (Volumetry, Perfusion, Ventilation)
- 3-D/4-D imaging
- Cardiac imaging (CT, MRI)
- Bone structure analysis
- Molecular radiology (MRI, micro-CT, optical methods)
- Breast diagnostics
- Radiation protection seminars

Emphases in Education
- Methodology of Imaging (X-ray, CT, Ultrasound, MRI)
- Radiology of all Organ systems
- Interventional Radiology
- Specialized Breast Diagnostics
- Specialized Pediatric Radiology
- Image processing
- Doctoral seminar
- Lectures and seminars, including written examination, and second/third sections of the medical exam covering the entire spectrum of diagnostic radiology
- Radiation protection seminars

Additional Information/Services
- Expertise in the entire range of Diagnostic and Interventional Radiology
- Vascular interventions
- Only Pediatric Radiology Center
- Center for Breast Diagnostics
- Natural scientific/technical work groups
Institute for Emergency Medicine

Main Focus
• Training in Basic and Advanced Life Support
• Training in Crew resource management
• Simulation training in Emergency and Innovative Care Medicine
• Simulation training in Obstetrics for Paramedics and Emergency Physicians
• Quality management in pre-hospital and in-hospital emergency medicine
• German Resuscitation Registry
• Courses in disaster management for emergency physicians and paramedics
• Hospitals contingency planning

Research Focus
Resuscitation research
• Management of the German Resuscitation Registry
• Coordination of the European Registry of Cardiac Arrest
• Studies on out-of-hospital and in-hospital cardiac arrest

Emergency medicine and disaster management
• Studies in emergency management
• Studies in disaster management

Additional Information/Services
• Expertise in all fields of emergency medicine
• Wide range of courses and trainings around medical emergency situations, as well as individually designed to meet specific demands
• Various projects on Telemedicine, Emergency Medicine and Basic Life Support for various target groups

Universitätsklinikum Schleswig-Holstein
Institute for Emergency Medicine

Director
Prof. Dr. Jan-Thorsten Gräsner

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Institute of Experimental Cancer Research

Emphasis in Research

- Gastrointestinal Cancer: initiation, progression, and metastasis
- Biomarker Identification
- Inflammatory Carcinogenesis
- Molecular Gastroenterology
- Molecular Oncology
- Translational Nanomedicine
- Tumor-Host-Interactions
- Metabolic alterations in Tumorigenesis
- Death receptors in Tumorigenesis

Additional Information/Services

- Biomaterial bank of the Comprehensive Cancer Center (EMB-CCC)
- Close cooperation with Molecular Imaging North Competence Center (MOIN-CC)
- Integral member of the Kiel Oncology Network (KON) and Kiel Life Science (KLS) Initiative
Institute of Experimental and Clinical Pharmacology

Emphases in Patient Care
- Pharmacotherapeutic counseling including ward round

Emphases in Research
- Pharmacogenomics and Pharmacopigomics
- Pharmacology of cancer drug resistance
- Conceptional design and execution of clinical studies phase I and IV
- Analysis of Molecular Interactions and functions
- Pharmacotherapy of Neurodegenerative Diseases
- Member of the Cluster of Excellence “Inflammation at Interfaces”
- Member of “Kiel Life Sciences”
- Member of “Kiel Oncology Network”
- Member of “Kiel Nano Surface & Interface Science”

Emphases in Education
- Interdisciplinary lectures and seminars in Clinical Pharmacology
- Lectures and courses in Pharmacology and Toxicology for medical students
- Lectures in Pharmacology for Dentistry students
- Lectures and courses in Pharmacology, Pharmacotherapy, and Clinical Pharmacy for Pharmacy students
- Courses in Pharmacology for master students of medical life sciences
- Contributions to interdisciplinary courses in medicine of the elderly and pain
- Postgraduate training for physicians and pharmacists in cooperation with the Medical Association and the Pharmacists’ Association of Schleswig-Holstein

Additional Information/Services
- The institute comprises the disciplines of experimental and clinical pharmacology.
- The functions of the institute include basic research of pathophysiological mechanisms, translational research, and the application of individualized treatment of patients.
- Regular advanced courses and seminars
- Counseling of practicing physicians and pharmacists
Institute for Forensic Medicine

Emphases in Patient Care
• Consulting services
• Autopsies and Necropsies
• Physical examinations, Traumatology, Assessment of trace materials
• Examination of victims of violence
• Crime scene expertise
• Histo- and histopathological examinations
• Emergency toxicological analysis, medication and drug analysis
• Alcohol identification, markers of alcoholism
• Parentage tests, genetic twin diagnosis, trace analysis
• Forensic bone analysis
• Assessment of driving ability
• Legal and ethical advice
• Age determination

Emphases in Research
• Vitality and wound age determination
• Sudden infant death syndromes
• Forensic Molecular Biology, biological trace analysis
• Population Genetics and Genealogical analysis
• Molecular neurobiology, e.g. cellular stress response
• Age-related changes in Mitochondrial DNA
• Microglia and Neurodegeneration
• Detection methods for medication and drugs
• Alcoholology, breath alcohol concentration
• Ethics, Medical Ethics
• Molecular Anthropology, biological investigation of (ancient) bones
• Traffic medicine
• Medical law

Emphases in Education
• Medical law core lecture
• Forensic medicine lessons in small groups (Autopsy, Toxicology, Alcoholology, Psychopathology, Molecular Genetics/Forensics)
• Interdisciplinary lecture: “Violence”
• History, theory, and ethics of medicine
• Occupational and social medicine
• Lecture, internships, and courses in biology (minor in Forensic Medicine)
• Forensic medicine for lawyers

Additional Information/Services
• Only forensic medicine department in Schleswig-Holstein
• Services approximately 2.8 million inhabitants at both university hospital sites (Kiel and Lübeck)
• Lessons offered at both medical faculties (Kiel and Lübeck)
• Supervision of the Center for Ethics at the Christian Albrechts University of Kiel
• Interdisciplinary courses offered in other subjects (biology, law, law enforcement)
• Member of the Human Development in Landscapes Graduate School
Department of General-, Visceral-, Thoracic-, Transplant- and Pediatric Surgery

Emphases in Patient Care
• Oncologic surgery of the Gastrointestinal Tract including the Esophagus, Stomach, Small, and Large Intestines
• Hepatobiliary and pancreatic surgery
• Oncologic Thoracic and Thoracoabdominal surgery
• Endovascular surgery
• Minimally invasive Visceral surgery
• Pediatric surgery
• Treatment of Pancreatic Carcinoma (cytoreductive surgery and HIPEC)

Emphases in Research
• Molecular Oncology with a focus on the Pancreas, Lung, Colon and Bile Duct system
• Clinical significance of molecular analysis of disseminated tumor cells
• Apoptosis resistance and immunosuppression mechanisms
• Therapy-induced malignant modulation of gastrointestinal and pulmonary tumors
• Clinically adapted Orthotopic tumor models and molecular imaging
• Transplantation medicine, stem cell research
• Clinical tolerance studies, programming of human neo-hepatocytes, and islet cells
• Established animal models for heart, liver, and kidney transplants

Emphases in Education
• Interdisciplinary courses in the field of surgery, with other surgical disciplines (technical and organizational direction)
• Active participation in curriculum development, Master of Medical Education program
• Basic and specialist surgery courses, practical training
• bedside teaching
• Ethics seminars
• Practical year curriculum

Additional Information/Services
• This clinic consists of three divisions: Transplantation Medicine, Oncological Surgery, Thoracic Surgery (Prof. Dr. Jan-Hendrik Egberts)
• DHG Certified Oncology Center
• Only center for small intestine transplantation in the North of Germany
• QoL reference center, psycho-oncology, quality assurance
• Alliative procedures (RITA, ECU)
• Fast-track surgery
• Surgical Anesthetic Innovative Care Unit

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Division of Pediatric Surgery

Emphases in Patient Care
- Prenatal Surgery and Prenatal Counseling
- Surgery of Congenital Malformations (such as: Anorectal Malformations, Glosso- and Hirschsprung’s Disease, Gastrochisis, Omphalocele, Esophageal Atresia, Tracheoesophageal Fistula, Congenital Diaphragmatic Hernia, Conjoined Twins, Congenital Pulmonary Airway Malformations (CPAM), Pulmonary Sequestration, Choledochal Cyste, Biliary Atresia, and others)
- Fetal Surgery
- Neonatal and Newborn Surgery
- Surgery of Infants
- Surgery of toddlers and adolescents
- Minimally Invasive and Robotic Surgery
- Surgery and treatment of Vascular Malformations
- Funnel Chest, Pectus Excavatum, Pectus Carinatum
- Surgical Oncology (such as Wilms Tumor, Hepatoblastoma, Nephroblastoma, Neuroblastoma, Rhabdomyosarcoma, Sarcomas, and others).

Emphases in Research
- Our research focuses on minimally invasive surgery, robotic surgery and fetal surgery. We are the only pediatric surgery department in Germany with a long standing history of experimental fetal interventions.

Emphases in Education
- We educate the students of the Christian Albrechts University of Kiel in pediatric surgery with emphasis on hands on experience and one-on-one teaching in the operating theatre.

Additional Information/Services
- The Division of Pediatric Surgery is embedded in the Department of General, Visceral, Thoracic, Transplant- and Pediatric Surgery and works closely with all other surgical specialties for treating children of ages. Within our surgical network, we can provide every surgical support your child needs.
Department of Gynecology and Obstetrics

Emphases in Patient Care
- Certified centre for the Screening and Management of Breast Cancer
- Breast conserving surgery,
- Breast reconstructive surgery,
- Oncoplastic surgery,
- State of the art; systemic treatment for early stages of breast cancer and advanced disease (chemotherapy, endocrine therapy, targeted therapy, immunotherapy)
- Management of Gynaecological Cancer
- Tumour-Risk-Assessment and genetic predisposition
- Treatment of dysplasia
- Certified centre for minimally laparoscopic surgery and Robotic surgery
- Endometrium certified centre
- Fertility Centre and Reproductive Medicine (Insemination, IVF, ICSI, TESE, Preimplantation Diagnosis)
- Pelvic diagnostic and screening
- Special consultation for children and youth
- Conservative treatment of prolapse and Pelvic Reconstruction Surgery
- Urogynaecology and treatment of incontinence

Emphases in Research
- Gynecologic Oncology: Mutation analysis of Predisposing Genes (DHPLC)
- Molecular Cytogenetics
- In vitro efficiency analysis
- Cellular Immunotherapy
- Design and implementation of phase I to phase III clinical trials
- Reproductive Biology
- Preimplantation diagnostics
- First-trimester screening and high-risk pregnancies
- Clinical research for the treatment of Malignant gynaecological disease, including Breast Cancer
- Cancer Genetics
- Clinical research in minimally invasive Gynecological Surgery

Emphases in Education
- Core lecture on Gynecology and Obstetrics, including E-learning
- Practical training course on Gynecology and Obstetrics
- National and international training courses of the Kiel School of Endoscopy (Kiel School)
- Michaelis Midwifery School
- Subspecialization in reproductive medicine
- Courses on reproductive medicine

Additional Information/Services
- Breast center (EUSOMA accredited)
- Study direction center for Gynecologic Oncology and ‘quality assured mammary diagnostics (QuaMaDi)’
- Center for Hereditary Breast and Ovarian Cancer
- Maximal level Perinatal Center (Pediatric Section of the German Society of Ultrasound in Medicine)
- AGE training center for Gynecological Endoscopy
Division of Reproductive Medicine

Emphasis in Patient Care
Emphasis in Patient Care, Team Work and a Multidisciplinary approach are our secret to achieve a successful pregnancy for our patients

ART Clinical Services
- Should I freeze my Oocytes/Sperm? - Evaluating and counselling for present concerns for future reproduction
- Consultation for Social Freezing and oocyte/sperm Cryopreservation
- Detailed workup and management of patients with repeated implantation failure
- Office Hysteroscopy (without the risk of anaesthesia)
- Hysterosalpingography - Ultrasound guided analysis of the tubal status (instead of exposure to X-Rays)
- Natural cycle monitoring
- Mini-IVF
- Donor sperm program
- Individualised Ovarian stimulation protocols

IVF Lab Services
- Tailoring of the lab protocol based on patient’s clinical and previous history
- IS0 Class 8 Clean Room with VOC Filters and 22 air exchanges per hour
- Triple-gas bench top incubators for a safe environment for your embryos / excellent blastocyst conversion
- WHO Certified Embryologists performing semen analysis and processing
- Oocyte pooling, Oocyte vitrification
- Complimentary techniques to improve success rates: PICSI, Embryo Glue, Embryogen, Blastocyst culture, Assisted hatching
- Polar body biopsy for evaluating the genetic status of oocytes
- Strict protocols at every level for maintaining patient identification

Special Care for patients with recurrent loss of pregnancy/repeated abortions
- Exclusive individualised clinical assessment
- Evidenced based management
- Option of GM-CSF based medium and Hyluronan medium at transfer to improve implantation and prevent abortions

Collaboration with the Department of Endoscopic Surgery and Kiel School of Endoscopy
- Conservative surgical treatment of Fibroids, Endometriosis, Polyps, Adenomyosis, and other conditions
- Ovarian Tissue Extraction for freezing (in cancer patients)

Collaboration with the Institute of Human Genetics
- Evaluation of patients with affected children and repeated pregnancy loss
- Risk assessment of patients with genetic diseases and abnormal genetic analysis

Collaboration with the Department of Nutrition and Bariatric Surgery
- When weight is the primary issue, parallel treatment of weight loss, and infertility
- Nutritional counselling for a healthy reproductive system

Collaboration with the Traditional Chinese Medicine
- Acupuncture has been shown to significantly improve the chances of pregnancy in IVF
- Association with internationally trained specialists

Collaboration with the Department of Oncology/ Paediatric Oncology
- Sperm freezing or Testicular tissue freezing with a 95% post-thaw survival rate
- Oocyte vitrification (freezing) with a 92% post-thaw survival rate
- Ovarian tissue freezing

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Dept. of Gynecology and Obstetrics: Division of Reproductive Medicine
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Institute of Immunology

Emphases in Research

- Antigen-specific T cells and their role in human immune pathologies (Allergy, Inflammatory Bowel Disease, Autoimmunity), Chronic Infectious Diseases (Invasive Mycoses, Tuberculosis) or Cancer
- Immune regulation and the role of anti-inflammatory T cell subsets for inflammatory diseases
- Microbiota interaction with the Immune System
- Signal transduction of lymphocyte activation and effector function
- Characterization of lymphocyte-derived intra- and extracellular effector vesicles
- Regulation of non-apoptotic cell death (Necroptosis, Parthanatos) in the immune system and Cancer
- γδ T cell activation, signaling and effector function in immunity, tolerance, and cancer immunology
- Characterization of different tumor escape mechanisms in the interaction with T cells

Clinical research

- Development of Antigen-Specific T cell-based diagnostics for infectious Diseases and Chronic Inflammatory Diseases
- Cytometric Immunomonitoring
- Development of α/β T cell-based immunotherapies

Emphases in Education

- Lectures, seminars, and practical courses in basic and advanced immunology for medical students and master students in life sciences
- Flow-Cytometry and Cell Sorting
- Supervision of Bachelor, Master, MD and PhD students

Additional Information/Services

- Cell sorting and flow cytometry (FACS) core facility
- 2D-DIGE proteomic platform
- Member in the Cluster of Excellence “Precision Medicine in Chronic Inflammation (PMI)"
- Member in various national research networks, such as CRC/SP8 877, CRC/TRR 241, “Infect Control 2020” and FOR2799
Institute of Infection Medicine

Emphases in Patient Care
- Infection diagnostics
- Accredited laboratories according to DIN ISO EN 15189
- Clinical Microbiology, Infectiology
- Clinical advice for antimicrobial therapy and diagnostics

Emphases in Research
- Herpes-simplex virus and Varicella-Zoster Virus
- Oncogenic G-Herpesviruses and gene transfer
- Antiviral and antimicrobial compounds and resistance development
- Interleukin-26
- Infection Epidemiology

Emphases in Education
- General Microbiology and Ecology for preclinical medical students
- Microbiology, Virology and Infection control for clinical medical students
- Microbiology, virology, infection control, and environmental medicine for dentistry students
- Infectiology for medical students
- Clinical environmental medicine for clinical medical students
- Molecular Virology for science and medical students
- Full medical specialization training in Microbiology, Virology, and Infectiology

Additional Information/Services
- Post-transplantation infections
- Tumor Viruses
- Sepsis diagnostics and rapid species identification
- Drug resistance of bacteria and viruses
- Federal sentinel laboratory for antibiotic resistance
- Medical analysis laboratory of the state Schleswig-Holstein
- Service functions for the communal and state health administrations
- Participation in the outpatient department “Universitäres diagnostisches MVZ Kiel”
- State reporting center for notifiable infectious diseases

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Department of Medical Informatics and Statistics

Emphases in Research

- Development and application of biometrical and epidemiological research tools
- Administration, analysis, and statistical evaluation of clinical and molecular research data
- Development, evaluation, and implementation of conceptual frameworks for biobanks
- Theoretical research in population and evolutionary genetics

Emphases in Education

- Coordination of the interdisciplinary curriculum "Epidemiology, Medical Biometry and Medical Informatics"
- Lecture, seminar, and practical course on "Methods of Scientific Research" (seminar in collaboration with local clinicians)
- Interfaculty lecture "Genetic Epidemiology and Population Genetics"
- Interfaculty lecture "Bioinformatics"
- Biometrics tutorial
- Individual biometrics and statistics counseling (doctoral and post-doctoral students, research projects), as a service for the medical faculty
Institute of Medical Psychology and Medical Sociology (IMPS)

Emphases in Patient Care
- Psychotherapy (focus on behavioral therapy)
- Prevention medicine for children, adolescents and families
- Psychological pain treatment
- Clinical neuropsychology
- Psychotraumatology (trauma outpatient department)
- Special consultations for mental disorders, physical disorders, pain disorders, and neurological disorders, and others, both in adults as well as in childhood and adolescence, couples therapy, and others

Emphases in Research
- Basic and applied research in pain
- Neuropsychobiology of learning and memory
- Developmental neuropsychobiology (headache, ADHD, trauma)
- Development and evaluation of behavioral medicine programs (headache, adiposity, ADHD and others)
- Neuropsychobiology of Psychotrauma

Emphases in Education
- Basics of Medical Psychology and Medical Sociology
- Medical Psychology and Medical Sociology seminar
- Medical Psychology and Medical Sociology lab
- Interdisciplinary pain and prevention courses
- Neurobiological colloquium, postgraduate, and research colloquium

Additional Information/Services
- The outpatient clinic of behavior prevention in families (Vifa) is a corporate facility of the Institute of Medical Psychology and Medical Sociology and Clinic of Neuropediatrics
- The Institute is certified by DIN EN ISO 9001:2000

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I. Department of Medicine

General Internal Medicine

Emphases in Patient Care

• Diseases of the Gastrointestinal Tract, particularly Gut, Liver and Bile
• Chronic inflammatory diseases
• Endocrine disorders, Diabetes Mellitus
• Chronic Lung diseases
• Medical Oncology
• Medical intensive care
• Medicine of healthy aging
• Disorders of blood coagulation, including thromboses
• Endoscopy: interventional endosonography, ERCP, ligations
• Scarless operations in the gastrointestinal tract (NOTES)
• Ultrasound, including contrast agents
• Nutrition
• Peripheral vascular diseases
• Infectious diseases

Emphases in Research

• Gerontology:
  – Mechanisms and predictions of healthy aging
  – Genetic mechanisms of human longevity
• Gastroenterology/Hepatology:
  – Pancreatic Carcinoma
  – Chronic inflammatory bowel disease (Crohn Diseases, Ulcerative Colitis)
  – Chronic viral hepatitis
  – Gall Stone genetics and etiology
  – Colorectal carcinoma
• Endocrinology/Bone Diseases:
  – Osteoporosis
  – Tumors of the hypophysis
  – Adrenogenital syndrome
• Pneumology:
  – Interstitial Lung diseases
  – Mechanisms of lung regeneration
• Oncology:
  – Cellular resistance mechanisms
  – Oncohemostasiology
• Diabetology

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II. Department of Medicine
Hematology and Oncology

The Clinic for Internal Medicine II is divided into the Core Clinic and two sections; section for stem cell and immunotherapy in the Dr. Mildred Scheel House and the section for hematological special diagnostics at Longen Sorgen. The core clinic includes the outpatient departments at the Karl-Lennert Cancer Centre, the special hematological ward and the oncological-hematological ward.

Medical focus is the diagnosis and therapy of malignant organ tumors and diseases of the Hematopoietic system, Rheumatologically diseases and infectious diseases. Our patients are treated either fully or partly inpatient as well as in various outpatient departments. We offer patients with Hematological and Oncological diseases rapid and comprehensive treatment through care in an interdisciplinary tumor outpatient clinic. We have expanded our special outpatient departments for hematology oncology and infectiology (focus on HIV medicine) into central contact points for patients from all over Schleswig-Holstein.

The aim of all our therapeutic measures is to improve the quality of life of our patients. They should be able to reintegrate into work, family, and society as quickly as possible. Many struggle not only with their medical, but also with psychological and social problems. That is why sensitive and humane care in our clinic is as important as modern medical treatment.

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In addition to specific tumor therapy, a comprehensive treatment concept for tumor patients also includes palliative medical care for terminally ill patients and support in the final phase of life. Maintaining the quality of life is at the forefront of medical and nursing efforts. The palliative medical care of our patients is provided in close cooperation with the interdisciplinary Pain and Palliative Centre (DIEP) in the UKSH, both inpatient and outpatient.

The laboratory for hematological special diagnostics at our clinic is one of the largest and most efficient in Germany. We offer both patient-oriented diagnostics and interdisciplinary pain therapy. The psycho-oncological care of our patients within the framework of a holistic therapy concept is provided in cooperation with the Centre for Integrative Psychiatry of the UKSH. This includes accompanying patients and relatives during their inpatient stay and as part of outpatient care.

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II. Department of Medicine: Division of Specialized Hematological Diagnostics

Emphases in Patient Care

- Cytomorphological evaluation of bone marrow aspirates, blood smears, cytospins of cerebro-spinal fluids, and other aspirates for diagnosis of hematological malignancies and differential diagnosis to reactive lesions
- Molecular analyses for diagnosis, stratification, and prognostic evaluation in suspicion of acute and chronic lymphoid and myeloid leukemias, myeloproliferative neoplasms, myelodysplasia, and lymphomas
- Multicolor flow-based analysis of bone marrow aspirates, peripherap blood, cerebrospinal fluid, and effusions for diagnosis and staging in hematological malignancies
- Flow-based quantification of T-cell subsets
- Molecular quantification of minimal residual disease in acute and chronic lymphocytic leukemia, mantle cell lymphoma, follicular lymphoma, multiple myeloma, and chronic myeloid leukemia
- Flow-based quantification of minimal residual disease in disease in acute and chronic lymphocytic leukemia, mantle cell lymphoma, follicular lymphoma and multiple myeloma

Emphases in Research

- Identification and validation of new prognostic or therapeutic molecular markers in Hematological Malignancies
- Establishment, standardization, and validation of innovative molecular flow assays for diagnosis and follow up in hematological malignancies within international cooperations
- Establishment, standardization, and validation of innovative molecular methods to quantify minimal residual disease in hematological malignancies within international cooperations
- Establishment of high throughput methods to analyze immune gene rearrangements for monitoring of minimal residual disease and perform B- and T-cell repertoire analyses
- Characterization of clonal evolution and selection processes during and after treatment in Lymphoid Neoplasias
- Identification of novel escape / resistance mechanisms in hematological malignancies being treated with targeted therapies

Additional Information/Services

- Reference laboratory within many national and international phase I-IV treatment studies in acute and chronic lymphocytic leukemia, follicular lymphoma, mantle cell lymphoma, chronic myeloid leukemia, and multiple myeloma
- Since 2010 accredited according to DIN EN ISO 15189 by the DAkkS (Deutsche Akkreditierungsstelle)
- Member of the EuroFlow Consortium
- Member of the EuroClonality Consortium
- Member of the EuroClonality NGS Consortium
- Member of the EuroMRD Consortium
Emphases in Patient Care
• Hematological and Oncological care
• Allogeneic and Autologous bone marrow transplantation
• Stem cellapheresis facility and GMP-laboratory
• Immunotherapy
• Special focuses:
  – Engineering of stem cell transplants
  – Treatment of myeloma patients with innovative therapy
  – Antibody therapy
  – Phase 1 to 3 clinical trials
  – Immunodiagnostic procedures

Emphases in Research
• Biology of Hematopoietic stem cells
• Targeted therapy in multiple myeloma
• Antibody and Immunocomstructs for therapeutic use

Emphases in Education
• Transplantation medicine
• Hematology and Oncology
• Immunotherapy
• Immunodiagnostic procedures

Additional Information/Services
• Accreditation by EBMT (CIC 256)
• Accreditation by the Jacie certification agency
• Strong focus on translational research
• GMP-laboratory
• Study nurses on site
III. Department of Medicine – Cardiology Angiology, Internal Intensive Medicine

Emphases in Patient Care

• The Department of Cardiology offers a broad spectrum of diagnostics and therapy for all cardiac diseases. Special clinical emphasis is placed on:

• Emergency treatment of all acute heart diseases, including Acute Myocardial Infarction
• Interventional therapy of coronary artery disease, including balloon dilation (PTCA), stents (bare-metal and drug-eluting), as well as rotablation

• Minimally invasive treatment of valvular heart disease (valvuloplasty of the mitral valve, percutaneous aortic valve replacement in cooperation with the Department of Cardiac Surgery) including TAVI, Mitralclip, and left atrial appendage (LAA)
• Interventional closure of atrial septal defects as well as persistent foramen ovale
• Interventional ethanol ablation of the ventricular septum in patients with Hypertrophic Obstructive Cardiomyopathy (HOCM)

• Pacemaker and device therapy, including cardiac resynchronisation therapy
• Cardiac imaging, including cardiac MRI and CT scans
• Diagnosis and specialized treatment of acute and chronic heart failure
• Diagnosis and treatment of pulmonary hypertension
• Peripheral disease, PTA of iliac, femoral and orural arteries

Contact
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IV. Department of Medicine – Nephrology and Hypertension

Emphases in Patient Care
- Acute Renal diseases
- Chronic Renal diseases
- Autoimmune diseases
- Arterial hypertension
- Transplantation medicine
- Conservative treatment of Nephrolithiasis
- Hemodialysis
- Peritoneal dialysis
- Detoxification methods
- Sonography
- Special focuses:
  - Transplantation medicine
  - Acute treatment of nephrological emergencies
  - General nephrology
  - Hypertensiology
  - Autoimmune diseases

Emphases in Research
- Transplantation immunology
- Pathogenesis of Glomerulonephritis
- Monoclonal antibodies for therapy
- Pharmacokinetics following transplantation
- Clinical hypertension research

Additional Information/Services
- Central outpatient clinics for:
  - Transplantation (kidney, pancreas, live organ donation)
  - Arterial hypertension, Glomerulonephritis
  - Autoimmune diseases
- Mechanical detoxification methods
- Plasma exchange
Department of Neurology

Emphasizes in Patient Care
- Deep Brain Stimulation
- Epilepsy
- Movement disorders
- Neurodegenerative diseases
- Neurogenetics
- Neuroimmunology
- Pain, neuropathic pain
- Vascular diseases

Emphasizes in Research
- Experimental stroke research
- Functional imaging of movement disorders and pain
- Neurodegeneration: Early detection, causative management strategies
- Neurogenetics
- Neuroimmunology
- Neuropathic pain: Mechanisms and treatment
- Technology and Neurology: Magnetoelectric sensors (SFB 1261), sensor-based quantitative assessment strategies
- Tremor research
- Pathophysiology of Movement Disorders

Emphasizes in Education
- Core lecture and practical course in Neurology
- Elective seminars (“Pain”, “Neuromuscular”, “Statistics”)
- Interdisciplinary lectures (“Aging”, “Neurorehabilitation”, “Neurorecovery”)
- Practical training year
- Preclinical and clinical skills lab
- Postgraduate training for Neurologists (European Continuing Medical Training for Movement Disorder Specialists, national annual course on pain)
- Specialist training in:
  - Neurology
  - Neurological intensive care
  - Geriatrics
  - Pain Medicine

- Further specialization:
  - Epileptology
  - Electrophysiology (EEG, ENG, EMG)
  - Ultrasound

Additional Information/Services
- Division of Neurological Pain Research and Therapy
- Epilepsy Monitoring Unit
- Leading neurological center for movement disorders, pain and neuropathic pain
- Postgraduate training center
- Trans-regional stroke unit and stroke network
Institute of Neuroradiology

Emphases in Patient Care
- Magnetic resonance imaging (MRI)
- Computer tomography (CT)
- Digital subtraction angiography (DSA)
- X-MRT
- Magnetic resonance imaging (including functional MRI, spectroscopy, and brain perfusion)
- Interventional neuroradiology (carotid stent, aneurysm embolization, stroke therapy) with X-MRI

Emphases in Research
- Examination of vascular disorders and tumors of the brain
- Development of new minimally invasive treatment processes for stroke and aneurysms

Emphases in Education
- Lecture: Neuroradiology
- Lecture and hands-on training in neuro-imaging

Additional Information/Services
- Combined two-plane X-MRI for interventional stroke therapy
- 3 T MRI-system for high resolution examinations of the brain and cerebral vessels
- Preventive stroke diagnostics
- Interventional Stroke Prophylaxis of Stenosis and Aneurysms (stents and coils)
Department of Neurosurgery

Emphases in Patient Care
- Tumor surgery: brain tumor, meningioma, glioma, metastasis, spinal tumor, and tumor of peripheral nerves
- Spinal surgery: disk herniation, spinal canal stenosis and instability, inflammation, and vascular malformations
- Vascular Neurosurgery: treatment of cerebral artery pathology: cerebral hemorrhage, aneurysm and angioma, subarachnoidal hemorrhage, and surgical care of aneurysm
- Pediatric Neurosurgery including Neuroendoscopy: hydrocephalus, spinal dysraphism, craniosynostosis, and spinal fusion
- Functional Neurosurgery: deep brain stimulation for Parkinson’s disease, tremors, and dystonia
- Neuro-oncology: care of all cranial and spinal injuries
- Surgical care of Peripheral Nerves: carpal canal syndrome
- Minimally invasive neurosurgery if indicated

Special focuses:
- Image-guided Tumor Surgery (including fluorescence microscopy): tumor surgery in the MRI, awake craniotomy for tumors in eloquent areas, meningiomas, and vestibular neurinomas
- Deep brain stimulation: Parkinson’s disease, tremors, and dystonia
- Spinal surgery: disk herniation, spinal canal stenosis, instability, and spinal tumors

Emphases in Research
- Neuro-oncology: radical tumor removal, image-guidance, and molecular biology
- Cranial vascular disease
- Functional neurosurgery including electrophysiology of basal ganglia
- Neuro-navigation and functional MRI
- Neuro-traumatology including spine injury
- Vertebral column
- Pediatric neurosurgery
- Minimally invasive neurosurgery
- Brain tumor biology
- Medical engineering

Additional Information/Services
- Adjuvant immunomodulatory therapies for primary and recurrent high-grade gliomas
- Combined Endovascular and Neurosurgical Therapy of Cerebrovascular diseases: aneurysm, arteriovenous malformations, stenosis
- Special outpatient clinics for the following sectors: tumors, children, interdisciplinary spine pain, cerebrovascular diseases, and movement disorders
Emphases in Patient Care

- Thyroid diagnosis and therapy with open radionuclides
- Treatment of bone metastases, malignant endocrine tumors, and radioisotopes
- Complete nuclear medicine diagnostics, including: PET/CT, SPECT/CT, and radiopharmacy

Emphases in Research

- New indications for intraarterial radiotherapy in middle ear and temporomandibular joint
- Radiator Ra 223 for bone metastases therapy (EU leading clinic)
- Molecular imaging in experimental pancreatic cancer (MOIN project)
- Sentinel lymph node diagnostics in different malignant diseases
- Different projects in radiocurative protection
- Participation in many research trials with molecular imaging in nerves and malignant tumor entities

Emphases in Education

- Imaging method lectures
- Clinical nuclear medicine courses
- Radiosynoviorthesis courses of the European Association of Nuclear Medicine (EU certified)
- Interdisciplinary Oncology Conference

Additional Information/Services

- Only specialist clinic providing comprehensive care in Schleswig-Holstein
- Integrated establishment practices
- Participation in MRIs
Emphases in Patient Care
• Vitreoretinal surgery: 20 gauge and 23 gauge sutureless vitrectomy, scleral buckle
• Retinal detachment surgery
• Diabetic Retinopathy surgery
• Age-related macular degeneration (AMD)
• Interventricular application of Lucentis, Avastin, and Triamcinolone
• Onpatient and inpatient cataract surgery
• HLA-matched corneal graft surgery
• Glaucoma surgery: Trabeculectomy with Mitomycin C, Ahmed-valve, and Cyclophotocoagulation
• Refractive surgery
• Lid surgery
• Intraocular inflammation (Uveitis)
• Photodynamic therapy
• Ophthalmic Pathology
• Strabismus
• Neuro-Ophthalmology

• Fundus Fluorescein Angiography
• High-resolution optical coherence tomography (spectral domain OCT)
• Ocular Oncology
• Electroophthalmology

Emphases in Research
• Mechanisms of anti-angiogenic therapies in age-related macular degeneration
• High-resolution imaging of vitreo-retinal pathologies
• Vitreoretinal surgery
• Corneal graft rejection
• Corneal graft surgery
• Inflammation in vasculitis
• Selective Retina Therapy (SRT) of the retinal pigment epithelium
• Novel laser applications
• Commercial and non-commercial clinical trials in novel therapies of ophthalmic diseases

Emphases in Education
• Basic principles and clinical practice of Ophthalmology
• bedside teaching in small interactive groups
• Video-demonstrations of Ophthalmic Diseases

Additional Information/Services
• Cornea bank
• Refractive laser surgery
• Only academic department providing a comprehensive ophthalmic service in Western Schleswig-Holstein for a population of approximately one million
• Ruthenium Plaque Brachytherapy for Intraocular tumors

Department of Ophthalmology
Department of 
Orthopedic and Trauma Surgery

Emphases in Patient Care
Orthopedics
• Joint replacement and revision surgery
• Foot surgery
• Shoulder surgery
• Arthroscopy
• Tumor orthopedics
• Joint-preserving contour surgery
• Sports medicine
• Children’s orthopedics
• Special focus: – Prostheses – Spinal surgery
Trauma Surgery
• Polytrauma care and comprehensive treatment of severe injuries
• Severe injuries of the Pelvis and Pelvic Surgery
• Severe injuries of the Spine and Spine Surgery
• Hand surgery
• Microsurgery
• Plastic surgery
• Reconstructive bony surgery
• Arthroscopic joint surgery in shoulder, elbow, wrist, hip, knee joint and ankle
• Trauma in sports
• Pediatric trauma
• Tumor surgery
• Foot and Ankle surgery
• Shoulder and Elbow surgery
• Spinal surgery
• Hip and Knee joint arthroplasty surgery
• Special focus: – Polytrauma care – Spine surgery – Pelvic surgery – Hand surgery, plastic surgery, and microsurgery – Arthroscopic joint surgery and trauma in sports – Tumor surgery and reconstructive bony surgery – Pediatric trauma – Orthopedic trauma lectures and skills lab

Emphases in Research
Orthopedics
• Musculoskeletal research circle
• Biomechanics
• Biomaterials
• Clinical research

Trauma Surgery
• Polytrauma care
• Spinal injuries
• Pelvic fractures
• Pediatric trauma
• Trauma physiology and inflammation
• Computer assisted operations

Additional Information/Services
Orthopedics
• Diabetic foot surgery
• Replacement surgery and septic exchange

• Long-Segmental spine surgery
• Computer-aided surgery

Trauma Surgery
• Emergency room
• Intensive care unit for trauma patients
• Physical rehabilitation
• Same day surgery
• Outpatient clinics
• National trauma board-certified level I trauma center
• National center for Advanced Trauma Life Support (ATLS®)
• Quality assurance system for computer assisted operations
• External quality management for polytrauma care, spinal injuries, pelvic fractures, pediatric trauma, and arthroscopic joint surgery
• National and international congress organization in topics of orthopedic and trauma surgery
Division of 
Orthopedic Oncology and Rheumatology

Emphases in Patient Care
• Joint preserving technique Cartilage repair
• Musculo-skeletal pain Deformities
• Amputees
• Joint replacement (Hip, Knee, and Shoulder)
• Spine surgery
• Children Orthopaedics Sport injuries
• Joint revision surgery

Emphases in Research
• Clinical trials
• Evidence based medicine research
• Joint replacement and revision technology minimal invasive surgery
• Multiple awards
• Translational research alliance

Emphases in Education
• University
• International fellowship fellowship exchange
• Member of the american academy of orthopaedic surgeons
• Research fellowship
Division of Hand, Plastic, and Microsurgery

Emphases in Patient Care

Breast Surgery
- Breast reconstruction after breast cancer
  - Silicone breast implants
  - Pedicled flap surgery
  - Free tissue transfers (DEEP etc.)
- Resection and reconstruction surgery of the thoracic wall
- Reduction mammoplasty and breast augmentation
- Liposuction and fat tissue transfer
- Correction of congenital disorders

Reconstruective Surgery
- Reconstructive Surgery after trauma, infection, and tumor resection (soft tissue, nerve, vessel, tendon, and bone)
- Minor burn injuries
- Scar management
- Acne inversus

• Pressure ulcer
• Body contouring surgery after massive weight loss

Tumor
- Resection and reconstruction surgery in soft tissue sarcoma and cancer metastasis
- Member of the Comprehensive Cancer Center

Hand
- Trauma surgery
- Tumor surgery
- Infection diseases
- Nerve compression syndromes
- Morbus Dupuytren, joint replacement, tendovaginitis stenosans
- Correction of congenital disorders
Campus Kiel

Universitätsklinikum Schleswig-Holstein
Dept. of Orthodontics

Director
Prof. Dr. Helge Fischer-Brandies

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Emphases in Patient Care
• Treatment of jaw and tooth misalignment in children and young adults
• Orthodontic treatment of adults and elderly patients
• Innovative Adult-Bracket System
• “Invisible” treatment by means of Invisalign
• Treatment of Craniofacial and Mandibular Dysfunction
• Treatment of sleep-related breathing disorders/ snoring

Emphases in Research
• Study of Biocompatibility and materials science of orthodontic treatment materials
• Stress–strain analysis of the “tooth, periodontium and jawbone” system
• Study of Oral Health-Related Quality of Life (OHRQOL)
• Computer-controlled production of orthodontic arch wires

Emphases in Education
• Fundamentals, diagnostics, and orthodontic treatment of tooth and jaw misalignment
• Theoretical and practical training

Additional Information/Services
• Certified orthodontic specialist training

Department of Orthodontics
Department of Otorhinolaryngology, Head, and Neck Surgery

Emphases in Patient Care

- Head and Neck Oncology
- Transoral Laser Microsurgery
- Oncologic Surgery
- Surgery of Major Salivary Glands
- Image-guided Sinus and Skull Base Surgery
- Surgery of the Ear
- Facial Plastic and Reconstructive Surgery
- Traumatology
- Middle Ear Surgery
- Cochlear Implant Surgery
- Active Middle Ear Implants / BAHA
- Audiologic, Neuro-Otologic, and Electrophysiologic Diagnostics
- Speech Therapy
- Allergology

Emphases in Research

- Clinical studies of the efficacy of transoral laser microsurgery for squamous cell carcinoma of the head and neck
- Oncologic and functional outcomes in oncologic surgery
- Quality of life studies
- Molecular/biological characterization of head and neck squamous cell carcinomas
- Human papilloma viruses in head and neck cancer
- Inflammation research: influence of endogenous, exogenous and factors on boundary layer lesions of the respiratory epithelium in granulomatosis with polyangiitis
- Audiologic research: cochlear implants, speech coding strategies, multifrequency tympanometry, and directional hearing

Emphases in Education

- Lectures, practical skills, and bedside teaching
- Introduction to clinical medicine (4th semester)
- Cardiovascular course (7th semester)
- Bedside teaching (9th semester)
- Praxis and pathophysiological fundamentals of ENT medicine
- Training of students during internship
- Training of students within the frame of nursing internships and clinical training
- Doctoral and post-doctoral programs
- Lectures for students of the speech therapy school
- Nursing Education

Additional Information/Services

- Clinic with comprehensive care
- International training center for transoral laser microsurgery for head and neck cancer (operation courses for head and neck surgeons)
- International ultrasound courses
Institute of Pathology

Emphases in Patient Care
• Surgical Pathology (12,000 cases)
• Cytopathology (12,000 cases)
• Autopsies (100 cases)

Emphases in Research
• Translational Oncology
• Clinical and Molecular Pathology
• Hepato-Gastrointestinal Tumors
• Malignant lymphomas
• Childhood lymphomas and soft tissue tumors
• Amyloidoses

Emphases in Education
• All offered courses and lectures for pathology
• Coordination of interdisciplinary clinical pathology conferences
• Coordination of the Oncological counselors
• Hematopathology courses

Additional Information/Services
• Kiel lymph node registry (malignant lymphomas)
• Amyloid registry
• Children’s tumor registry of the German Pediatric Society
• Hematology and Oncology
• Integration of cytopathology, pediatric pathology, and hematopathology within the Institute for Pathology
Emphases in Patient Care

- Diagnosis of Lymphomas and Hematological diseases in all tissue types
- Hematopathological evaluation of bone marrow and blood using aspirates and bone marrow trephines
- Broad spectrum of immunohistochemistry tests for immunophenotyping
- Molecular analyses of clonality, translocations and mutations of hematopoietic tumors
- Diagnosis of cutaneous inflammatory disorders, and lymphomas using skin biopsies
- Central Reference Pathology and biobank for clinical trials of lymphoma treatment

Emphases in Research

- Translational research within clinical trials for malignant lymphoma
- Lymphoma in children, adolescents, and young adults in cooperation with the collaborative groups NHL-BFM AND EINHNL
- Identification of molecular characteristics of malignant lymphomas in elderly patients
- Clinicopathological, histopathological, and molecular characterization of cutaneous lymphomas
- Diagnostic and prognostic subgroups of follicular lymphoma and mantle cell lymphoma
- Molecular characterization of malignant lymphomas by gene expression (Nanostring) and next generation sequencing molecular analysis of cell-free (tumor) DNA in lymphomas
- Microenvironment of follicular lymphomas, diffuse large B-cell lymphomas, and Hodgkin Lymphomas by gene expression profiling and quantitative image analysis of Immunohistochemistry

Additonal Information/Services

- Reference center for all German collaborative lymphoma study groups and the German Competence Network Malignant Lymphomas (Kompetenznetz Maligne Lymphome e.V.).
- Central pathology and bio-banking in clinical lymphoma trials in cooperation with pharmaceutical companies
- Weekly in-house interdisciplinary scientific meetings with varying topics in the field of lymphoma research
Department of Paediatrics and Adolescent Medicine I

Emphases in Patient Care

• Molecular genetic analysis of Minimal Residual Disease (MRD) in Acute Lymphoblastic Leukemia (ALL)
• Participation in national and international clinical trials in particular for children and adolescents with Leukemia and Cancer
• Comprehensive treatment approaches in lymphomas including Hematopoietic Stem Cell Transplantation
• EBV-associated lymphomas
• Biochemical and molecular genetic characterisation of normal sex development and disorders of sex development (intersexuality)
• Biochemical and Molecular Genetic characterization of Steroid Biosynthesis and Adrenal Diseases (congenital adrenal hyperplasia)
• Molecular characterization of salt-losing syndromes
• Disorders of tubular CA-transport, Pathogenesis of Enuresis in children
• Inflammation, Acute Respiratory Distress Syndrome (ARDS): pathophysicsology and preclinical model
• Pulmonary function monitoring for the improvement of artificial ventilation of premature neonates
• Epidemiology of Respiratory infections

Emphases in Research

• Molecular characterization of acute leukemias, especially treatment-resistant phenotypes
• Organ replacement therapy: High-Frequency Oscillation (HFO) and nitric oxide (NO) ventilation, and renal replacement procedures (hemodialysis and peritoneal dialysis)
• Pediatric liver transplantation
• Genetic diagnosis and therapy in growth disorders, disorders of sex development, and congenital adrenal hyperplasia
• Comprehensive treatment approaches in lymphomas including Hematopoietic Stem Cell Transplantation
• EBV-associated lymphomas
• Biochemical and molecular genetic characterisation of normal sex development and disorders of sex development (intersexuality)
• Biochemical and Molecular Genetic characterization of Steroid Biosynthesis and Adrenal Diseases (congenital adrenal hyperplasia)
• Molecular characterization of salt-losing syndromes
• Disorders of tubular CA-transport, Pathogenesis of Enuresis in children
• Inflammation, Acute Respiratory Distress Syndrome (ARDS): pathophysicsology and preclinical model
• Pulmonary function monitoring for the improvement of artificial ventilation of premature neonates
• Epidemiology of Respiratory infections

Emphases in Education

• Clinical pediatrics (lectures, bedside teaching, and clinical internships)
• Case-oriented e-learning

Additional Information/Services

• Inpatient units:
  – Intensive care unit
  – Hematology/Oncology unit
  – Neonatal Intensive Care, Intermediate Care and Integrated Unit for neonates and infants in the perinatal center for the treatment of premature neonates and newborns with severe diseases according to level 4 with corresponding follow-up program
  – Division for general and infectious diseases
• Diagnostic procedures and treatment of hematologic and solid malignant neoplasms in children and adolescents, as well as young adults
• Bone marrow and blood stem cell transplantation (autologous and allogeneic)
• Palliative treatment for cancer patients

Emphases in Patient Care

• Hematology/Oncology/Hematopoietic stem cell transplantation
• Endodontology
• Diabetology
• Nephrology/Urology
• Pulmonology
• Hepatology
• Gastroenterology
• Organ transplantation
• Neonatology
• Intensive care medicine
• Infectious diseases
• Rheumatology
• Metabolic diseases
• Pediatric surgery
• Pediatric psychology

Emphases in Research

• Molecular characterization of acute leukemias, especially treatment-resistant phenotypes
• Organ replacement therapy: High-Frequency Oscillation (HFO) and nitric oxide (NO) ventilation, and renal replacement procedures (hemodialysis and peritoneal dialysis)
• Pediatric liver transplantation
• Genetic diagnosis and therapy in growth disorders, disorders of sex development, and congenital adrenal hyperplasia
• Comprehensive treatment approaches in lymphomas including Hematopoietic Stem Cell Transplantation
• EBV-associated lymphomas
• Biochemical and molecular genetic characterisation of normal sex development and disorders of sex development (intersexuality)
• Biochemical and Molecular Genetic characterization of Steroid Biosynthesis and Adrenal Diseases (congenital adrenal hyperplasia)
• Molecular characterization of salt-losing syndromes
• Disorders of tubular CA-transport, Pathogenesis of Enuresis in children
• Inflammation, Acute Respiratory Distress Syndrome (ARDS): pathophysicsology and preclinical model
• Pulmonary function monitoring for the improvement of artificial ventilation of premature neonates
• Epidemiology of Respiratory infections
Department of Pediatric and Adolescent Medicine II

Emphases in Patient Care
- Epilepsies
- Other neurological disorders (including headaches, tics, and restless legs syndrome)
- Neuromuscular diseases
- Developmental and behavioral disorders
- All neurological developmental disorders including disorders of motor function, cognition, and behavior
- Genetic syndromes with neurological disorders
- Pediatric diagnostic procedures:
  - Various EEG analyses: non-invasive presurgical epilepsy monitoring for children and adolescents (only provider of this service in northern Germany)
  - Pediatric diagnostic procedures in cooperation with the Clinic of Neurology:
    - Auditory Evoked Potentials (AEP)
    - Visual Evoked Potentials (VIP)
    - Somatosensory Evoked Potentials (SSEP)
    - Nerve conduction Velocity (NCV) testing
    - Electromyography (EMG)
- Neuropsychological expertise in pediatric neuromuscular diseases in cooperation with the Clinic of Neurology / Radiology
- Neuroimmunological expertise in cooperation with the Clinic of Neurology
- Clinical expertise in handling of patients with FIFRES (Febrile Infection-Related Epilepsy Syndrome)

Emphases in Education
- Introductory lectures and seminars in general pediatrics and specialized pediatrics (Neuropediatrics)
- bedside teaching
- Training and examination for national certificates of Electroencephalography and Epileptology

Emphases in Research
- Clinical and molecular genetics of epilepsies and EEG patterns (www.epilepsygenetics.net)
- Therapeutic and diagnostic trials (neuropsychological analyses with EEG, fMRI, and other procedures) in:
  - Epilepsy
  - Muscular diseases
  - Headache
  - Behavioral disorders
  - Restless legs syndrome

Additional Information/Services
- Together with the Clinic of Pediatric and Adolescent Medicine I and Clinic of Pediatric Cardiology, the Clinic of Pediatric and Adolescent Medicine II constitutes a center of comprehensive medical care, with the broadest therapeutic spectrum in Schleswig-Holstein
- Only Neuropediatric clinic in Schleswig-Holstein; only provider of non-invasive presurgical epilepsy monitoring for children and adolescents in northern Germany

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Department of Congenital Heart Defects and Paediatric Cardiology

Emphases in Patient Care

• Surgical treatment of all types of congenital heart defects (CHD)
• Neonatal Cardiac Surgery of univentricular hearts (international leading position of treatment for babies with hypoplastic left heart syndrome)
• Adults with complex CHD
• Complete spectrum of interventional treatment of CHD
• Evaluation of intensive care treatment, especially in postoperative settings

Emphases in Research

• The Right Ventricle in CHD: invasive and non-invasive tests of ventricular function in clinical and experimental settings
• Kernlo-MR (cardiovascular remodeling and myocardial perfusion in congenital heart disease, and interventional treatment of CHD)
• Intensive care studies: postoperative monitoring of organ (e.g. brain) perfusion

• With, Near Infrared Spectroscopy (NIRS) Emphases in education
• Clinical pediatrics (lecture and bedside teaching)
• Participation in the interdisciplinary examination course (Faculty Teaching Award 2005)
• Participation in the new skills lab
• Establishment of an advanced training center for the German Association of Pediatric Cardiology

Additional Information/Services

• One of the largest pediatric heart centers in the country, with referrals from all parts of Germany
Emphases in Patient Care

- Basic prosthetic therapy provided by undergraduate students
- Advanced prosthetic therapy provided by faculty
- Prosthetic therapy including
  - Veneers, Partial Crowns, and Crowns
  - Pretreatment Restorations
    - Conventional Fixed-Dental Prostheses
    - Resin-bonded Fixed-Dental Prostheses
    - Removable Partial Dental Prostheses
    - Resin-bonded Precision Attachments
    - Removable complete dental prostheses
    - Implant Retained Crowns
    - Implant Retained Fixed-Dental Prostheses
    - Implant Retained Overdentures
    - Occlusars
    - Occlusal Splints
    - Occlusal Night Guards

- Special focuses:
  - Comprehensive care in prosthodontics using a synoptic treatment concept
  - Minimally invasive tooth replacement using CAD/CAM technology
  - Computer-guided treatment planning in dental implantology

Emphases in Research

- Clinical trials regarding new prosthetic treatment modalities and materials, focusing on all-ceramic restorations, resin-bonded restorations and implant-retained restorations
- Preclinical evaluation of Dental Biomaterials and dental technologies
Department of Radiation Oncology

Emphases in Patient Care
- Multimodal cancer therapy
- High-precision Radiotherapy and Radiosurgery
- Intra-arterial Brachytherapy
- Concurrent Radiochemotherapy
- Palliative Radiotherapy and Oncology

Emphases in Research
- Radiation Sensitization by Cytostatics and targeted drug therapies
- Radiosurgery for primary and metastatic lesions
- Treatment of recurrent tumors
- Prognostic markers
- Radiotherapy in Pediatric Cancers
- Partial breast irradiation
- Prostate Cancer, Breast Cancer, Head and Neck Cancer, Tumors of the skull base, Sarcomas

Additional Information/Services
- Image-guided radiotherapy
- Real-time HDR-brachytherapy implants for prostate cancer
- Brachytherapy and radiosurgery of eye tumors
Department of Radiology and Neuroradiology

Emphases in Patient Care

Diagnostic Radiology
- Intimately involved in the treatment of patients by means of image-guided diagnostic and therapeutic methods
- Non-invasive and invasive diagnostic and therapeutic radiology of all organs and body regions for all clinicians of the Kiel campus Campus Kiel 24 hours a day (X-ray, ultrasound, CT, MRI, and DSA)
- Special radiological services for external referring physicians

Interventional Radiology (PTA and stent application for all vascular territories, abdominal and thoracic aortic aneurysm stent grafting, TIPS, tumor embolization, chemoblocker injection, vascular intervention, and thoracic surgery with X-MRI)

Special radiological services for external referring physicians

Interventional Radiology (PTA and stent application for all vascular territories, abdominal and thoracic aortic aneurysm, TIPS, tumor embolization, chemoblocker injection, vascular intervention, and thoracic surgery with X-MRI)

Neuroradiology
- Magnetic resonance imaging (MRI)
- Computer Tomography (CT)
- Digital Subtraction Angiography (DSA)
- X-MRI
- Magnetic resonance imaging (including functional MRI, spectroscopy, and brain perfusion)
- Interventional Neuroradiology (surgical steam, neurovascular intervention, and stroke therapy) with X-MRI

Emphases in Research

Diagnostic Radiology
- Diagnosis and interventional therapy of degenerative and inflammatory vascular diseases
- Morphological and functional diagnosis of the lungs (volumetry, perfusion, and ventilation)
- 3-D/4-D imaging
- Cardiac Imaging (CT, MRI)
- Bone structure analysis

Neuroradiology
- Molecular Radiology (MRI, micro-CT, and optical methods)
- Breast diagnostics

Emphases in Education

Diagnostic Radiology
- Methodology of imaging (X-ray, CT, ultrasound, and MRI)
- Radiology of all organ systems
- Interventional Radiology
- Specialized Breast Diagnostics
- Specialized Pediatric Radiology
- Image processing
- Doctoral seminars
- Lectures and seminars, including written examination and second/third sections of the medical exam covering the entire spectrum of diagnostic radiology
- Radiation protection seminars

Neuroradiology
- Lecture: Radiology
- Lecture and hands-on training in neuro-imaging

Additional Information/Services

Diagnostic Radiology
- Expertise in the entire range of diagnostic and interventional radiology
- Vascular Interventions
- Pediatric Radiology
- Center for Breast Diagnostics
- Natural scientific/technical work group

Neuroradiology
- Combined two-plane X-MRI for interventional stroke therapy
- 3 T MRI-System for high resolution examinations of the brain and the cerebral vessels
- Preventive stroke diagnostics
- Interventional Stroke Prophylaxis of Stenosis and Aneurysms (Stents and Coils)
Institute of Toxicology and Pharmacology for Natural Scientists

Emphases in Patient Care

- Drug therapy counseling
- Counseling in cases of acute and chronic poisoning caused by environmental chemicals

Emphases in Research

- Polymorphisms as susceptibility factors for diseases caused by tobacco smoke constituents
- Enzymatic protection mechanisms against toxic substances
- Metabolism of new chemotherapeutic agents
- Protein profiling (proteomics) as a new approach in toxicological research
- Microbial degradation of pollutants in soil and in wastewater for sanitation purposes
- Cytoprotective effects of antioxidants against oxidative stress
- Development of Toxicodynamic and Toxicokinetic models
- Design of hazard and risk assessment models
- Biomonitoring of contaminants

Emphases in Education

- Lectures: Toxicology for Nutritionists, Foundations of Toxicology for Natural Scientists, Specialized Toxicology for Natural Scientists, Pharmacology for Pharmacists, Toxicology of Auxiliary Materials and Pollutants for Pharmacists, Pharmacology and Toxicology for Medical Students, Ecotoxicology, and Toxicology for Dieticians
- Seminar on selected topics in environmental toxicology
- Seminar and practical course on molecular cellular toxicology
- Toxicology seminar and practical course for natural scientists

Additional Information/Services

- Only university Department of Toxicology in Schleswig-Holstein
- Public commentary on current pollution problems
- Consultations concerning chemical waste disposal

- Pharmacology and toxicology course for medical students
- Interdisciplinary lecture, seminar, and practical course on environmental medicine
- Compulsory elective seminar and practical course on pharmacology for pharmacists
- Seminar on risk assessment of environmental chemicals

- Detection of persistent environmental chemicals and toxic elements in marine and terrestrial food webs
- Search for biochemical indicators of environmental pollution with regard to health disorders in humans
- Development of new therapeutics to treat obesity and diabetes

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- Biomonitoring of contaminants
Department of Urology and Pediatric Urology

Emphases in Patient Care

- Comprehensive Urological diagnostics and treatment
- Urological oncology including Nerve-Sparing Radical Prostatectomy
- Da Vinci surgery (robot-assisted surgery with prostate cancer, bladder cancer, renal cell carcinoma, and reconstructive kidney surgery)
- Metastatic and extended lymph node surgery
- Penile Cancer: specialized diagnostics and therapy
- BPH: greenlight laser (robot-assisted surgery)
- Endourology/Stone Therapy: minimally invasive endoscopic surgery techniques
- Incontinence: Urodynamics, Neuroprosthetics, and Botulinum toxin treatment
- Neuroprosthetics
- Pediatric Urology - emeritus congenital malformations, etc.
- Urologic Prosthetics (penile prosthesis, sphincter prosthesis, ...)
- Special focuses:
  - Robot-assisted Urooncological Surgery
  - Robot-assisted reconstructive Urological Surgery
  - Salvage robot-assisted Surgery of Lymph Node Metastasis in advanced Prostate and Bladder Cancer
  - Neuroprosthetics and incontinence treatment; Neuroprosthetics, da Vinci Prostate Surgery, and Uroprosthetics in male and female
  - Andrology (including microsurgery and prosthesis)

Emphases in Research

- Effects of Metastatic Salvage Surgery on Cancer specific survival in Prostate-Cancer and Bladder Cancer
- Salvage surgery in recurrent prostate cancer
- Physiology and Pharmacology of the Bladder
- Incontinence, Prolapse Surgery, and Neuromodulation (including neuroprosthetics)
- Robot-assisted surgery
- Media: Developing innovative adaptive multimedia tools for patients

Additional Information/Services

- Certified Prostate Center
- Certified Continence Center
- Outpatient department
- Prof. Dr. Klaus-Peter Jünemann is the speaker of the Center for Laparoscopic and Robot-assisted Surgery at the University Medical Center Schleswig-Holstein in Kiel
- Prof. Dr. Jünemann is the Vice Chairman of the German Society of Robotic Urology (DGURU)
Department of Anesthesiology

Emphases in Patient Care
- Anesthesiology
- Intensive care medicine
- Emergency medicine
- Pain therapy

Emphases in Research
- Clinical research:
  - Perioperative determination of Lung function and Ventilation-Perfusion ratio
  - Perioperative mood disturbance, postoperative cognitive dysfunction, and delirium
  - Diagnosis and treatment of acute kidney injury
  - Plasma and tissue markers of organ function and Ischemia/Reperfusion
  - Immunomodulatory effects of anesthetics and surgical trauma
  - Treatment of Coronary Artery Disease by stem cell therapy
- Maritime Emergency Medicine (SARRAH-project: search and rescue, resuscitation, and rewarming in accidental hypothermia)
- Ethical issues in intensive care medicine
- History of Anesthesiology and Intensive Care Medicine
- Pain in children
- Medical technology research:
  - Invasive and non-invasive Hemodynamic monitoring
  - Biotechnical system regulation
- Basic science research:
  - Hypoxia-induced gene-expression
  - Pulmonary Surfactant and acute Lung injury
  - Maritime Emergency Medicine (SARRAH-project: search and rescue, resuscitation, and rewarming in accidental hypothermia)

Emphases in Education
- Theoretical and practical seminars on anesthesia and intensive care medicine
- Simulators training in anesthetics
- Continuous medical education

Additional Information/Services
- 2nd Biennial International Cardiac Surgery Care Meeting – Neuroprotection during cardiac surgery – 2008
- 4th Hansecongress – Interdisciplinary symposium on Intensive Care Medicine and Critical Care Nursing – 2009
- 5th Symposium on Perioperative Medicine – 2010
Department of Cardiac and Thoracic Vascular Surgery

Emphases in Patient Care

- Heart Valve Surgery
- Off-Pump Coronary Artery Bypass Surgery (OPCAB)
- Coronary Artery Bypass Surgery
- Aortic Surgery
- Heart insufficiency surgery and mechanical cardiac assist devices
- Heart Rhythm Surgery
- Left Ventricular assist program
- Special focuses:
  - Minimally invasive Aortic Valve reconstruction
  - Ross procedure
  - Minimally invasive Mitral valve reconstruction
  - Off-Pump Compless Arterial Revascularization (OPCAB)
  - Minimally Invasive Coronary Artery Bypass Surgery (MIDCAB)
  - Katheter-Based Aortic Valve Implantation (TAVI)
  - Aortic stent-grafting
  - Ventricular Aneurysm Surgery
  - Aortic surgery in tissue disorders, especially Marfan Syndrome

Emphases in Research

- Biomechanical hearts
- Tissue engineering of heart valves
- Heart Valves development (Biological and Mechanical)
- Bicuspid Aortic Valve
- Genomic analysis
- Cardiac Surgery in elderly patients
- Mechanical cardiac assist devices

Additional Information/Services

- German Ross Registry
- Special consultations:
  - Marfan Syndrome and Aortic Surgery
  - Heart rhythm surgery
Department of Dermatology, Allergology and Venerology

Emphases in Patient Care
• Autoimmune Blistering disorders (pemphigus, pemphigoid, and dermatitis herpetiformis)
• Inflammatory skin diseases (e.g. atopic dermatitis, psoriasis, lichen planus)
• Dermatologic oncology (e.g. melanoma, lymphoma, Merkel cell carcinoma)
• Surgical Dermatology
• Phlebology
• Allergology
• Hair disorders
• Pediatric Dermatology
• Genital diseases (lichen sclerosus)
• Laser therapy
• Aesthetic medicine
• Phototherapy
• Venera1 diseases
• Special focuses:
  – Dermatohistopathology

Emphases in Research
• Autoimmune Blistering Disorders (pemphigus, epidermolysis bullosa acquisita, pemphigoid, and dermatitis herpetiformis)
  – Immunopathology
  – Diagnosis
  – Treatment
• Dermato-Oncology
• Treatment of Psoriasis and atopic Dermatitis
• Tissue regeneration and Fibrosis
• Skin barrier function

Additional Information/Services
• Reference center for diagnosis of Autoimmune Bullae1 skin diseases
• Reference center for Phlebology (foam sclerotherapy, endovascular laser therapy, and chronic ulcers)
• Study center for novel treatment options in chronic inflammatory skin diseases and metastazising melanomas
Department of Ear, Nose, and Throat Medicine, Phoniatrics and Pediatric Audiology

Emphases in Patient Care

• Treatment of head and neck cancer (surgery, study center, brachytherapy, and palliative medicine)
• Plastic and Reconstructive Surgery of extended defects in the head and neck after tumor surgery or trauma
• Plastic and Aesthetic Surgery of the head and neck
• Minimally Invasive Sinus Surgery (FESS) and balloon sinuplasty
• Surgery of the middle ear, implantable hearing aids, and cochlear implants
• Surgery of the anterior, lateral skull base, and orbit
• Surgery of the larynx and Trachea
• Treatment of salivary gland disorders (endoscopic surgery, and lithotripsy)
• Pediatric Audiology and Phoniatrics
• Otoneurology
• Sleep medicine
• Deep-sea diving center

• Special focuses:

Emphases in Research

• Tumor Biology and Immunotherapy
• Stem cell technology and tissue engineering
• Imaging methods
• Rhinological research
• Minimally Invasive Plastic Surgery
• Sleep medicine
• Phoniatrics and Audiology Research

Additional Information/Services

• Auricle reconstruction
• Specialized Center for Chronic Sinusitis and Nasal Polyps
• Specialized Center for Complex Head and Neck Cancer Cases (Study Center for Immunotherapy)
Department of Ear, Nose, and Throat Medicine, Phoniatrics and Pediatric Audiology: Division of Phoniatrics and Pediatric Audiology

Emphases in Research
- Newborn hearing screening. The department also hosts the hearing screening centre of Schleswig-Holstein
- Auditory processing disorders
- Fitting of hearing aids, personal FM-devices, active middle ear implants, bone conduction implants, and cochlear implants
- Treatment of patients with Dystonia and comorbid voice or swallowing disorders using botulinum toxin
- Disorders of the singing voice
- Professional voice care
- Phonosurgery in local anaesthesia

Additional Information/Services
- Founding member of the Comprehensive Hearing Centre Lübeck (HZL)
- Member of the Centre of population medicine

Emphases in Patient Care
- Early detection of hearing disorders in children: newborn hearing screening, confirmation diagnostic, psychoacoustic, and physiological hearing test for children from 0 to 18 years of age
- Speech-language delay and disorder
- Velopharyngeal insufficiency and incompetence (children with cleft palate)
- Fluency disorders (stuttering and other)
- Dysarthria
- Speech, language, voice, and swallowing disorders in patients with Neurological Diseases (e.g. stroke, M. Parkinson, and multiple sclerosis) or psychiatric situations including: Dystonia, Aphasia, and Dysphonia, including: the use of Videofluoroscopic Evaluation of Swallowing (FEES), Vocal Cord Dysfunction (VCD), Speech, voice, and swallowing disorders in patients with head-neck cancer including: the use of Videofluoroscopic evaluation of swallowing (Video-Stroboscopy, FEES, FESE, TOES)
- Dysphonia and feeding disorders in children including: pharyngo-esophageal dysfunction and other vocal fold inefficiencies
- Chronic voice disorders including: use of video-stroboscopy, electrolaryngography, electrolaryngography, and acoustic voice analysis
- Special focus:
  - Auditory Processing Disorder (APD)
  - Fitting of hearing aids, personal FM-devices, active middle ear implants, bone conduction implants, and cochlear implants
  - Acoustically evoked potentials in “video-simulation” and general anesthesia
  - Hearing diagnostic for gastroesophageal patients
  - Hearing diagnostic for children and adults with mental handicap
  - Spastic Dysphonia including treatment using botulinum toxin
  - Phonosurgery in local anaesthesia for cases of vocal fold paralysis and other vocal fold inefficiencies
- Special focuses:
  - Auditory Processing Disorder
  - Fitting of hearing aids, personal FM-devices, active middle ear implants, bone conduction implants, and cochlear implants
  - Treatment of patients with Dystonia and comorbid voice or swallowing disorders using botulinum toxin
  - Disorders of the singing voice
  - Professional voice care
  - Phonosurgery in local anaesthesia

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Institute of Experimental and Clinical Pharmacology and Toxicology

Emphases in Patient Care
- Consulting services for Clinical Pharmacotherapy and Toxicology

Emphases in Research
- Pathophysiology of Stroke and Multiple Sclerosis
- Peptidergic Endocrine Systems in Metabolic Syndromes
- Blood-Brain barrier
- Gene therapy of Neurological Diseases
- Impact of sleep on memory
- Complications of Diabetes

Emphases in Education
- Medical courses: Pharmacology, Toxicology (lecture and course), Clinical Pharmacology, Pharmacotherapy, and Clinical Environmental Medicine
- Advanced experimental Pharmacology course; selected aspects of experimental Pharmacology
- Molecular Life Science courses: drug discovery research lecture, practical training courses, and Neuroscience
- Cooperative courses for subjects offered at the Lübeck University of Applied Sciences (biomedical Engineering, Medical Technology, Chemical Engineering, and Environmental Engineering): Pharmacology and Toxicology introductory courses Nutritional Toxicology

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Emphases in Patient Care

- Surgical Gynecology (Endoscopic interventions, Oncological interventions, Breast surgery, Incontinence and Pelvic Surgery; interventions on benign Gynecological Diseases, and endometriosis surgery)
- Obstetrics and Pelvic Care (High risk deliveries, perinatal diagnostics, and therapy)
- Fertility treatment
- In-vitro-fertilization, ICSI, and vitrification
- Gynecological Oncology
- Gynecological Psychosomatics
- Breast Cancer treatment
- Endometriosis treatment
- Hormone consultations
- Treatment of uterine prolapse and incontinence
- Gynecological Endoscopy

Emphases in Research

- Basic research on malignant diseases
- Basic research on reproductive medicine issues (in vitro maturation, and vitrification)
- Endocrinological research (PCO-syndrome, ovarian stimulation, and gender research: hormone profiles)
- Basic research on gynecological issues
- Clinical research in Reproductive Medicine
- Clinical research in Gynecological Medicines and Obstetrics
- Fetal Echoangiography
- Amniocentesis screening
- Fetal Tachyarrhythmias
- Long term outcome of Fetal Tachyarrhythmias
- Soft marker for the detection of aneuploidy in the second trimester
- Doppler sonography in fetus with growth restriction
- On and long term outcome
- Prognostic factors of fetuses with growth restriction
- Clinical and basic research in gynecologic Oncology
- Doppler Sonography during delivery
- Doppler Sonography during the placental period
- Perinatal characteristics of patients with risk pregnancies
- Laparoscopic Node detection in Carcinoma of the uterus
- Endocrine research (PCO-syndrome, ovarian stimulation, and gender research: hormone profiles)
- Breas cancer treatment
- Endometriosis treatment
- Hormone consultations
- Treatment of uterine prolapse and incontinence
- Gynecological Endocrinology

Emphases in Education

- Weekly lecture on Gynecology and Obstetrics
- Seminars on Gynecology and Obstetrics
- Weekly practical training on Gynecology and Obstetrics
- Endocrinological Colloquium
- Emergencies in Gynecology and Obstetrics

Additional Information/Services

- Breast consultations
- Fertility treatment consultations
- Endometriosis consultations
- Urogynecological consultations
- Outpatient chemotherapy in the Chemotherapy Pavilion
- Lectures in anatomy
- Hands-on lectures
- Seminars for doctoral candidates
- Interdisciplinary lecture on clinical application of lasers
- Numerous training seminars for physicians
- Regular organisation of regional, national, and international meetings (symposiums regarding special aspects in gynecology and obstetrics, lecture on clinical endocrinology, and reproductive medicine)
Department of Gynecology and Obstetrics: Division of Gynecological Endocrinology and Reproductive Medicine

Emphases in Patient Care

- Peri-Conceptual care
- Treatment of Gynecological hormone disorders
- Menstrual cycle monitoring and timed intercourse
- Ovulation induction
- Tubal patency testing
- Mini-Hysteroscopy
- Intra-Uterine Insemination
- In-Vitro Fertilisation (IVF)
- Intracytoplasmic Sperm Injection (ICSI)
- Physiological Intracytoplasmic Sperm Injection (PICSII)
- Cryopreservation of sperm, testicular tissue, oocytes and ovarian tissue
- Fertility preservation prior to gonadotoxic treatment
- Fertility preservation for social reasons
- Polar body diagnosis
- Preimplantation genetic diagnosis
- Donor Sperm Treatment

- Sperm analysis
- Testicular Sperm Extraction (TESE)
- Reproductive Surgery
- Ovarian Transposition, Ovarian transplantation, Laparoscopic Ovarian drilling, and Tubo-Noseostomy
- Reversal of tubal ligation

Emphases in Research

- Endocrinology of controlled ovarian stimulation
- Epidemiology of infertility
- Cryopreservation of gametes

Additional Information

- Member of the Fertiprotect Network
- Member of the German IVF registry
Department of Hematology, Oncology, and Stem Cell Transplantation

Precision medicine in cancer therapy

Progress in the understanding of the molecular and genetic causes of cancer increasingly enables the development of targeted therapeutic strategies. This personalized therapy has improved treatment outcomes for many types of cancer. The individualization of therapy decisions even when standard treatment has already failed requires the creation of new care services. One possible strategy for selecting an individual, “molecularly stratified” treatment for cancer patients in the creation of Molecular Tumor Boards.

MTB

A special feature of the UCCSH is the Molecular Tumor Board (MTB), which is set up in addition to the organ-specific tumor boards. It comes into play when there is no prospect of therapeutic success with a guideline-based therapy. Affair-in-depth research on individual cases, molecular pathological and genetic analyses are performed to identify predictive biomarkers and target structures for targeted therapies. In about half of the cases, genetic changes can be identified in this way, from which therapy recommendations can be derived. Then a therapy with a suitable drug is performed or - if not yet available - a suitable study or a drug is sought that is not approved for this disease but contains the right active ingredient (“off-label” treatment).

In individual cases, the provisional use of a drug that has not yet been approved is also applied for. The molecular approach overcomes thinking in “organ drawers” and makes medicine more personalized. The Molecular Tumor Board also contributes to better research into rare cancers.

Access to the MTB

Access to the MTB of the UKSH can be obtained from your treating hematologist/oncologist. For an introduction we only need the information from your treating physician and the histopathological findings from the tissue samples. We will then request the stored tissue samples. Individualized and extended examinations are performed on these samples or on freshly taken tissue samples. Molecular diagnostics and the evaluation of the results are carried out according to standardized procedures. The test results are discussed in our MTB session in a circle of experts from different fields. If therapy recommendations can be derived, concrete therapy suggestions are made and ways are shown how the recommended therapy could be implemented. For all recommendations, so-called evidence levels are stored, which show your attending physician the reasons that led to the recommendation.
Emphases in Patient Care
• Taking care of patients suffering from infectious diseases in in- and outpatient setting
• Comprehensive diagnostic, management and control of community-acquired, nosocomial, and travel-associated infectious diseases
• Extensive clinical advice for antimicrobial therapy for all kinds of infections
• Post-exposure Prophylaxis
• Vaccination guidance before traveling

Emphases in Microbial Diagnostics
• Extensive diagnostic repertoire, accredited by DIN/ISO 17029, on bacterial, viral, fungal and parasitic infection
• Conventional culture based techniques and fast-track molecular methods, including POCT
• Communicable disease control

Emphases in Research
• Hospital-acquired and bloodstream infections
• Pathogenesis of intracellular infections
• Member of several national and international research consortia (e.g. German Centre for Infection Research)

Emphases in Education
• Teaching of medical and non-medical students in "Infectious Disease", "Clinical Microbiology" and "Infection Biology"
• Training for Medical Doctors and PhD’s
• Specialization for "Microbiology, Virology and Infection Epidemiology", 5 years
• Specialization for "Infectious Diseases", 1 year
• Education for Laboratory Assistants
• Specialization for Internal Medicine
Department of Maxillofacial Surgery

Emphases in Patient Care

- Maxillofacial traumatology
- Oral and maxillofacial tumors
- Cranial deformities, cleft lips, jaws and palates
- Infantile facial surgery
- Plastic oral and maxillofacial surgery
- Orthognathic surgery
- Treatment of Mandibular Joint malfunctions
- Maxillary Sinus Diagnostics and therapy
- Preprosthetic surgery
- Implantology
- Dental surgery
- Salivary gland transplantation for treatment of dry eye syndrome

- Special focus:
  - Tumor surgery
  - Traumatology
  - Reconstructive surgery
  - Treatment of dry eye syndrome

Emphases in Research

- Radiogenic injury of the salivary glands
- Oncological research: expression of matrix proteins
- Osteomyelitis diagnostics using nuclear imaging
- Long-term results of submandibular gland transfer in cases of Keratoconjunctivitis Sicca

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Institute for Medical Biometry and Statistics

Emphases in Research
• Genetic Epidemiology: clinical cooperation and method development
• Medical statistics and Clinical Epidemiology: clinical cooperation and method development
• Genomic statistics: clinical cooperation for analyses of gene expression and proteomics data

Emphases in Education
• Q1 “Medical Biometry” (40 lessons per student in small groups, up to a maximum of 23 students per course)
• Elective subjects: “Interdisciplinary Seminar for Doctoral Candidates” and “Evidence-Based Medicine”
• Computer Science (Bachelor and Master, UzL), Molecular Life Science (Bachelor, UzL), Computational Life Science (Bachelor and Master, UzL), and School for Assistant Medical Technicians
I. Department of Medicine

Internal Medicine

Emphases in Patient Care

- **Gastroenterology:** Full spectrum in Gastroenterology: diagnosis and treatment of all diseases of the Oesophagus, Stomach, Ileus, and Colon diseases. Particular focus on the interdisciplinary treatment of patients with Chronic Inflammatory Bowel Disease and tumours of the Gastrointestinal Tract Abdominal ultrasound, including contrast medium ultrasound, diaphragm ultrasound. Endoscopic diagnostic, and therapeutic interventions such as Gastro-Duodenoscopy and Colonoscopy. Chromendoscopy of the Colon, Capsule Endoscopy and double balloon enteroscopy. Interventional procedures such as Endoscopic treatment of GI bleeding, papilla operations and Pancreatic Disease, Photodynamic Therapy of GI tumors, Endoscopic and therapeutic interventions such as Gastro Duodenoscopy and Colonoscopy, Chromoendoscopy of the Colon, Capsule Endoscopy and double balloon enteroscopy. Interventional procedures such as Endoscopic treatment of GI bleeding, papilla operations and Pancreatic Disease.

- **Endocrinology:** Diagnosis and treatment of endocrine disorders, i.e. diagnosis and treatment of the Endocrine Glands such as Pancreas, Thyroid Gland, Parathyroid, Adrenal Glands, and gonads. Special focus on the evaluation of Hypertension, Endocrine Tumours, Oncoplastic, endocrinology, and gender identity disorders.

- **Diabetology:** Diagnosis and treatment of all types of Diabetes: Type 1, Type 2, MODY, gestational diabetes, and special forms as well as the diagnosis and treatment of all diabetes associated complications including diabetes mellitus, diabetes-related diseases, and diabetes complications. Evaluation and treatment of associated vascular disorders, such as Lipid Disorders, Hypertension, and diabetes-associated metabolic syndrome.


- **Hematology, Oncology, and Hemostaseology:** Diagnosis and treatment of all tumor disorders, including malignancies of bone marrow, lymphatic system, and solid tumors. High-dose chemotherapy with autologous stem cell transplantation, large clinical laboratory for hematology and for assessment of hematopoietic stem cells.

- **Intensive Care and Emergency Medicine:** Interdisciplinary treatment of patients with severe disorders necessitating intensive care treatment with state of the art ICU methods.

Emphases in Research

- **Endocrinology:** Focus on neuroendocrinology, neuroendocrine tumours, pathophysiology of the metabolic syndrome, and diabetes complications as well as brain and energy metabolism.

- **Nephrology:** Cytokines and chemokines in inflammation and angiogenesis, cell- and cell-matrix interactions, immune modulation of renal cell populations, stem cell biology, and its impact on nephrologists.

- **Gastroenterology:** Chronic inflammatory bowel disease, in particular antigen presentation by enterocytes and antimicrobial peptides in IBD; multi-center treatment studies in viral hepatitis, animal models of experimental colitis.

- **Hematology, and Oncology:** Pharmacological studies in Oncology, in particular studies on combination treatment in multiple myeloma and tumor cell lines, anti-angiogenetic treatment, analysis of endothelial progenitor cells, numerous multi-center treatment studies in leukemia, lymphoma, malignant melanoma, and solid tumors.
I. Department of Medicine

Internal Medicine

Emphases in Education

• Endocrinology
  Obligatory courses in internal medicine, courses on physical examination; additional teaching courses on endocrinology, differential diagnosis in internal medicine, clinical rounds, and methods in endocrinology

• Nephrology
  Obligatory teaching in pathophysiology and clinical nephrology; courses on tissue engineering, dialysis, and renal pharmacology

• Gastroenterology
  Obligatory courses on Gastroenterology and Hepatology; interdisciplinary seminars on Gastroenterology and Oncology

• Hematology and Oncology
  Obligatory courses in Hematology, Hemostaseology and Oncology, interdisciplinary seminars in Hematology-Oncology and Pathology; multiple tumor boards

• Special courses
  Master class Internal Medicine for promotion of particularly talented students
II. Department of Medicine
Cardiology, Angiology, and Intensive Care Medicine

Emphases in Patient Care
- Coronary artery disease including 24/7 service for patients with acute coronary syndromes and complex coronary interventions
- All forms of Cardiomyopathy including management of advanced and end-stage heart failure
- Complete cardiac rhythm management including implantation of all available cardiac devices (loop recorders, pacemakers, defibrillators, and these chamber systems) and ablation therapy of complex rhythm disorders using high-end mapping systems
- Valvular Heart Disease including all available diagnostic and therapeutic technologies (i.e. percutaneous valve replacement therapy for aortic valve stenosis, edge-to-edge repair of the mitral valve by MitraClip and interventional treatment of tricuspid regurgitation)
- Peripheral Artery Disease including percutaneous interventions in peripheral arteries as well as implantation of aortic stents in patients with acute aortic and chronic syndromes
- Large acute and intensive care medical section covering the whole spectrum of acute and intensive care medicine
- Special focuses:
  - Treatment of acute coronary syndromes (High volume center)
  - Complex coronary and Structural Cardiac interventions
  - Treatment of patients with complex rhythm disorders
  - Percutaneous treatment of Aortic and Mitral Valve Disease
  - Acute and critical care medicine interventional treatment of complex arrhythmia in including ventricular tachycardias and atrial fibrillation

Additional Information/Services
- International fellowship program in Interventional Cardiology
- Large number of courses in the field of interventional cardiology with guests from around the world (LICC Lübeck interventional cardiology course)
- World-recognized center for treatment of cardiogenic shock and Percutaneous Valve treatment
- University hospital offering all stages of medical education
Division Rhythmology

Emphases in Patient Care
- Catheter Ablation of Atrial Fibrillation via Cryo, Laser, or radiofrequency energy
- Catheter Ablation of typical and atypical atrial flutters
- Diagnostic and Catheter Ablation of AV-nodal-reentry tachycardia
- Diagnostic and Catheter Ablation of Wolf-Parkinson-White Syndrome
- Catheter ablation of focal atrial tachycardia
- Catheter ablation of premature Ventricular Contractions and Ventricular tachycardia
- Epicardial approaches for catheter ablation procedures
- Medical treatment of Arrythmias
- Individualized Stroke Prophylaxis via oral anticoagulation
- Minimal invasive occlusion of the left atrial appendage for stroke prophylaxis
- Implantation and programming of pacemaker and implantable cardiac defibrillator devices
- Implantation and programming of cardiac resynchronization therapy devices for heart failure patients
- Leadless pacemaker implantation
- Subcutaneous implantable cardiac defibrillator implantation
- Lead extractions
- Diagnostics of syncope via event recorder implantation
- Emphases in Research
- Catheter ablation of Arrythmias via modern technologies
- Evaluation of new techniques of arrhythmia treatment (rotor ablation, and multi-electrode mapping)
- Evaluation of epicardial left atrial appendage closure systems
- Cerebral protection during catheter ablation procedures
- Emphases in Education
- European Heart Rhythm Association recognized training center
- German Cardiac Society recognized training center for rhythmology, invasive electrophysiology, and active rhythm devices
- Additional Information/Services
- Implantable cardiac defibrillator devices support group
- Heart rhythm outpatient clinic

Division of Rhythmology

Director
Prof. Dr. Roland Richard Tilz

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III. Department of Medicine

Pulmonology

Emphases in Patient Care

- Respiratory and Lung Diseases: Modern diagnostic with flexible and rigid bronchoscopy and Endobronchial Tomography. Use of innovative interventional therapies such as laser ablation, stent implantation, small chamber endobronchial therapy (in collaboration with the Department of Radiology), and Photodynamic Therapy (PDT).
- Important and active chemotherapeutic therapy of tumors located in the region. Participation in multi-center studies.
- Non-invasive ventilation therapy and sleep medicine.
- Competence center for lung infections. Participation in international treatment studies.
- Certified center for Clinical Infectology, including HIV medicine.
- Respiratory allergies: interdisciplinary allergy center of the university hospital.

Emphases in Research

- Localized immunity and prevention of pulmonary infections.
- Persistent Pulmonary Infections.
- Innate immunity of aspiration pneumonia and sepsis.
- Infectious diseases of the respiratory system.
- Non-invasive monitoring of inflammation.

Emphases in Education

- Compulsory curriculum: Clinical examination course, core lecture and practical course on internal medicine, seminar on issues of internal medicine for students in the practical year, and compulsory elective “Diagnostics for Infectious Diseases, Clinical Infectious Diseases, Clinical Allergology.”
- Elective courses: Pneumonia radiology seminar, medicine in tropical countries, and problem-based learning.
Institute of Molecular Medicine

Emphases in Patient Care
• The Department of Molecular Medicine has no duties in patient care

Emphases in Research
• Biochemistry, Molecular Biology, and Pre-clinical application of nucleic acid-based drugs including antisense RNA and oligonucleotides, siRNA, miRNA, ribozymes, aptamers, and CpG-stimulating oligonucleotides
• Design and application of biologically active nucleic acid tools and drugs
• Cellular uptake of naked nucleic acids by mammalian cells
• Structure and function of nucleic acids in vivo and in cell culture
• Non-invasive diagnostic approaches based on extracellular nucleic acids in body fluids
• Emphases in education

Additional Information/Services
• Educational services performed within the faculties of medicine and technology
• Supervision of academic theses on the level of bachelor’s, master’s, PhD. and MD programs

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Department of Neurology

Emphases in Patient Care
• Cerebrovascular Diseases
• Movement Disorders
• Vertigo syndromes and Neuro-Ophthalmological Diseases
• Tumor Diseases

Emphases in Research
• Genetics of movement disorders
• Cognitive Neurology (movement control, memory, pain, and visual awareness)
• Oculomotor networks and Vestibular System
• Biochemistry of Neuronal Networks
• Stroke (Rehabilitation and Sonographic Diagnostics)

Emphases in Education
• Lectures, practical courses, and bedside teaching in Clinical Neurology
• PBL (Problem-Based Learning)
• Seminars for doctoral students
• Involvement in bachelor’s and master’s courses of the Molecular Life Science curriculum and in the Graduate School for Computing in Medicine and Life Sciences at the University of Lübeck
Institute of Neuroradiology

Emphases in Patient Care

• Head and Spine Imaging (MRI 3.0 Tesla and 1.5 Tesla, multislice-CT)
• Multimodal MR-Imaging including MR-Perfusion, MR-Angiography, 4D-MRA, MR-Spectroscopy, and functional MRI (B-MRI)
• Multimodal CT-Imaging including CT-Angiography, Perfusion-CT, 4D-CTA, and Multispectral Stroke-CT
• Diagnostic Angiography (biplanar DSA with integrated 3D/4D and CT-capability)
• Interventional Endovascular neuroradiology (Comprehensive Supraregional Neurovascular Center)
• Image-guided minimal invasive therapy of Spinal Pain Disorders
• MR-Neurography of the Peripheral Nerves/Plexus imaging
• Neuropediatric Imaging

• Special focuses:
  – Interventional Endovascular Neuroradiology including treatment of all Intracranial, Cervical, and Spinal Vasculopathies (Aneurysms, Fumaroles, AV-malformations, Diseases, Acute Endovascular stroke treatment)
  – Multimodal imaging of Neuroradiological Diseases including advanced Vasculitis imaging
  – Multimodal imaging in Neurooncology, Dementia and Movement Disorders
  – Imaging of Peripheral Nerves

Emphases in Research

• Imaging of Cerebrovascular Diseases
• Center of neuroradiological studies (participation in numerous Neuroradiological treatment trials for stroke and aneurysms)
• CT- and MR-imaging in Acute Stroke
• Diffusion-MRI in peripheral Nerve Diseases
• Experimental imaging in Neurooncology and Chronic Fatigue Syndrome
• Functional MRI imaging in pain processing, movement disorders, and obesity
• Diabetes
• MR-Spectroscopy of the Brain (protons and phosphates)

Additional Information/Services

• Special consultations
  – Cerebrovascular diseases (diagnosis and treatment)
  – Neurooncology and Neuroinflammatory Diseases
  – Minimal invasive pain therapy of the spine
Department of Neurosurgery

Emphases in Patient Care
- Treatment of Brain, Meninges, and Spinal Cord Tumors
- Treatment of traumatic and degenerative spinal disorders (fractures, herniated discs, and spinal canal stenosis)
- Treatment of vascular malformations (aneurysms and angiomas)
- Neurosurgical intensive care, functional Neurosurgery
- Neuropediatrics
- Peripheral Nerve Surgery

Emphases in Research
- Intraoperative imaging:
  - Optical coherence tomography and multi-photon fluorescence microscopy for intraoperative analysis of microscopic residual tumor tissue; intraoperative ultrasonography and contrast agent kinetics
- Neuro-Navigation and Robotics:
  - Functional Neurosurgery: Cortical neuromodulation for chronic pain and tinnitus, trigeminal neuralgia, and deep brain stimulation
  - Neural regeneration by use of adult neural progenitor cells
  - Invasive Neuroimaging in TBI and neoplasia hemorrhages
  - Characterization of brain tumor cells in gliomas

Emphases in Education
- Obligatory Courses:
  - Practical courses, operative, and non-operative general clinical examinations
- Elective Courses:
  - Master Medical Technology Part I: Applied Medical Technology in Tumor Surgery; Part II: Techniques in Molecular Neuro-oncology; interdisciplinary lecture series on pain, seminar series of the neurosurgical clinic, and exam preparation course
  - 2 hours per semester week of Biomedical Neuroscience on the Lübeck campus
- “Biochemistry I” lecture for medical students, “Amino Acids and Proteins” segment, “Proteins” segment, and course with proficiency certificate
- “Molecular Biology” lecture for students of Molecular Life Sciences, “Cloning Vectors and Transcription” segment, and course with proficiency certificate
- Students seminar on Ethics (Ethics in Medicine seminar series)
- Integration into other subjects within the medical technology program via joint courses Participation in lectures at the Graduate School for Computing in Medicine and Life Sciences at the University of Lübeck
- Nursing and Pediatric Nursing training and specialist training in anesthesia and intensive care (BIZ Bildungszentrum für Gesundheitsberufe am Universitätsklinikum Schleswig-Holstein gGmbH)

Additional Information/Services
- Molecular Biology laboratory with research on Neuro-Oncology and Neuro-Regeneration using adult neural progenitor cells
- Medical technical development with the Department of Robotics and propertary development Lübeck
Institute of Nutritional Medicine

Emphases in Patient Care

- Nutritional therapy in:
  - Oncology
  - Inflammation Medicine
  - Metabolic Medicine
  - GI-Disorders
- Personalized Nutrition
- Pharmacovitaminology
- Clinical Trials
- Special focuses:
  - Nutritional needs in Cachexia and Malnutrition
  - Non-Alcoholic Fatty Liver Disease (NAFLD)
  - Lipid metabolism (Hypercholesterolemia)
  - Inflammatory Bowel Diseases and Celiac Disease
  - Irritable Bowel Syndrome and Food intolerance
  - Small Intestinal Bowel overgrowth (SIBO)
- Pancreasinsufficiency and Bilical losing Syndrome
- Food-Drug Interaction

Emphases in Research

- Metabolic Inflammation and Immunometabolism
- Fatty Liver Disease
- Gut Microbiome and Intestinal Inflammation
- Inflammation and Cancer Development
- Mitochondrial Disease
- Molecular Nutrition
- Biomarker Research
- Therapeutic Antibodies
- Translation in Metabolic and Nutritional Medicine

Additional information

- Bachelor and Master Study Program "Nutritional Medicine"
- Interdisciplinary Gastroenterology at the Comprehensive Center of Inflammation Medicine, Lübeck
- Diagnostic and Therapeutic Endoscopy
- Compound Screening Platform
- Consultancy in Metabolic and Nutritional Medicine
Department of Ophthalmology

**Emphases in Patient Care**

- Diagnosis and treatment of Retinal and Vitreous diseases, especially age-related macular degeneration, diabetic retinopathy, neovascular pathologies, inflammation, and genetic diseases
- Laser medicine issues, particularly photodynamic therapy, and laser diagnostics
- Diagnosis and treatment of Glaucomatous Diseases
- Diagnosis and treatment of diseases of the Ocular Surface ( Conjunctiva and Cornea)
- Diagnosis and treatment of malignant melanoma of the choroid
- Refractive Lens surgery
- Cornea and Amniotic Membrane Transplantation
- Diagnosis and treatment of "dry eyes" (Sicca Syndrome consultations)
- Minimally-invasive surgery of the anterior and posterior eye segments (e.g. Micrincision Cataract Surgery and 23-G pars Plana Vitrectomy)
- Lid and Tear Duct Surgery
- Outpatient surgery

- Pediatric Ophthalmology
- Orthoptics
- Ambulance for the visually impaired
- Stereotactic Radiotherapy
- Argus II Retinal Prostheses System
- Laser Cataract Surgery
- Microinvasive Glaucoma Surgery with Microns
- Uveal Melanoma diagnostics and treatment

**Emphases in Research**

- Clinical studies in the aforementioned areas of expertise
- Pathophysiology of age related macular degeneration
- Experimental Ophthalmology and basic research for the further development of surgical techniques, especially for those used in retinal and vitreous surgery
- Evaluation of imaging techniques in Ophthalmology, optical coherence tomography of the anterior and posterior eye segments

- Diagnosis of Vitreoretinal Diseases (angiography and genetics)
- Toxicity testing in in vitro and ex vivo models for intravenous medications
- Experimental inhibition of wound healing mechanisms in the eye
- Laser medicine issues, including development of equipment
- Extracellular Matrix and Cell Biology

**Emphases in Education**

- Core lecture on Ophthalmology (graded certification)
- Practical course on Ophthalmology
- Examination course
- Several individual lectures offered by our professors
- Course on Microsurgery
- Master’s degree in Medical Technology (technical school)

**Additional Information/Services**

- Reference center for Micrincision Cataract Surgery
- Department of Ophthalmology

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Campus Lübeck
Universitätsklinikum Schleswig-Holstein
Dept. of Ophthalmology

Director
Prof. Dr. Salvatore Grisanti

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Department of Orthopedics and Trauma Surgery: Division of Orthopedics

Emphases in Patient Care
- Minimally invasive joint replacements
- Revision arthroplasty of all joints
- Spine and Disc Surgery
- Tumor Orthopedics
- Pediatric Orthopedics
- Arthroscopic shoulder reconstruction
- Correction of limb deformities
- Foot surgery
- Sports Orthopedics
- Rheumatoid Arthritis
- Special focuses:
  - Joint preserving osteotomies
  - Minimally invasive spine surgery
  - Septic revision arthroplasty
  - Bone Metastases
  - Clubfoot

Emphases in Research
- Cartilage repair
- Biomechanics of shoulder arthroplasty
- Ehlers-Danlos Syndrome
- Clinical studies

Additional Information/Services
- Interdisciplinary back pain pathway
- Shock-wave treatment
- Orthodontics
- Sports Medicine
- Special outpatient consultations
- Back pain and spine surgery
- Tumor and metastases
- Pediatric Orthopedics
- Shoulder reconstruction
- Hip and Knee reconstruction
- Ehlers-Danlos Syndrome

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Department of Orthopedics and Trauma Surgery: Division of Trauma Surgery

Emphases in Patient Care
- Full spectrum of Trauma and Orthopedic Surgery
- Acute and reconstructive surgery with state of the art diagnostic and therapeutic methods
- The Department of Trauma Surgery currently has 61 beds, as well as several intensive care beds
- Care provided for 2,000 inpatients and 10,000 outpatients visitors per year
- Acute Traumatology, including polytrauma care and comprehensive treatment of severe injuries
- Fracture treatment of the extremities using the latest care systems, such as angle plates and intramedullary nails
- Treatment of complex spinal and pelvic fractures
- Endoprosthesis for Shoulder, Elbow, Knee, and Hip
- Minimally invasive procedures, for example minimally invasive hip replacements
- Arthroscopic joint surgery on Shoulder, Elbow, Wrist, Hip, Knee, and Ankle
- Surgical and conservative treatment of tendon injuries of the Shoulder (Rotator Cup), Elbow (Brachioradialis tendon), Knee (Cruzar, Patellar, and Quadriceps ligaments) and Achilles Tendon
- Stabilization of non-healing bone fractures (non-union revisions)
- Joint stiffness due to post-traumatic wear
- Treatment of bone and joint infections
- Close cooperation with Physiotherapists
- Geriatric Trauma network for optimal care of elderly patients

Emphases in Research
- Biomechanical studies of implants
- Minimally invasive arthroscopy
- Biomechanical studies of the foot
- Resonance measurements of hip replacements for relaxation diagnostics
- Navigation in the field of Arthroplasty
- Stem cell research

Emphases in Education
- Compulsory courses:
  Trauma surgery section of the core surgery lecture, participation in physical examination courses, emergency medicine courses, surgical practical training courses, and lectures in the Department of Anatomy and Department of Orthopedics
- Elective courses:
  Specialized traumatological rounds, trauma surgery polytechnic, and international teaching center for minimally invasive hip arthroplasty (MIS/DAA courses in Lübeck with anatomical specimens)
Institute of Pathology

Emphases in Patient Care

- Complete spectrum of Surgical Pathology
- Immunohistological diagnostics for neoplastic and non-neoplastic diseases
- Molecular Pathology with focus on malignant tumors
- Consultation and Reference Center for Uropathology
- Consultation and Reference Center for Neoplastic and Non-Neoplastic Lung Diseases
Department of Pediatric and Adolescent Medicine

Emphases in Patient Care
- General Pediatrics: standard and comprehensive care (only Department of Pediatrics in the region)
- Psychosomatics and Psychotherapy
- Vagus nerve stimulation in pediatric epilepsy

Emphases in Research
- Mode of action of steroid hormones
- Genetic causes for diseases in premature births
- Surfactant function and dysfunction in breathing problems
- Respiratory failure and Pulmonary Hypertension
- Immune functions and childhood infections
- Impact of chronic illness and disability in childhood and adolescence on quality of life, family functioning, psychosocial adaptation, and participation

Emphases in Education
- Mode of action of steroid hormones
- Genetic causes for diseases in premature births
- Surfactant function and dysfunction in breathing problems
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- Immune functions and childhood infections
- Impact of chronic illness and disability in childhood and adolescence on quality of life, family functioning, psychosocial adaptation, and participation

Additional Information/Services
- Home parenteral nutrition for children
- Palliative care of seriously ill children
- Psychosomatic care and supervision service
- Social Pediatrics center

Emphasis in Patient Care
- General Pediatrics: standard and comprehensive care (only Department of Pediatrics in the region)
- Psychosomatics and Psychotherapy
- Vagus nerve stimulation in pediatric epilepsy

Emphasis in Research
- Mode of action of steroid hormones
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Additional Information/Services
- Home parenteral nutrition for children
- Palliative care of seriously ill children
- Psychosomatic care and supervision service
- Social Pediatrics center
Department of Pediatric and Adolescent Medicine: Division of Pediatric Pulmonology and Allergy

Emphases in Patient Care
- Asthma
- Allergic Rhinitis
- Bronchiectasis
- Cystic Fibrosis
- Food Allergy
- Atopic Dermatitis
- Primary Ciliary Dyskinesia
- Tuberculosis
- Congenital Pulmonary Malformation (Bronchopulmonic Cyst and CCAM)
- Follow-up care of preterm infants with Bronchopulmonary Dysplasia (BPD)
- Follow-up care of children with Tracheomalacia (i.e. after esophageal atresia)
- Rare Lung Diseases
- Modern diagnostic with Video-Microscopy for Ciliary Disorders
- Non-invasive ventilation therapy

Emphases in Research
- Early origins of allergic and asthmatic diseases
- Translational Research of Molecular Events
- Clinical Trials
- Training and Education
- Elective courses: Practical skills in Pediatric Pulmonology and Allergy

Emphases in Education
- Clinical examination course, core lecture, seminar and practical course on pediatric pulmonology and allergy
- Modern lung-function diagnostic in infants, children, and adolescents: Multiple-Breath Washout, Spirometry, and Body Plethysmography
- Modern diagnostic with Video-Microscopy for Ciliary Disorders
- Non-invasive ventilation therapy

Additional Information/Services
- Member of the Airway Research Center North (ARCN), and Member of the German Lung Research Center (DZL)
- Certified Center for Cystic Fibrosis
- For further information: www.uksh.de/kinderpneumologie/
Department of Pediatric and Adolescent Medicine: Division of Pediatric Endocrinology and Diabetes

Emphases in Patient Care
- Differences of Sex Development (DSD)
  - Genetics
  - Clinical Management
  - Surgery
- Disorders of Puberty
- Congenital Adrenal Hyperplasia
- Disorders of Growth
- Disorders of Mineral Metabolism
  - Hypophosphatemic Rickets
  - Pseudohypoparathyroidism
- Diabetes in Children and Adolescents
- Specialized laboratory for endocrine conditions in childhood

Emphasis in Interdisciplinary Care
- Accredited as European Centre of Reference in the European Reference Network
- Part of the "Hormone Centre North"

Emphasis in Research
- Clinical Care in DSD
- Translational Research of Molecular Events
- Training and Education
- Ethics
- Laboratory Medicine in Endocrine Conditions
Department of Pediatric Surgery

Emphases in Patient Care
• Diagnosis and treatment of congenital malformation of the Abdominal Wall, Intestines, Diaphragm, and Bladder
• Pectus Excavatum (funnel chest) surgery
• Minimally-invasive chest and abdominal surgery
• Burns and Pediatric Plastic Surgery
• Pediatric Urology
• Abdominal Surgery
• Thoracic Surgery
• Pediatric Oncology
• Outpatient surgery and Endoscopy (Phimosis and Cryptorchidism)

Emphases in Research
• Ultrasound diagnosis of fractures in children

Emphases in Education
• Surgery core lecture, surgery practical course, clinical internship, and practical year
• Elective courses: Pediatric Surgery, Pediatric Traumatology, Pediatric Urology, and Global Health
Department of Plastic and Hand Surgery/Burn Intensive Care

Emphases in Patient Care

- Reconstructive surgery after trauma, tumor, and infection
- Microsurgery, nerve surgery, and replantation surgery
- Hand surgery (injuries, degenerative disorders, and birth defects)
- Aesthetic Surgery
- Acute treatment of severe burn casualties in our own burn intensive care unit, including post-burn care and reconstruction

Emphases in Research

- Treatment of Burns
- Angiogenesis in ischemic tissue
- Dupuytren’s Disease
- Infections of the hand
- Connective tissue research
- Nerve regeneration and modulation in Peripheral Nerves and Central Nervous System
- Monitoring of Biochemical and Microcirculatory changes in free micro-vascular flaps by micro-diagnosis technique

Emphases in Education

- Lectures on plastic surgery as part of the main lecture series on surgery
- Individual student rotation program
- Bedside teaching
- Instruction of students during the practical training year
- Compulsory elective course (Wahlkurs) in Plastic Surgery
- Problem-Based Learning (PBL) tutorial on clinical environmental medicine
- Instruction at the university Nursing School
- Lectures in Plastic Surgery at the Lübeck campus
- Molecular Life Science (Bachelor’s and Master’s, UzL)

Additional Information/Services

- Microsurgery course for students
Department of Radiology and Nuclear Medicine

Emphases in Patient Care
• Noninvasive Cardiac Imaging (Cardiac MRI and Cardiac CT)
• Noninvasive Vascular Imaging (MR Angiography and CT Angiography)
• Minimally-invasive image-guided vascular interventions including aortic stenting
• Detection and characterization of tumors and metastases with US, CT, and MRI
• Interventional treatment of tumors and metastases: embolization, Radiofrequency, Selective Internal Radiotherapy (SIRT)
• Musculoskeletal Imaging including trauma, sports medicine, and rheumatology
• Pediatric Radiology
• Nuclear Medicine (SPECT-CT, PET-CT)
• Imaging and treatment of thyroid diseases
• Special focuses:
  – High-end CT and MRI examination to replace invasive diagnostic procedures
  – Minimally invasive techniques to reduce risks, hospital stays, and costs
  – Reduce radiation exposure for patient safety
  – Active quality management to avoid complications and hazards

Emphases in Research
• Cardiovascular imaging
• Interventional Radiology
• Oncologic Imaging
• Magnetic Particle Imaging

Additional Information/Services
• Interdisciplinary tumor boards for all types of cancer
• Breast imaging including Tomosynthesis and MR Mammography
Department of Radiation Oncology

Emphases in Patient Care
The Department of Radiation Oncology in Lübeck treats about 1,200 cancer patients per year. The in-patient section has 13 beds, where various combinations of systemic treatment (chemotherapies and novel targeted therapies) and radiotherapy are administered.

Two modern linear accelerators are available including cone-beam CT, ExacTrac positioning system, and respiratory gating. Several types of radiation therapy are provided such as 3D-conformal radiotherapy, Intensity-Modulated Radiotherapy (IMRT), Volumetric Modulated Arc Therapy (VMAT), Image-Guided Radiotherapy (IGRT), Radiosurgery, Fractionated Stereotactic Radiotherapy (FSRT) and Stereotactic Body Radiation Therapy (SBRT). This equipment allows high-quality treatment of all cancer types. In addition, a modern HDR-brachytherapy unit is available, mainly for prostate cancer, gynecological malignancies, head-and-neck cancer, breast cancer, sarcoma and recurrent tumors.

The department emphasizes personalized care for each individual patient. As part of a large university cancer center, it takes part in 10 multidisciplinary tumor boards each week and works closely with several other Oncologic Departments.

Emphases in Research
The Department of Radiation Oncology in Lübeck is very active in clinical research. It leads and participates in a large number of national and international studies of various cancer types including Head-and-Neck Cancer, Lung Cancer, Breast Cancer, and Prostate Cancer. Scientists within this department publish more than 30 peer-reviewed scientific papers per year. The department has an international network and closely collaborates with leading institutions in Europe, USA, Canada, and Vietnam.

Emphases in Research
The Department of Radiation Oncology in Lübeck regularly provides teaching and training for medical students, as well as for students of other medical professions including nursing staff members, radiation therapy technologists, medical engineers, and medical physicists. This includes supervision of doctoral, master, and bachelor theses.

Additional Information/Services
Since 2013, the Department of Radiation Oncology in Lübeck is ranked among the very top radiotherapy in Germany (Focus-Ranking). One unique characteristic of this department is that patients requiring palliative support are cared for by a specialized multi-disciplinary Palliative Radiation Oncology (PPO) team.
Department of Rheumatology and Clinical Immunology

Emphases in Patient Care
- Connective tissue diseases
- All Vasculitis entities
- Auto-inflammatory Syndromes
- Metabolic and Joint Disorders
- Systemic inflammatory Diseases
- Differential diagnosis of rheumatic and other diseases
- Innovative medical therapies
- Special focus on expertise
- Systemic Sclerosis with experience in treating more than 1200 patients
- ANCA-associated vasculitides: Granulomatosis with polyangiitis and microscopic polyangiitis
- Eosinophilic Granulomatosis with polyangiitis
- Systemic Lupus Erythematosus
- Myositis and related syndromes
- Interstitial lung disease and other lung manifestations (e.g. Pulmonary Arterial Hypertension, PAH) of inflammatory systemic autoimmune diseases
- Digital ulcer treatment
- Giant cell arteritis

Emphases in Research
- Low-dose IL-2 therapy in systemic lupus erythematosus
- Regulatory antibodies targeting G protein-coupled receptors
- Pathogenesis of granulomatosis with polyangiitis and giant cell vasculitis
- Animal models for interstitial lung disease, systemic sclerosis, and PAH
- Clinical studies on AAV/GPA, GCA, SLE, and systemic sclerosis

Emphases in Education
- National Reference Center for Systemic Sclerosis
- Vasculitis Center
- Local reference center for severe rheumatic diseases
- Lectures in Rheumatology and Clinical Immunology

Additional Information/Services
- German and European Systemic Sclerosis Network and Registry (EUSTAR and DNSS center)
- Center of the German Trinational Vasculitis Registry (GvVas)
- Center for research on antibodies directed against G protein-coupled receptors

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Institute of Social Medicine

Emphases in Patient Care
• Only indirectly involved in patient care
• Contributing to the betterment of patient care in the following areas:
  • Development of guidelines or care pathways, e.g. Chronic Inflammatory Bowel Disease, Allergy Prevention, Rehabilitation of patients with Type 2 Diabetes Mellitus, and Rheumatic Diseases
  • Epidemiology and treatment of malignant diseases (c.f. Schleswig-Holstein cancer registry)
  • Quality assured mammogram diagnostics (QuaMaDi) (c.f. Schleswig-Holstein cancer registry)
  • Stroke care quality association
  • Health technology assessment: creation of reports to evaluate medical technologies

Emphases in Research
• Clinical, population-related and healthcare epidemiology of rheumatic and musculoskeletal diseases, oncological disease, and gastroenterological or metabolic diseases
• Healthcare research with emphasis on rehabilitation research and prioritizing in medicine
• Evidence-based medicine, guidelines and Health Technology Assessments (HTA)
• Ethics and history of clinical research
• Methods of clinical epidemiology and healthcare research
• Nursing research

Emphases In Education
• Compulsory curriculum: course on evidence-based and social medicine, involvement in problem-based learning, Introduction to Clinical Medicine for lower semesters
• Elective courses
  • Clinical Rehabilitation, central doctoral seminar of the medical faculty. „The search for the scientific basis of medicine” seminar (together with the Institute of Medical History and Science Research)

Additional Information/Services
• Expert conference NVRF eV / DRV North: “Rehab Requirements and Rehab Prognosis: New Developments” (Lübeck, 01.03./02.03.2007)
• “The Good Doctor” conference with the Medical Association and Statutory Health Insurance Association of Schleswig-Holstein (Breklum, 09./10.03.2007)
• 2nd German Joint Allergy Congress, (Lübeck, 23. – 26.09.2007)
• Symposium: “Rehabilitation and Reintegration – the Rehabilitee in Focus” (Lübeck, 19.11.2007)
• International Symposium: “Advanced Nursing Practice” (Lübeck, 14.11.2008)
Department of Surgery

Emphases in Patient Care

- Entire spectrum of Oncologic Surgery
- Minimally invasive surgery (certified German Center of Excellence for Minimally Invasive Surgery; e.g. > 2,500 laparoscopic colectomies; laparoscopic en-bloc resection for cancer; laparoscopic gynaecology; laparoscopic pancreas resection; laparoscopic liver surgery)
- Image-guided liver surgery (3D rendered, navigated liver surgery for mass resection and laparoscopic resection in selected patients)
- Obesity surgery (Gastric Banding, Bypass, and Sleeve Resection)
- Thoracic Surgery (entire spectrum of thoracic surgery including Video Assisted Thoracic Surgery, VATS)
- Vascular Surgery (certified interdisciplinary centre for vascular and endovascular surgery)
- Endocrine Surgery (certified interdisciplinary centre for endocrine surgery), and special focus on Neuro-endocrine Tumor (NET)
- Transplant Surgery (kidney, pancreas, laparoscopic living kidney donation, and interdisciplinary transplantation centre)
- Peritoneotomy and Hyperthermic intraoperative Chemotherapy for Peritoneal Carcinosis (member of the German Workgroup "peritoneal carcinoma")
- Cytology and immunohistological board for pelvic floor disorders, incontinence treatment, e.g. sphincter repair, sacral nerve stimulation, and graciloplasty
- Chronic Inflammatory Bowel Diseases (Crohn’s Disease, Ulcerative Colitis, fistula disease, and liver resection for inflammatory conditions)
- Coloproctology (interdisciplinary board for pelvic floor disorders, incontinence treatment, e.g. sphincter repair, sacral nerve stimulation, and graciloplasty)
- Endoscopic Tumor Board (individual patient tailored treatment)
- Special surgery for chronic wounds

Emphases in Research

- Identification of genetic and tissue based biomarkers for early diagnosis and prognosis of solid tumors by genome, transcriptome, and proteome analyses with particular emphasis on colorectal cancer and pancreas cancer
- Coordination of the “NorthGerman Tumorbank to analyze Colorectal Cancer for improved early diagnosis, therapy, surveillance, and prognosis” (funded by the German Cancer Foundation (DKH e.V.)
- Cancer Stem Cell (CSC) research for elucidating carcinogenesis and improving therapies
- Detecting and analyzing Circulating Tumor Cells (CTCs) in the blood for improved, minimal invasive diagnosis, and therapy monitoring
- High-throughput clinical validation of marker panels for early diagnosis based on protein chip technology and tissue microarrays. Coordination of the German Government (BMBF) funded Consortium “ColonCancerScreeningChip” and Workpackage leader for clinical validation of the EU-project FLUODIAMON
- Cardiac, Thoracic, and Vascular Surgery Clinical Trials (ChirNET), conducting various regional, and nation-wide clinical studies
- Medical Engineering (development of navigated, tracked, motorized, and non-motorized instruments)
- One of five governmental funded (BMBF) regional centers for surgical clinical trials (ChirNET), conducting various regional, and nation-wide clinical studies

Emphases in Education

- Surgery core course
- Surgical basic skills course for students
- Basic skills course for minimally invasive surgery (laparoscopic skills OP 50)
- Regular student seminars for laboratory research techniques and Journal Club
- Supplementary seminar for final year students
- Regular educational courses for minimally invasive surgery for external surgeons
- Continuous tutorships in various national and international educational hands-on courses (e.g. Minimally Invasive colorectal surgery, European Surgical Institute (ESI); Visceral Surgery, Warnemünde; Summerschool; DGAV – Deutsche Gesellschaft für Allgemein- und Visceralchirurgie
- Thesis-exchange program for medical students and PhD students between the Department of Surgery, Lübeck Campus, University Clinic Schleswig-Holstein, National Cancer Institute (NIH, Bethesda, MD, USA), the Karolinska Institute (Stockholm, Sweden) and Harvard Medical School, Boston, USA
Department of Surgery

Additional Information/Services

• Reference center for Pancreatic surgery (DGAV, DKG)
• National center of excellence for minimal-nurse surgery (Dgav - Canes)
• Certified vascular center of the German Society for Vascular Surgery (DGG)
• Certified center of the German cancer society for Endocrine surgery (DKG)
• Certified center of the German Society for Thoracic Surgery (DKG)
• Consultation center of the German Incontinence Association
• Collaboration with referring doctors and clinics in pre and post inpatient care
Institute of Systemic Inflammation Research (ISEF)

Emphases in Patient Care
• The ISEF has no duties in patient care

Emphases in Research
• Immunology
  • Cross-talk between innate and adaptive immune responses and its impact on the development, mainten ance and resolution of autoimmunity, allergy, and infection.

• The ISEF is integrated in and largely contributes to one of the university’s main research foci, i.e. “Inflammation and Infection”, as documented by: (i) the direction of the DFG-funded International Research Training Group 1911 “Immunoregulation of Inflammation in Allergy and Infection”; (ii) several ongoing projects in the Excellence Cluster EXC 306 “Immunoregulation of Interfaces”; (iii) the Research Training Group 1727 “Modulation of Autoimmunity”; and (iv) the Clinical Research Unit 303 “Pemphigoid Diseases”. Prof. Köhl is head of the executive board of the Center for Infectious Diseases and Inflammatory Medicine Lübeck (Z.I.E.L.).

Emphases in Education
• Medical Microbiology, Hygiene and Immunology practical training courses for medical students
  • Infectiology and Immunology interdisciplinary courses
  • Lecture and seminar series for master’s students within the study programs “Molecular Life Sciences” and “Infection Biology” covering basic principles of Immunology.

Additional Information/Services
The ISEF hosts the technology platform “Cell Analysis Core” (CAnaCore) of the University of Lübeck comprising a 5-laser BD Aria III high-end cell sorter, a MoFlo Legacy cell sorter, the 4-laser BD LSRII high-end flow cytometer, and a confocal laser scanning microscope (Olympus Fluoview1000 with 4 lasers and 2 scanners).
Emphases in Patient Care
- Prostate, Penile, and Bladder Cancer
- Gonadal tumors, tumors of the kidney and ureter
- Stones of the urogenital tract
- Urogenital infections
- Cured Center for treatment of Incontinence
- Minimal invasive surgery
- Andrology
- Infertility
- Benign prostate syndrome
- Urogenital malformations
- Entire spectrum of open and endoscopic operations in urology
- Laser ablation, photodynamic diagnostic, and therapy for bladder carcinoma
- Laser ablation for therapy of prostate adenoma or carcinoma, and removal of urogenital tract stones
- Laparoscopic operations for oncologic and non-oncologic diseases
- Systemic and topic immunotherapy (BCG and vaccine)

- Microwave and radiofrequency ablations for benign and malignant diseases of the kidney and prostate
- Chemotherapy
- HDR-Brachytherapy

Emphases in Research
- Laparoscopic operations, 4K-Imaging, and single-port operations
- Laserenucleation of the Prostate
- Clinical trials in Urologic Oncology
- Immuno Oncology therapy of Urologic Carcinoma
- Mechanism of BCG-therapy in non-muscle invasives bladder carcinoma
- Mechanism of systemic chemotherapy
- Basic research on castration resistant prostate cancer (mCRPC)
- Molecular mechanism in infection of the urinary tract and vaccine therapy
- New molecular therapy
- New molecular diagnostics of bladder carcinoma
- Identification of prognostic parameters for bladder and kidney carcinoma

Emphases in Education
- Compulsory Courses: core lecture in Urology, practical course in Urology, and clinical rounds
- Elective Courses: Infectiology in Urology, scientific, and clinical information events
- Guidance for scientific researchers, in laser use in Urology, Andrology, Pathologic, Pharmacologic Clinical Colloquium, and license for registered Urologists
Institute of Clinical Chemistry

Emphases in Patient Care
- Clinical Chemistry
- Protein Chemistry
- Hematology
- Hemostaseology
- Endocrinology
- Immunology
- Therapeutic Drug Monitoring
- Point-of-Care Testing (POCT)
- More than 2,000 laboratory tests available
- Inpatient and outpatient care

Emphases in Education
- "Laboratory medicine" course, as well as clinically-oriented internships, and seminars covering all aspects of clinical chemistry for medical students
- Training of medical specialists and scientists

Additional Information/Services
- Experts hemostaseological diagnosis and treatment
- Experts in Neuroimmunology
- Accredited according to DIN EN ISO 15189
- Approximately 14 million analyses per year

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Director
Prof. Dr. Ralf Junker

Universitätsklinikum Schleswig-Holstein
Institute of Clinical Chemistry
Campus Kiel
Campus Lübeck
Central Unit State Medical Analysis Laboratory/Department for Hospital and Environmental Hygiene

Emphases in Patient Care

- Full spectrum of diagnostics in hospital and environmental hygiene
- Accredited laboratories according to DIN ISO EN 17025
- Clinical advice for hospital hygiene
- Infection control of outbreaks
- Environmental hygiene, water, and air

Emphases in Research

- Disinfectants and disinfection procedures
- Fungi and organic compounds in room air
- Trihalomethane in swimming pool water
- Bacterial diversity in drinking and bathing water

Emphases in Education

- Full specialization training in hygiene and environmental medicine
- Training of medical and nursing staff
- Officially recognized laboratory for drinking water tests
- Test laboratory for bathing and swimming pool water
- Testing of disinfectants and disinfection procedures
- Advice in technical and construction hygiene
- Medical analysis office of the state of Schleswig-Holstein
- Service function for the communal health administrations
- Infection control service for external hospitals

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Institute of Human Genetics

Emphases in Education

• For medical students: Organization of the obligate classes of “Human Genetics” (practical course/lecture/test). Participation in classes, “Biology of the Cell” (practical course, lecture), “Methods of Scientific Work” and interdisciplinary lecture series “Current Questions of Medical Ethics”; Practical training year for last-year students

Emphases in Patient Care

• Cytogenetic, Molecular Cytogenetic and Molecular Genetic Diagnostics
  • Molecular genetic analyses of monogenic and multifactorial disorders
  • Whole Exome and Genome Sequencing
  • Analyses of Constitutional Chromosome Alterations (Prenatal and Postnatal)
  • Analyses of tumor-associated chromosomal aberrations including reference diagnostics for clinical trials
  • Molecular Cytogenetic (e.g. FISH) and array-based analysis (Array-CGH) of constitutional chromosome aberrations
  • Diagnosis of disorders caused by epigenetic changes (e.g. imprinting defects)

Clinical genetics and genetic counseling for:
• All types of Hereditary Disorders (Monogenic, Multifactorial, and Epigenetic)
• Diagnosis of Malformation and Retardation Syndromes

• Predictive Genetic testing
• Hereditary Cancer Syndromes
• High risk pregnancies (autosomal or genetic)
• Infertility and recurrent miscarriage

Emphases in Research

• Identification non-coding mutations and structural variants as the cause of human disease
• Identification of new candidate genes and epigenetic changes linked to human disease
• Pathophysiological role and clinical relevance of genetic and epigenetic abnormalities in Hematopoietic (Leukemia, Lymphomas) and solid tumors
• Imprinting disorders and syndromes caused by chromosomal (micro)aberrations
• Development of new technologies for genetic and epigenetic research and diagnostics
• Development of single cell technologies
Institute of Transfusion Medicine

Emphasises in Patient Care

• Supply of Blood Products for patients of the University Hospital: Red blood cell concentrates, platelet concentrates, and fresh frozen plasma
• Supply of Special Blood Products for Patients of the University Hospital: Irradiated blood products, HLA and HPA selected platelets
• Blood transfusion laboratory: Blood grouping, antibody differentiation, cross-matching, hemolytic anemias
• Transplantation Laboratory: HLA typing, antibody differentiation, cross-matching Stem cell therapy, Stem cell mobilization, and procurement
• TRALI Screening Laboratory: Transfusion related acute lung injury (TRALI), and autoimmune thrombocytopenia
• Molecular Diagnostics: Blood groups, platelet and granulocyte antigens, and sequencing
• Perinatal Diagnostics: Hemolytic disease of the newborn, and neonatal alloimmune thrombocytopenia
• Bone Marrow Donor Registry
• Clinical Hemotherapy with 24-hour counseling

Emphasises in Research

• Allimmune Thrombocytopenia of the newborn
• Mediators of TRALI Syndrome
• Transfusion-Transmitted Viruses
• Immune regulation by complement

Emphasises in Education

• Blood cells, Rational hemotherapy, Transfusion reactions, Immune thrombocytopenia, TRALI syndrome, and Transfusion-transmitted diseases
Department of Physiotherapy (Occupational Therapy and Speech Therapy)

- Our physiotherapists work throughout the different faculties of the hospital and are specially trained in the various fields of medicine
- Physiotherapy must be prescribed and demanded by the attending doctor
- Daily consultations are conducted in a multi-professional team
- Physiotherapy assessments and developments of patient-oriented up-to-date plans follow the consultation

Areas of Work

- Early mobilization
- Enhancing respiratory functions, e.g. breathing and coughing
- Improvement of movement and muscle functions
- Rehabilitation of muscle strength, balance, and coordination
- Preservation and regaining activities of daily life
- Individual and group therapy in the center of integrative psychiatry

The Physiotherapists are Specially Qualified in the Following Therapies

- Manual therapy
- Manual lymphatic drainage
- Reflective and holistic respiratory therapy
- Bobath therapy
- Brügger therapy
- Early mobilization on ICU
- Palliative Medicine
- Usage of Orthoses
- Group therapies, e.g. Qi Gong, Body Perception, Training Therapy, Circuits, and Nordic Walking

Emphasis in Research

- Early mobilization on ICU
- Respiratory therapy on ICU
- Weaning Station
- Geriatric Medicine
- Sports Therapy in juvenile oncological patients
- Mobilization and special care in Neurogerontology and stroke units
Wissen schafft Gesundheit