

## Faculty of Health Sciences at the University of Cape Town

### ANAESTHESIA

- Cardiac anaesthesia
- Cardiac surgery
- Liver transplants
- Separation of conjoined twins
- Burns unit
- Multi-discipline Paediatric Intensive Care Unit

#### Supports following ICUs

- Respiratory intensive care unit
- Surgical intensive care unit

#### Centre for Pain Management

- Patients with chronic pain
- Acute pain service available for postoperative patients

### CHILDHOOD AND ADOLESCENT HEALTH

- Full range of paediatric disciplines:
  - Paediatric medicine
  - Paediatric surgery
  - Paediatric nursing
  - Paediatric pathology
  - Paediatric radiology
  - Paediatric anaesthetics
  - Paediatric pulmonology
- Children's public health
- Pathology
- Psychiatry in maternal and child health
- Child and adolescent psychiatry
- Child health unit
- Critical care and children's heart disease
- Neonatology

#### Clinical Services:

- Ambulatory and emergency
- Allergy
- Community

- Dermatology
- Diabetes
- Endocrine
- Gastroenterology, hepatology and nutrition
- Haematology / oncology
- Infectious diseases and immunology
- Nuclear medicine
- Poisons
- Rheumatology

## CLINICAL LABORATORY SCIENCES

### A. ANATOMICAL PATHOLOGY

- Diseases common in SA:
- Tuberculosis • Cardiomyopathy • Foetal-alcohol syndrome
- Various cancers:
- Oesophageal • Gastric • Breast • Cervical • Colorectal and hepatocellular carcinomas • Childhood cancers
- Renal and liver pathology
- Neonatal pathology
- Neuropathology
- Immunohistochemistry
- Electron microscopy

### B. CHEMICAL PATHOLOGY

- Deals with metabolic disease
- Basic biochemistry
- Cell biology
- Molecular biology

### C. FORENSIC MEDICINE AND TOXICOLOGY

- Violence against women and children

- Role of drugs and toxins in death
- Firearm injuries

## D. HAEMATOLOGY

- Outpatient clinics
- Diagnostic and research laboratories

## E. HUMAN GENETICS

- Primary health care in community outreach clinics
- Highly sophisticated quaternary services
- Heritable disorders which cause childhood handicap incl:
  - Blindness • Crippling • Profound deafness • Mental retardation
- Clinical rotations in prenatal, paediatric and adult medical genetics incl exposure to:
  - Dysmorphology • Teratogenic disorders • Metabolic disorders • Neurogenetics • Cardiogenetics • Cancer genetics
- Theoretic and practical education in genetic counselling and communication
- Lab rotations in cytogenetics and molecular genetics

## F. IMMUNOLOGY

- Immunology of infectious diseases
- Innate immunity and allergy
- Important advances in diseases e.g.
  - Tuberculosis • Bilharzia • African Trypanosomiasis • T-cell cytokine responses to allergens (immunotherapy) and mTB protein • Clinical trials in UCT Lung Institute conducted in areas of:
    - o Antihistamines
    - o Asthma
    - o Eczema

## G. MEDICAL BIOCHEMISTRY

- GnRH receptors, signalling, structure function and as target for development of therapeutics for treatment of reproductive cancers
- Role of cyclooxygenases and prostaglandins in cervical cancer and other uterine pathologies
- Identification of differentially regulated genes associated with the development of cervical cancer
- The role of the transcription factor AP-1 in oncogenesis
- Molecular mechanisms involved in the development and maintenance of oesophageal cancer
- Identification and characterisation of novel compounds that can be used in the treatment of cancer
- Angiotensin converting enzyme (ACE) Structure activity relationships and development of ACE inhibitors for treatment of hypertension, congestive heart failure, myocardial infarction and renal disease
- Application of functional proteomics for diagnostics, drug and vaccine development for infectious disease and cancers

## H. MEDICAL VIROLOGY

- Referral laboratory for a large proportion of the regional virus identification
- Members are part of national and international programmes to:
  - Discover an effective vaccine against HIV
  - Developed candidate HIV vaccines that have been tested in clinical trials
- Participates in the WHO human papillomavirus laboratory network (Labnet)
- Collaborating partner in the WHO African AIDS Vaccine Collaborative Centre in Biomedical Research
- Interest in working on development of novel diagnostic tools for some of the more neglected but still clinically relevant viral diseases that are common in Africa

## I. MEDICAL MICROBIOLOGY

- Full range of microbiological diagnostic services including state-of-the-art molecular diagnostics
- Involved in research activities:
  - Basic science
  - Clinical and diagnostic trials

- Defining the epidemiology and strain biology of major infectious diseases in Southern Africa
- Important areas of research focus on:
  - Tuberculosis • Bacterial antibiotic resistance • Nosocomial pathogens • Outbreak surveillance
  - Developing and evaluating novel diagnostics which are applicable in low-resource settings

## HEALTH AND REHABILITATION SCIENCES

### A. COMMUNICATION SCIENCES AND DISORDERS

- Speech-language pathologists and audiologists work with people who have difficulty hearing, speaking and swallowing
- Speech-Language Pathology is the profession dealing with the management of communication disorders such as:
  - Articulation • Voice • Fluency • Language and learning • Swallowing in children and adults
  - Speech-language therapists work in addressing communication health
  - Audiology is the profession dealing with the:
    - Management of hearing • Hearing impairment • Deafness, noise measurement and control
    - Audiologist diagnoses hearing loss and initiates rehabilitation to help the person cope with everyday communicative demands, including the selection and fitting of hearing aids, in adults and children; emotional, linguistic and cognitive functioning and to their home, work and social environment
    - Rehabilitation also involves aural rehabilitation with adults and children, skills development and education of others
    - Audiologists also measure and manage exposure to noise in the work environment to help prevent hearing loss

### B. NURSING AND MIDWIFERY

- Committed to the development of competent, caring and autonomous professional nurses and midwives capable of creative and critical thought

## C. OCCUPATIONAL THERAPY

- When one's ability to do things for themselves is disrupted by illness or injury, occupational therapy (OT) helps to restore function and improve quality of life
- Therapists use real occupations to help people who have been ill, injured or disabled to recover their skills, or to develop new ones. This includes:
  - Visiting and assisting clients at home and at work
  - Treating patients in clinics and hospitals
  - Assisting growth and development of disabled children at school
  - Promoting the integration of people with physical and mental health concerns

## D. PHYSIOTHERAPY

- Physiotherapy is a client-centered profession that aims at optimizing quality of life. This includes:
  - Promotion of a healthy life-style
  - Prevention of illness and injury for those at risk
  - Exercise therapy and electrotherapy to reduce pain
  - Promote healing and improve function
- Holistic approach to management includes counselling which empowers both client and caregiver to improve quality of life
- Service is offered to clients of all ages with conditions such as:
  - Headaches
  - Bronchitis
  - Asthma
  - Cerebral palsy
  - Strokes
  - Fractured bones
  - Stiff joints
  - Sports injuries
  - Painful necks and backs

## HUMAN BIOLOGY

### A. APPLIED ANATOMY AND BIOLOGICAL ANTHROPOLOGY

- Biological anthropology tries to understand human variation and human evolution

- Topics such as:
  - Comparative growth studies • Demography • Primate behaviour • Skeletal biology • Forensic anthropology
  - Applied anatomy tries to understand human structure and function
  - Topics such as:
    - Clinical anatomy • Structural embryology • Growth and development • Comparative anatomy

## B. BIOMEDICAL ENGINEERING AND MEDICAL IMAGING

### 1. Biomedical Engineering:

- Medical imaging and signal processing
- Biomechanics
- Healthcare technology management
- Rehabilitation engineering

### 2. Medical Imaging:

- Conduct world-class research in medical imaging that specifically addresses the healthcare needs of Africa

## C. CELL BIOLOGY

- Encompasses diverse approaches to understanding normal cellular processes and how they are altered in disease. This includes:
  - Study of melanocytes and melanoma • Neuronal development and regeneration • Stem cells • Identification of novel therapeutic approaches to treat diseases ranging from pigmentary and neuronal disorders to cancer as well as vascular biology in ocular development and disease

## D. MRC/UCT RESEARCH UNIT FOR EXERCISE SCIENCE AND SPORTS MEDICINE (ESSM)

- Research factors influencing physical performance and health and to disseminate knowledge and skills through education.
- Develop a novel understanding of integrated human function during exercise and to use this knowledge:

- To promote health and well-being
- To treat and prevent specific chronic diseases
- To treat and prevent injuries and medical conditions associated with sport and exercise
- To optimize exercise performance

- Courses offered:

- Exercise Science (Hons)
- Exercise Science (Biokinetics) (Hons)
- Sport and Exercise Medicine (Masters)
- Physiotherapy (Masters)

## E. NEUROSCIENCE

- Neurodegenerative disorders (e.g. Parkinson's Disease)
- Attention Deficit Hyperactivity Disorder (ADHD)
- Neurophysiology and cellular architecture of the mammalian visual system
- Comparative aspects of neural development
- Regeneration and degeneration in lower and higher vertebrates

## F. NUTRITION AND DIETETICS

- Train versatile, excellent nutrition scientists and professional dietitians with a special expertise in addressing the needs of Africa

## G. PHYSIOLOGY

- Exercise and neurophysiology
- Main research fields of specialization in the department include the:
  - Cardiovascular system and neuroscience research
  - Mostly animal models of human disorders
  - Effects of stress, aging and exercise on the brain.

## MEDICINE

- Divisions and research units include:
  - Albertina & Walter Sisulu Institute of Ageing in Africa / Geriatric Medicine
  - Acute Tertiary Medicine
  - Allergology
  - Cardiology



- Casualty
- Clinical Skills
- Clinical Haematology
- Clinical Pharmacology
- Endocrinology & Diabetic Medicine
- Dermatology
- Gastroenterology
- Hatter Institute for Cardiology Research
- Hepatology
- Infectious Diseases
- Lipidology
- Lung Infection and Immunity Unit
- Nephrology & Hypertension
- Respiratory Medicine
- Rheumatology
- UCT Lung Institute

#### A. ACUTE TERTIARY MEDICINE

- A team of physicians with interests and expertise in general medicine, skilled in handling undifferentiated problems, cares for patients

#### B. BIOETHICS CENTRE

- Centre offers a bioethics consultation service, as well as regular teaching and consultation sessions at all UCT-affiliated hospitals, including the Red Cross Children's Hospital

#### C. CARDIOLOGY

- Electrophysiology
- Evaluation for heart transplantation

#### D. CLINICAL PHARMACOLOGY

- Assays for drugs of abuse

- Therapeutic level monitoring for patients on a variety of regimens from anticonvulsants to immunosuppressants
- Assays on request utilising mass-spectrometry linked HPLC
- Division maintains several active research groupings. Primary interests include:
  - Identification of novel compounds from plants used medicinally by traditional healers
  - Clinical pharmacokinetics of anti-tuberculosis drugs
  - Clinical pharmacokinetics of antiretroviral drugs
  - Several aspects of study into anti-malarial drug action at the in vitro, in vivo and clinical levels

## E. GASTROENTEROLOGY

- Hepatobiliary disease - surgical
- Colorectal disease - surgical
- Oesophageal disease - medical/surgical
- Inflammatory bowel disease - medical/surgical
- H.pylori-related disease - medical

## F. GERIATRIC MEDICINE

- Division collaborates closely with other units in the Faculty of Health Sciences that have a specific focus on ageing, like Gerontology and Psychogeriatrics

## G. HATTER HEART INSTITUTE

- Cardiac protection against ischaemia
- The molecular biology of cardiac hypertrophy
- Molecular, cellular and physiological basis of heart diseases

## H. HEPATOLOGY

- Dedicated hepatological expertise
- Liver transplantation services
- Unique porphyria diagnostic and clinical service
- Clinical and laboratory-based research on liver disease and porphyria

## I. INFECTIOUS DISEASES

- Inpatient and outpatient consulting service
- Provides dedicated HIV/AIDS clinics
- In clinical research, particularly in the fields of tuberculosis and HIV

## J. LIPIDOLOGY

- Clinical services
- Clinical research
- Diagnostic investigation for dyslipidaemia
- Laboratory research

## K. NEPHROLOGY

- Renal/porphyria laboratory
- Active transplant and dialysis service
- Renal transplants

## L. NEUROLOGY

- Operates a general clinical neurological service. This includes:
  - In-patients
  - Out-patients
  - An acute stroke unit
  - Neurophysiology laboratory
  - Referral and emergency service
- Specialised clinics for:
  - Stroke
  - Myasthenia gravis
  - Epilepsy
  - Neuro-genetic disorders
  - Dystonia

## M. RESPIRATORY MEDICINE

- Multiple tertiary services with a considerable research output
- Outpatients' Clinic and the Respiratory Intensive Care Units at Groote Schuur Hospital
- G F Jooste Hospital High Care Unit
- Brooklyn Chest and Brewelskloof Tuberculosis Hospitals

- Thoracic Surgery Clinics - providing the basis for a consolidated thoracic service, both medical and surgical

## OBSTETRICS AND GYNAECOLOGY

### A. GENERAL GYNAECOLOGY

### B. PENINSULA MATERNAL AND NEONATAL SERVICE (PMNS)

- PMNS is a regional system of co-ordinated and tiered obstetric care based upon primary health care principles and associated with the delivery of basic midwifery services to women within their own communities
- Success of the PMNS as a system of health care is derived from several factors that include:
  - Ability to provide a unitary system of care that recognises common protocols, a common process of patient administration and common lines of clinical authority
  - Common ability to audit and intervene at all levels of management without restriction

### C. REPRODUCTIVE MEDICINE

### D. UROGYNAECOLOGY

- Represents an interface between gynaecology and urology, as physiological events or diseases affecting the genital tract may also affect the adjacent urinary system
- Following disorders:
  - Congenital anomalies
  - Incontinence
  - Voiding difficulties
  - Urinary fistulae
  - Bladder neuropathy
  - Genital prolapse
  - Urgency and frequency
  - Urinary tract infection

### E. GYNAECOLOGY ONCOLOGY

- Radiation Oncology
- Anatomical Pathology

- Colposcopy Clinic
- Gynaecology Oncology Pathology Meeting
- Combined Assessment Clinic
- Ovary Cancer Clinic
- Radiotherapy Clinic
- Vulval Clinic
- Molar Clinic
- Hysteroscopy clinic
- Gynaecological trials unit
- Gynaecological Cancer Group

## F. MATERNAL FETAL MEDICINE

- Provides tertiary services to pregnant women referred from the various components of the PMNS
- Unit consists of a fetal medicine service and a number of clinics that cater for women with medical disorders in pregnancy
- Anaesthesiology
- Cardiology
- Neurology
- General medicine
- Paediatrics
- Nephrology

## PSYCHIATRY AND MENTAL HEALTH

- Addiction psychiatry/psychology
- Child and adolescent psychiatry and mental health
- Community and public health psychiatry/psychology
- Consultation-liaison psychiatry/psychology
- Forensic psychiatry/psychology
- Infant psychiatry and mental health
- Inpatient psychiatry
- Intellectual disability psychiatry/psychology
- Neuropsychiatry/neuropsychology (including HIV psychiatry)
- Psychotherapy
- Women's mental
- Mental health services and policy
- Social determinants of mental health
- Perinatal mental health
- Adolescent risk behaviour

- HIV/AIDS
- Schizophrenia
- Bipolar disorder
- Depression
- Anxiety disorders (including posttraumatic stress disorder)
- Foetal alcohol syndrome
- Violent crime
- Substance abuse

## PUBLIC HEALTH AND FAMILY MEDICINE

- Health Economics Unit
- Centre for Occupational and Environmental Health Research
- Centre for Infectious Disease Epidemiology & Research
- Women's Health Research Unit
- Health and Human Rights Programme
- Health Policy and Health Systems

## RADIATION ONCOLOGY

- Provide good quality, specialised care for patients with cancer
- Create an uplifting environment for patients, and all who contribute to their well-being
- Palliative treatment
- Surgery
- Radiation therapy
- Chemotherapy
- Hormonal therapy
- Biological therapy
- Best supportive care

## SURGERY

- General Surgery
- Cardiothoracic Surgery
- Emergency Medicine
- Neurosurgery
- Ophthalmology
- Orthopaedic Surgery

- Otorhinolaryngology
- Plastic and Reconstructive Surgery
- Urology

## A. GENERAL SURGERY

- Four surgical firms of:
  - Colorectal Surgery • Hepatobiliary Surgery • Surgical Oncology • Vascular Surgery
- Trauma Unit
- Surgical Intensive Care Unit
- Transplant Unit
- Surgical Gastrointestinal Unit

## B. OTORHINOLARYNGOLOGY

- Full spectrum of pathology at the levels of both the developed world and the developing world is experienced
- Comprehensive ENT service to state patients and to private patients