



# **ZAMBIA COLLEGE OF MEDICINE & SURGERY**

*Advancing Specialist Care & Professional Growth*

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Specialty Training Programme

Curriculum & learning guide

for

**PAEDIATRIC SURGERY**

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## Table of Contents

GENERAL INTRODUCTION .....	3
Vision .....	4
Mission Statement.....	4
Values: .....	4
RATIONALE FOR THE SPECIALTY TRAINING PROGRAMME IN PAEDIATRIC .....	5
SURGERY .....	5
Outcome 1. Apply, at mastery level, Biomedical Sciences, Behavioural & Sociology, and .....	5
Scientific Principles to the Practice of Paediatric Surgery .....	5
Outcome 2. Competence, at mastery level, in Paediatric Surgery Clinical Practice....	7
Category I: Scientific foundations .....	9
Category II: Clinical Skills .....	9
Category III: Communication and Interpersonal Skills .....	9
Category IV: Prevention .....	9
Category V: Diagnosis .....	9
Category VI: Treatment, Acute and Chronic.....	9
Category VII: Patient Safety .....	10
Category VIII: Information Management.....	10
Category IX: Ethics, Humanities, and the Law.....	10
Category X: Professionalism .....	10
Category XI: Leadership & Management.....	10
ADMISSION CRITERIA TO THE SPECIALTY TRAINING PROGRAMME IN .....	10
PAEDIATRIC SURGERY .....	10
CURRICULUM DESIGN/MODEL OF THE SPECIALTY TRAINING PROGRAMME IN .....	11
.....	11
PAEDIATRIC SURGERY .....	11
TEACHING METHODS IN THE SPECIALTY TRAINING PROGRAMME IN PAEDIATRIC .....	11
.....	11
SURGERY .....	11
SPECIALTY TRAINING PROGRAMME IN PAEDIATRIC SURGERY CURRICULUM	12
STRUCTURE AND MAP .....	12
ASSESSMENT IN THE SPECIALTY TRAINING PROGRAMME IN PAEDIATRIC .....	13
SURGERY .....	13
Grading Scheme .....	14
PAEDIATRIC SURGERY HANDBOOK & CURRICULUM.....	15
YEAR 1 .....	18
YEAR 2 .....	25
YEAR 3 .....	32
YEAR 4 .....	34
INDICATIVE RESOURCES .....	37

## GENERAL INTRODUCTION

This Curriculum and Learning Guide describes the work and competence-based professional training programme for the Specialty Training Programme (STP) in Paediatric Surgery (PS) in Zambia. The intended readership for the curriculum and guideline include the following:

- Trainees, host departments and managers of PS healthcare services;
- STP PS trainers, which includes all those involved in supervising, coordinating, assessing and delivering specialist education and training in PS;
- Academic, administrative and professional staff within Higher Education Institutions (HEIs), the Higher Education Authority (HEA), and the Zambia Qualifications Authority (ZAQA);
- Strategic partners involved in supporting PS care and the training of healthcare practitioners in its various related fields.

Zambia College of Medicine and Surgery (ZACOMS) advances professional training of medical specialists using the professional competence-based certification model beyond traditional university-based specialist training. It promotes specialist training as a vital pursuit for a successful professional medical career. ZACOMS also promotes the increase in universal health coverage (UHC) by promoting equitable access to cost-effective quality specialist care as close to the family as possible for people in Zambia at all levels of socioeconomic status and geographical location. ZACOMS certifies and admits members and/or fellows as specialists in a medical and/or surgical specialty in any of the various specializations of medicine and surgery.

The Zambia College of Medicine and Surgery (ZACOMS) oversees the training of Paediatric Surgery specialists working through the Surgical Society of Zambia (SSZ). The programme is independent but is aligned to the curriculum and requirements of the College of Surgeons of East Central and Southern Africa (COSECSA).

Paediatric Surgery encompasses the surgical care of the growing individual. It requires specialized knowledge and skills in managing congenital and acquired diseases and injuries in most organ systems, to be treated by surgical methods, including management, peri-operative care and rehabilitation from foetus to the final stages of development. The STP PS training provides specialist training in Paediatric Surgery. This is a relevant programme because of the critical shortage of Paediatric Surgeons. The STP PS will equip trainees with core competencies reflecting the wide array of Paediatric Surgical pathology. This will mean for every trainee who completes this programme, the population they serve will have gained access to a Paediatric Surgeon with the prerequisite core competencies. Furthermore, the graduate of this programme will offer support to the various other specialties, improving outcomes in the management of a broad spectrum of pathology.

### **Vision**

Our vision is to be innovative in providing a teaching and support structure that will empower every trainee to excel in Paediatric Surgery knowledge, skills and research through internal and external collaboration.

### **Mission Statement**

The mission of the STP PS training in Zambia is to train specialists who shall endeavour to improve the Paediatric Surgery health care services to all by providing safe, evidence based, humanistic specialist care in the field of Paediatric Surgery in an efficient and proficient manner to meet the needs of the Zambian community, and contribute to the field of Paediatric Surgery in the region and globally.

### **Values:**

- Professional excellence
- Integrity
- Sensitivity to reproductive health needs
- Interdisciplinary, inter institutional collaboration

- Continuous professional development
- Innovation
- Academic Excellence
- Self and peer review

## **RATIONALE FOR THE SPECIALTY TRAINING PROGRAMME IN PAEDIATRIC SURGERY**

The STP PS aims to train specialists in Paediatric Surgery in order to prepare them for specialist service in the healthcare service. The STP PS aims to bridge the critical shortage of Paediatric Surgeons by advancing professional training of Paediatric Surgeons using the competence-based certification model beyond traditional university-based specialist training. Simply put, this model works on the principle that every health facility equipped well enough to support a Paediatric Surgery practice has the basic requirements to train a Paediatric Surgeon. The curriculum is informed by the training requirements of the Health Professions Council of Zambia (HPCZ) and the professional creed of the Surgical Society of Zambia (SSZ). The training programme encourages self-directed learning, life-long learning, and student-centred approaches while providing robust and structured guidance. The key outcomes are twofold as stipulated in Outcomes 1 and 2 below:

### **Outcome 1. Apply, at mastery level, Biomedical Sciences, Behavioural & Sociology, and Scientific Principles to the Practice of Paediatric Surgery**

1. The graduate should be able to apply to Paediatric Surgery practice biomedical scientific principles, method and knowledge relating to anatomy, biochemistry, cell biology, genetics, immunology, microbiology, nutrition, pathology, pharmacology and physiology. The graduate should be able to:
  - a) Explain normal human structure and function relevant to Paediatric Surgery.
  - b) Explain the scientific bases for common diseases and conditions' signs, symptoms and treatment relevant to Paediatric Surgery.

- c) Justify and explain the scientific bases of common investigations for diseases and conditions relevant to Paediatric Surgery.
  - d) Demonstrate knowledge of drugs, drug actions, side effects, and interactions relevant to Paediatric Surgery.
2. Apply Behavioural and Sociology Principles to the Practice of Paediatric Surgery
- a) Explain normal human behavior relevant to Paediatric Surgery.
  - b) Discuss psychological and social concepts of health, illness and disease relevant to Paediatric Surgery.
  - c) Apply theoretical frameworks of psychology and sociology to explain the varied responses of individuals, groups and societies to Paediatric Surgery.
  - d) Explain psychological and social factors that contribute to illness, the course of the disease and the success of Paediatric Surgery interventions.
3. Apply Population Health to the Practice of Paediatric Surgery
- a) Discuss population health principles related to determinants of health, health inequalities, health risks and surveillance relevant to Paediatric Surgery.
  - b) Discuss the principles underlying the development of health and health service policy, including issues related to health financing, and clinical guidelines relevant to Paediatric Surgery.
  - c) Evaluate and apply basic principles of infectious and non-communicable disease control at community and hospital level relevant to Paediatric Surgery.
  - d) Discuss and apply the principles of primary, secondary, and tertiary prevention of disease relevant to Paediatric Surgery.
4. Apply Scientific Method and Approaches to Paediatric Surgery Research.
- a) Evaluate research outcomes of qualitative and quantitative studies in the medical and scientific literature relevant to Paediatric Surgery.
  - b) Formulate research questions, study designs or experiments to address the research questions relevant to Paediatric Surgery.

- c) Discuss and apply appropriate research ethics to a research study relevant to Paediatric Surgery.

## **Outcome 2. Competence, at mastery level, in Paediatric Surgery Clinical Practice.**

On successful completion of the work-based Paediatric Surgery STP:

1. The trainees should have clinical and specialist expertise in Paediatric Surgery, underpinned by broader knowledge, skills, experience and professional attributes necessary for independent practice;
2. The trainees should be able to undertake complex clinical roles, defining and choosing investigative and clinical options, and making key judgements about complex facts and clinical situations.
3. The trainees should contribute to the improvement of Paediatric Surgery services in the context of the national health priorities, by means of outstanding scientific research and application of safe, high quality, cost effective, evidence based practice within the Zambian health system.
4. The trainees should possess the essential knowledge, skills, experience and attributes required for their role and should demonstrate:
  - A systematic understanding of clinical and scientific knowledge, and a critical awareness of current problems, future developments, research and innovation in Paediatric Surgery practice, much of which is at, or informed by, the forefront of their professional practice in a healthcare environment;
  - Clinical and scientific practice that applies knowledge, skills and experience in a healthcare setting, places the patient and the public at the centre of care prioritizing patient safety and dignity and reflecting outstanding professional values and standards;
  - Clinical, scientific and professional practice that meets the professional standards defined by the Health Professions Council of Zambia (HPCZ);
  - Personal qualities that encompass self-management, self-awareness, acting with integrity and the ability to take responsibility for self-directed learning, reflection and action planning;

- The ability to analyze and solve problems, define and choose investigative and scientific and/or clinical options, and make key judgments about complex facts in a range of situations;
  - The ability to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and to communicate their conclusions clearly to specialist and non-specialist audiences including patients and the public;
  - The ability to be independent self-directed learners demonstrating originality in tackling and solving problems and acting autonomously in planning and implementing tasks at a professional level;
  - A comprehensive understanding of the strengths, weaknesses and opportunities for further development of Paediatric Surgery as applicable to their own clinical practice, research, innovation and service development which either directly or indirectly leads to improvements in clinical outcomes and scientific practice;
  - Conceptual understanding and advanced scholarship in their specialism that enables the graduate to critically evaluate current research and innovation methodologies and develop critiques of them and, where appropriate, propose new research questions and hypotheses;
  - Scientific and clinical leadership based on the continual advancement of their knowledge, skills and understanding through the independent learning required for continuing professional development.
5. Once registered as a specialist in Paediatric Surgery, a range of career development options will be available including sub-specialist training. Alternatively, others may opt to undertake further career development in post, as specialist, through structured Continuing Professional Development (CPD), provided by Accredited CPD providers. Specialist paediatric surgeons who have successfully completed the STP PS will be eligible to compete for available Consultant positions in Paediatric Surgery.

The outcomes of the STP PS training are affiliated to the following curriculum outcome categories:



### **Category I: Scientific foundations**

**Goal 1:** Understand the normal structure and function of the human body, at levels from molecules to cells to organs, to the whole organism.

**Goal 2:** Understand the major pathological processes and their biological alterations.

**Goal 4:** Understand how the major pathologic processes affect the organ systems.

**Goal 5:** Integrate basic science and epidemiological knowledge with clinical reasoning.

**Goal 6:** Understand the principles of scientific method and evidence-based medicine including critical thinking.

### **Category II: Clinical Skills**

**Goal 7:** Obtain a sensitive, thorough medical history.

**Goal 8:** Perform a sensitive and accurate physical exam including mental state examination.

**Goal 9:** Establish and maintain appropriate therapeutic relationships with patients.

### **Category III: Communication and Interpersonal Skills**

**Goal 11:** Develop the knowledge, skills, and attitudes needed for culturally-competent care.

**Goal 12:** Participate in discussion and decision-making with patients and families.

**Goal 13:** Work effectively with other providers in the health system.

**Goal 14:** Clearly communicate medical information in spoken and written form.

### **Category IV: Prevention**

**Goal 15:** Develop knowledge, skills, and attitudes to practice the basic principles of prevention.

**Goal 16:** Practice personalized health planning for long-range goals.

**Goal 17:** Understand the planning for communities and populations.

### **Category V: Diagnosis**

**Goal 18:** Elicit and correctly interpret symptoms and signs of Paediatric Surgery conditions.

**Goal 19:** Diagnose and demonstrate basic understanding of common disease and conditions.

**Goal 20:** Appropriately use testing to help guide diagnostic and therapeutic decisions.

**Goal 21:** Demonstrate sound clinical reasoning.

### **Category VI: Treatment, Acute and Chronic.**

**Goal 22:** Understand therapeutic options and participate in the multidisciplinary care of patients with complex problems.

**Goal 23:** Recognize acute life-threatening medical problems and initiate appropriate care

**Goal 24:** Acquire the knowledge and skills necessary to assist in the management and rehabilitation of chronic diseases.

**Goal 25:** Participate in care in a variety of settings; including knowledge about palliative care.

#### **Category VII: Patient Safety**

**Goal 26:** Identify and remove common sources of medical errors.

**Goal 27:** Understand and apply models of Quality Improvement.

**Goal 28:** Appreciate the challenges associated with reporting and disclosure.

#### **Category VIII: Information Management**

**Goal 29:** Use information and educational technology to facilitate research, education, and patient care.

#### **Category IX: Ethics, Humanities, and the Law**

**Goal 30:** Develop a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

**Goal 31:** Develop a critical understanding of the multiple factors that affect the practice of medicine, public health and research.

**Goal 32:** Incorporate ethical principles in clinical practice and research.

#### **Category X: Professionalism**

**Goal 33:** Develop healthy self-care behaviours and coping skills.

**Goal 34:** Model service to patients and community.

#### **Category XI: Leadership & Management**

**Goal 35:** Develop interpersonal and communication skills that result in leadership in patient health service delivery and health human resource management.

### **ADMISSION CRITERIA TO THE SPECIALTY TRAINING PROGRAMME IN PAEDIATRIC SURGERY**

Applicants to the STP PS must possess a primary qualification in medicine, that is, Bachelor of Medicine and Bachelor of Surgery (MB ChB) or equivalent, from a recognized university. Additionally, they must have completed internship and retain full registration and a practising licence issued by the Health Professions Council of Zambia. Other Ministry of Health policies and directives, for example, completion of rural posting, may apply.

## **CURRICULUM DESIGN/MODEL OF THE SPECIALTY TRAINING PROGRAMME IN PAEDIATRIC SURGERY**

The STP PS Curriculum is a work-based professional competence-based training situated in an accredited training facility managed by specialists in Paediatric Surgery with oversight by the Zambia College of Medicine and Surgery (ZACOMS) working through SSZ. This curriculum is based on a process model of curriculum and is designed to be flexible and open ended rather than predetermined; maximizing the potential for growth and development.

During the STP PS programme the specialty registrar is an integral member of the clinical work of the department in which they are training to gain the required clinical experience and competence. The STP PS programme is a work based professional competence-based training leading to the award of the Certificate of Completion of Specialty Training (CCST) by the Zambia College of Medicine and Surgery (ZACOMS). Graduates are then eligible to apply to the Health Professions Council of Zambia to enter the Specialist Registers in Paediatric Surgery.

## **TEACHING METHODS IN THE SPECIALTY TRAINING PROGRAMME IN PAEDIATRIC SURGERY**

The STP PS training is a work-based professional competence-based programme and should encompass diverse teaching and learning approaches that are appropriate for the target educational domain, i.e., cognitive (knowledge), psychomotor (practical), or affective (attitude) domain. The teaching methods may include, but not limited to, the following: expository lectures, tutorials, seminars, practical classes, skills laboratories, clinical demonstrations, clinical clerkships (bedside teaching, ward rounds, ambulatory care teaching, operating theatre experience, post-mortem, and on-call duties), field and community based learning, and ICT supported learning experiences.

The Health Professions Specialty Training Guidelines for Zambia and Zambia College of Medicine and Surgery Society Objectives and By-Laws provide detailed guidance to the trainee about the STP and ZACOMS, respectively.

## SPECIALTY TRAINING PROGRAMME IN PAEDIATRIC SURGERY CURRICULUM STRUCTURE AND MAP

Curriculum Map for the STP PS Programme

<b>STP YEAR 1 PSG 1013</b>	ZACOMS PT 1 ARCP	<b>STP YEAR 2 PSG 2013</b>	ARCP	<b>STP YEAR 3 PSG 3013</b>	ARCP	<b>STP YEAR 4 PSG 4013</b>	ZACOMS CCST Exams
Applied Basic Sciences in General Surgery (3 months)		Principles and Practice of General Surgery/ Operative Surgery (3 months)		Principles and Practice of Paediatric & Neonatal Surgery (3 months)		National Paediatric Surgery Rotations (4 months)	
Introduction to Principles and Practice of General & Paediatric Surgery (3 months)		Principles and Practice of Paediatric Surgery/ Operative Surgery (3 months)		Rotations in Paediatric & General Surgery and Allied Paediatric Rotations (6 months)		Principles and Practice Operative Paediatric and Neonatal Surgery (4 months)	
Basic General Surgical Techniques and Practice (3 months)		General and Paediatric Rotations (3 months)			Leadership and Management (4 months)		
Basic Surgical Science Skills Course (3 months)		Research Methods (3 months)		Health systems management (3 months)			
Part 1: Generic Education & Training (1 year)		Part 2: Themed & Specialist Education & Training (3 years)					

N.B. The total number of years, in particular, the themed specialist education and training may vary between different specialties.

1. ARCP = Annual Review of Competence Progression
2. CCST = Certificate of Completion of Specialty Training Examination;
3. STP = Specialty Training Programme;

4. ZACOMS PT 1 = Zambia College of Medicine and Surgery Part 1 Examinations in Basic Sciences, Behavioural Sciences, Health Population Studies, and Professionalism & Ethics; ZACOMS CCST Examinations = Certificate of Completion of Specialist Training in Paediatric Surgery Examinations

## ASSESSMENT IN THE SPECIALTY TRAINING PROGRAMME IN PAEDIATRIC SURGERY

Progression to the next level of training is NOT automatic and is dependent on the trainee satisfying all the competency requirements of each defined level as per this curriculum and learning guide. Progression is based on passing both clinical and written examinations. The assessment framework is designed to provide a coherent system of assessing both formative and summative assessment which are workplace based and in examination settings.

Each training site must ensure that they use valid, reliable and appropriate methods for assessing the knowledge, clinical skills and attitude domains. The continuous assessments and final annual assessments are weighted at 40% and 60% of the final mark of Annual Review of Competence Progression, respectively. Assessment methods may include, but are not limited to, the following: Log of experiences and procedures completed, case reports, portfolios, project reports, multiple choice questions, essay questions, short answer questions, modified essay questions, short and long cases, objective structured clinical examinations (OSCE), practical examinations, objective structured practical examinations (OSPE), Mini-clinical Examination (MiniCEX), and Viva Voce, etc.

It is emphasized that marks from theory examinations **may not** compensate for poor scores in the clinical examinations; Students **MUST** pass the clinical examinations in order to progress to the next stage of training or completion.

Assessment	Knowledge, Skill and Attitude Domain	Examining Body
Formative Workplace Based Assessments	Outcome 1 & 2	Training Site
Annual Review of Competence Progression	Outcome 1 & 2	Training Site in conjunction with ZACOMS
ZACOMS Part 1 Examination	Outcome 1	ZACOMS working through SSZ
ZACOMS Certificate of Completion of Specialist Registration Examinations	Outcome 2	ZACOMS working through SSZ

A candidate shall be allowed a maximum of three attempts for ZACOMS Part 1 and/or Part 2 Examinations. Candidates must have submitted a completed log book to eligible to attempt the ZACOMS Part 2 Examination.

For ease of tracking progress and planning for Paediatric Surgery care, all STP PS trainees will be registered with ZACOMS and SSZ for the duration of their training and will be allocated a Health Professions Council of Zambia Specialty Registrar Index Number.

### **Grading Scheme**

The STP PS Curriculum and Guide are the basis for all specialty training which contextualize the standards of proficiency set down by the Zambia College of Medicine and Surgery (ZACOMS) in consultation with the Surgical Society of Zambia (SSZ) in a way that is accessible to the profession and the public. The Certificate of Completion of Specialist Training (CCST) is not graded. Separate assessments and examinations may be graded to show the level of achievement of the trainee in a particular course or assignment.

#### Assessment of Attainment of Competence in an Academic Subject

<b>Status &amp; Level</b>	<b>Description of Competence Features</b>	<b>% Range</b>
Outright Fail [D]	<ul style="list-style-type: none"> <li><input type="checkbox"/> Has poor and inaccurate command of the subject vocabulary</li> <li><input type="checkbox"/> Has poor and inaccurate command of the concepts (knowledge, skills and attitudes) of the subject across a broad range of topics.</li> </ul>	44.9% & Below
Bare Fail [D+]	<ul style="list-style-type: none"> <li><input type="checkbox"/> Has the basics of subject vocabulary</li> <li><input type="checkbox"/> Has the basics of concepts (knowledge, skills and attitudes) of the subject across a broad range of topics</li> </ul>	45 – 49.9
	<ul style="list-style-type: none"> <li>• Unable to transfer and apply knowledge, skills and attitudes of the subject in a range of situations.</li> <li>• Unable to exercise independent judgement in a range of situations</li> </ul>	
Clear Pass [C]	<ul style="list-style-type: none"> <li>• Has sound command of subject vocabulary</li> <li>• Has sound command of concepts (knowledge, skills and attitudes) of the subject across a broad range of topics</li> <li>• Able to formulate responses and demonstrate skill and exhibit appropriate attitude in well-defined and abstract problems/professional</li> </ul>	50 – 64.9

	settings across a broad range of topics of the subject	
Meritorious Pass [B]	All of above in level 3 and: <input type="checkbox"/> Able to transfer and apply knowledge, skills and attitudes and exercise significant independent judgement in a broad range of topics of the subject	65 – 74.9
Distinction Pass [A]	All of the above in level 4 and: <input type="checkbox"/> Displays mastery of complex and specialised areas of knowledge, skills and attitudes in a broad range of topics of the subject.	75% & Above

## PAEDIATRIC SURGERY HANDBOOK & CURRICULUM

The detailed STP Paediatric Surgery Handbook and Curriculum is presented in full in the next section.

### PAEDIATRIC SURGERY HANDBOOK & CURRICULUM

#### Part 1 Examinations

The Part I Examination is designed to assess the basic principles of paediatric surgery and a broad knowledge of surgery in general. It is designed to identify surgical trainees who can recognise and deal with the wide variety of problems that may be met by trainees. They should be able to take responsibility for emergency paediatric and general surgical admissions, deal independently with life threatening situations due to trauma or critical illness, and be able to diagnose and plan treatment of a wide variety of surgical complaints.

The Part I of ZACOMS STP PS does not confer specialist status but signifies that the trainee is ready to pursue higher surgical training in Paediatric Surgery or another surgical subspecialty. Higher surgical training in the chosen specialty is examined by ZACOMS through the relevant affiliate professional association, which will confer specialist status.

#### Logbook

During the training period candidates must keep a logbook recording all of their training experience. The logbook should also contain details of all courses attended and the trainee and post assessment forms for the whole training period. This will serve as an accurate record of the trainees' competencies acquired during the training programme. It will therefore serve as an objective means of assessing a trainee's suitability to complete their training. This is an important aspect of the training because it is what helps track and confirm the competencies acquired by the trainee during the programme.

More detail on completing logbooks is provided in the logbook itself.

Before submission to the examination the Programme Directors should check the logbook for completion. Before the start of the clinical and oral examinations, the logbook should be handed to the examination panel. Proof of attendance at an approved Basic Surgical Skills course, Basic Surgical Science course and Critical Care or Trauma Course should be brought to the oral examination. Candidates will not be allowed to sit for the examination if this is not done.

### **Part 2 Examinations**

The Part 2 examination in Paediatric Surgery leads to the specialist qualification in paediatric surgery of the ZACOMS. This qualification is recognition that the candidate has reached the level of knowledge, understanding and practice of paediatric surgery sufficient to practice independently at a consultant or specialist level. It should be recognised, however, that surgery is not a static art and fellows should continue to increase knowledge and skills by means of research, conferences, meetings and reading.

### **Logbook**

During the training period candidates must keep a logbook recording all of their training experience. The logbook should also contain details of all courses attended and the trainee and post assessment forms for the whole training period. This will serve as an accurate record of the trainees' competencies acquired during the training programme. It will therefore serve as an objective means of assessing a trainee's suitability to complete their training. This is an important aspect of the training because it is what helps track and confirm the competencies acquired by the trainee during the programme.

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be brought to the oral examination. Candidates will not be allowed to sit for the examination if this is not done.

## **YEAR 1**

### APPLIED BASIC SCIENCES

Core knowledge of surgical anatomy, physiology and the principles of pathology and microbiology pertinent to Paediatric and General Surgery.

#### **Applied Surgical Anatomy and Applied Embryology:**

Topographical anatomy and anatomical relationships which are important in general and paediatric surgical operations.

#### **Osteology/Arthrology/Myology**

- Bones and the articulated skeleton
- Joints and their anatomy related to the function
- Muscle attachments, nerve and blood supply and function

#### **Neuroanatomy**

- Anatomy of the brain, spinal cord and peripheral nerves
- The autonomic nervous system
- The anatomical variations that impact on presentation of disease and /or surgical exposure and their embryological basis of the variation.

#### **Three Dimensional and Cross Sectional Applied Anatomy:**

- Cross sectional anatomy of normal anatomical structures as would appear in CT and MRI scans
- Three dimensional reconstructions.

#### **Applied Physiology:**

- Homeostasis, thermodynamics, positive and negative feedback
- Fluid and electrolyte and acid-base balance
- Respiratory system
- Lung function and respiratory exchange and oxygen transport.

#### **Urinary System**

- Renal function: control systems with respect to microanatomy

#### **Endocrine System**

- Adrenal function

#### **Gastrointestinal System**

- Function of the GIT in digestion, motility and transit, absorption
- The secretions of the GIT

- Hepatic function
- Nutrition

### **Cardiovascular System**

- Cardiac function, electrophysiology and circulation
- Physiology of the peripheral vascular system and microvasculature
- Physiology of the splanchnic, hepatic circulation
- Placental and foetal circulation
- Control of blood pressure
- The endothelium
- The extracellular space and lymph systems
- The cardiovascular response to exercise and stress

### **Neurophysiology**

- Cell membrane excitability
- Intercellular signalling
- Somatic and autonomic nervous systems
- Cerebral function
- Functional role of the basal ganglia, limbic system, hypothalamus Brainstem and reticular activating system, reflex controls
- Cerebellum
- CSF and blood-brain barrier
- Spinal neurophysiology

### **Endocrine Function**

- The regulation of body function in response to exercise, trauma, and starvation, sepsis and stress of surgery
- Paracrine and autocrine function
- Physiology of the neonate, child, the pregnant woman and the elderly

### **Pathophysiology in Surgical Patients**

- Alteration of physiology by pathological processes, surgery or anaesthesia.
- The pathophysiological effects of insult to the neonate, child, the pregnant woman and the aged
- Interpretation of laboratory results in a clinical scenario
- Fluid, electrolyte and acid base disturbances and their identification
- Acid base abnormalities
- Haemostasis

### **General Pathology Principles and Mechanisms of Disease**

- General pathological mechanisms (degenerative, reactive and neoplastic) underlying common disease. This will include knowledge of aetiology, pathogenesis, epidemiology, investigation and natural history.

- General pathological phenomena including:
  - Cell injury
  - Adaptation and death
  - Inflammation
  - Apoptosis
  - Degeneration
  - Differentiation and function of cells
  - The effects of aging on the body
  - Tissue response to injury
  - The processes of wound healing and tissue inflammation

### **Genetic Basis of Disease** (Genetics and Molecular Biology)

- Structure of DNA and RNA, the cell cycle, the generation of genetic abnormalities
- Mendelian genetics
- Cytogenetics including basics of laboratory techniques for detection of cytogenetic abnormalities

### **Oncological Principles in Surgery**

- Cells and tissues of origin
- Reproductive, growth (proliferative) patterns and host interaction
- Mechanisms of invasion and metastasis
- Molecular biological, genetic and inherited characteristics
- Geographic racial and cultural (population) factors
- Mechanisms and types of chemical, physical and microbial carcinogenesis
- Distinctive pathological (macroscopic, histological and immunochemical) features which aid diagnosis
- The application of the above to common cancers in children and adults

### **Principles of Oncological Surgery**

Basic mechanisms of action of current common chemotherapeutic agents

### **Immunology:**

- Basic Immunology including: non-specific defence mechanisms, the complement system, the major histocompatibility complex, the cells of the immune system, their functions, their interactions, cell subsets, cell surface markers and receptors structure, function, genetics of secretory products of cells involved in the immune response including immunoglobulins, interleukins, various other factors activation and control of the normal immune response Abnormal Immunological Responses including hypersensitivity, autoimmune disorders and immunodeficiency disorders
- Diagnostic Immunology including the basic principles (not detailed) of commonly used immunological tests, their applications and their limitations
- Immunology pertaining to blood product transfusion

**Transplantation:**

- Various types of transplantation
- Role of major histocompatibility complex in clinical transplantation

**Principles of Microbiology Relevant to Orthopaedic Surgical Practice**

- Pathogenesis of infection
- Host defence mechanisms and microbial virulence:
- The normal microbial flora of the body and its role in health and disease
- Surgically relevant bacterial, viral, fungal and parasitic infections. Infection following surgery, e.g. wound infection, septicaemia.
- Infections with surgical implications, e.g. peritonitis, anaerobic soft tissue infections, HIV/AIDS
- The principles of antimicrobial agents and their scientific use in therapy and prevention (prophylaxis) of infection.
- Sterilisation and disinfection.
- Laboratory medicine aspects of infectious diseases, e.g. principles behind blood culture techniques, interpretation of gram stains, antimicrobial susceptibility techniques

**Principles of Pharmacology and Therapeutics in General Surgery**

- Pharmacological principles relevant to surgery and pharmacology of drugs commonly used in surgery
- Pharmacodynamics and pharmacokinetics of major drug groups
- The changes in the neonate, child and elderly that affect pharmacodynamics and pharmacokinetics

**Haematology and Transfusion**

- The origin and differentiation of haematopoietic cells
- Anaemias of acute and chronic blood loss
- Investigations to differentiate various causes of anaemia.
- Mechanisms of haemostasis
- Tests of haemostasis and their clinical application
- Bleeding disorders, congenital and acquired
- Blood products, components and substitutes

**Critical Appraisal Of The Literature, Evidence Based Medicine And Searching The Literature**

- Key concepts of Evidence Based Medicine (EBM), levels of evidence
- How to effectively and efficiently search the literature
- How to read and understand a scientific paper

## **Legal and Ethical Issues**

- Informed consent
- Confidentiality and access to medical records
- Filling out a death certificate
- Medico-legal post mortems
- Obtaining permission for autopsy
- Withholding resuscitative measures
- Brain death
- Organ donation
- Medical Council of Zambia regulations pertaining to surgical practice including issues of professional misconduct

## **GENERAL SURGICAL SKILLS**

### **Basic Surgical Skills**

- Safety in theatre
- Principles of maintaining sterility
- The principles of anastomosis
- Suture materials and needles
- The principles of debridement
- Diathermy principles and safety
- Plaster techniques

### **Principles of Surgery in General**

- The principles of surgical care which are common to all surgical disciplines

### **Pre-Operative Care**

- Surgical nutrition: Parental and oral
- Fluid and electrolyte therapy
- Blood transfusions and its hazards
- Infection and antimicrobial agents
- Diagnostic aids - imaging and clinical chemistry

### **Intra-Operative Care**

- Aseptic and antiseptic techniques
- Hazards and precautions in operating theatres
- Electrical safety and hazards
- Radiation effects and hazards
- Perioperative management of surgical patients with medical conditions
- Perioperative management of the patient on steroid therapy

## Normal Postoperative Care and Complications

- Convalescence: The metabolic response to trauma
- Hypovolaemic shock
- Cardiac arrest
- Acid-base metabolism
- Gram negative - bacterial endotoxic shock
- Respiratory support and mechanical ventilation
- Pulmonary aspiration
- Adult respiratory distress syndrome
- Deep vein thrombosis and pulmonary embolism
- Fat embolism
- Haemostatic disorders
- Postoperative acute renal failure
- Postoperative jaundice
- The recognition of cardiac arrhythmias and cardiac failure and its management □
- Multiple organ failure
- Postoperative care of infants and children

### Contact Hrs Seminars

**9hrs/week**

Lectures	1 hour/week
Journal Club	1 hour/week
Ward rounds	6 hours/week
Outpatient Clinics	3 hours/ week
Admissions	48 hours/week
Morbidity and Mortality Meetings	3 hours/month
Operating theatre	10 hours/week

### Training Methods

Lectures, journal clubs, morning report, ward rounds and informal discussions.

### Clinical Practice

#### Assessment Methods

Clinical evaluations  
Continuous assessment tests 50%

Examination (Theory and Objective Structured Clinical Examination [OSCE]) 50%  
Paper I Applied Basic Science MCQ  
Paper II Principles and practice of Surgery Short Answer and Structured  
Oral: Anatomy/Physiology/Pathology  
Log books

### **Prescribed Reading**

Bailey & Love. Principles and Practice of Surgery, 2nd ed, 2007, Davis Company  
Raferty AT, Applied Basic Science for Basic Surgical Training, 2000, Churchill Livingstone  
Israel W, General Pathology  
Ganong W.F, Review of Medical Physiology, 21th Ed., 2005, Lange McGraw-Hill

### **Recommended Reading**

Guyton, AC, Hall JE Text Book of Medical Physiology, 11th ed,2000, Elsevier.  
Roitt I, Rabson A, Really A, Essential Medical Immunology  
McMinn R.M.H, Last's Anatomy, Regional and Applied, 9th Ed., 2003, Churchill Livingstone.  
Raferty AT, Delbridge MS, Basic Science for the MRCS, 2006, Churchill Livingstone  
Robbins, Stanley L, Kumar. V et al, Robbins pathologic basis of disease.3<sup>rd</sup> ed 1999, Saunders  
Snell RS, Clinical Anatomy 7th ed, 2004, Lippincott Williams and Wilkins.

### **Journals**

British Journal of Surgery  
Journal of Pediatric Surgery  
Surgery in Africa Ptolemy Online resource



## YEAR 2

### **Principles and Practice of General Surgery and Paediatric General Surgery**

Description of course:

Paediatric Surgeons are expected to have a knowledge and understanding of:

- Fundamentals of *genetics*, including counselling and screening in familial diseases;
- *embryology*, with particular emphasis to the causes and embryologic mechanisms leading to the development of congenital malformations;
- *anatomy*, to understand the basic anatomy and competently recognise the applied anatomy in both clinical and operative settings relevant to individual surgeons practice;
- *physiology* and *biochemistry*, to understand the effects of common surgical disease and injuries upon the normal structure and function of the various systems of the body, and including the physiological principles of *fluid balance* and *nutrition* of infants and children;
- *pathology* including the principles of *immunology* and *microbiology* relevant to paediatric surgical practice;
- *pharmacology* including actions and toxic effects of drugs commonly used in preoperative and intraoperative care and in the management of critically ill surgical children;
- *epidemiology and statistics*, to allow for critical appraisal of publications, reviews and audit programs.

### **Professional Skills and Attitude & Communication and Behaviour**

#### *Clinical contact with the patient*

Ability to take a history and carry out a clinical examination of a child with a surgical disorder to include special details and methods outlined in the training record.

#### *Acquire counselling and communication skills*

Ability to counsel parents / carers, patients and health professionals in the many varied situations in clinical PS such as information about prenatally diagnosed malformations, psychological effects of surgery and hospitalisation - particularly if prolonged - on the child development, and in stressful circumstances e.g. critically ill and dying patients. Knowledge of transcultural communication, including informing parents via an interpreter.

#### *Appreciate the role of family education in paediatric surgical disorders*

Knowledge of the wide field of family education required in the PS diseases and the concept of the team approach to patient management.

#### *Understand the role of staff management and of referral in particularly complex paediatric surgical disorders*

Knowledge of the role of allied medical and surgical specialties in the management of complex paediatric surgical disorders; recognition of the complex conditions occurring beyond the limits of the experience and expertise gained by the trainee at the end of the training; indications for appropriate referrals to Colleagues with specific expertise or to national designated centres for specified rare conditions.

### **Management**

#### *Acquire management skills in running a PGS Unit*

Some knowledge of management skills, including strategies for minimising intervention, costs, as well as avoiding unnecessary investigations.

#### *Understand the socioeconomic and legal aspects of paediatric surgical disorders*

Recognising the clinical signs and understanding the underlying social disorders in the battered / abused child syndrome. Direct contact with the medical social worker and other groups involved in working with the disabled / handicapped / battered / abused child. Ability to deal with medical / legal ethics and medico-legal aspects of PS will also be required.

### **Teaching and research**

#### *Acquire teaching experience*

Demonstrate the ability to teach medical and paramedical staff by experience and attending specific courses.

#### *Develop research experience*

Training in the analysis of data and an understanding of the principles and practice of clinical research, literature research and review.

### **Quality control**

#### *Understand the value of Audit Methodology and Specific Outcome Measures and Quality management*

Recognising the values of audit and outcome measures and risk management, and ability to analyse results and participate in audit relevant to PS.

## **ALLIED DISCIPLINES**

### **General Surgery**

#### *Surgical Infections and their Prevention*

Surgically important micro-organisms; pathophysiology of the body's response to infection; septic shock; sources of surgical infection-prevention and control; principles of asepsis and antisepsis; aseptic techniques; sterilisation; antibiotic prophylaxis and therapy of infections. PS in hepatitis and HIV carriers-special precautions; avoidance of infections transmitted by blood and body fluids.

### *Surgical Technique and Technology*

Skin preparation; incisions and their closure; suture and ligature materials; patients' positioning; dressings; disorders of coagulation and haemostasis; diathermy-principles and precautions, alternative energy sources; lasers-principles and precautions; pathophysiology of wound healing; classification of surgical wounds; principles of wound management; scars and contracture; wound dehiscence; excision of cysts and benign tumours of skin and subcutaneous tissues; principles and techniques of biopsy and cytological sampling; modalities of tissue probe sampling for frozen section and paraffin histology, cytology and bacteriology; sampling of body fluids and/ or body excretions for laboratory investigation, interpretation of results; drainage of superficial abscesses; basic principles of bowel, urinary tract and blood vessel anastomosis.

### *Organ Transplantation*

The knowledge of the problems related to organ transplantation, the possibilities and limits of this option, the pathologies that can lead to a transplantation, the technical aspects of the operation, the alternatives and contraindications, the pharmacological treatment of rejection, the follow-up of transplanted children.

## **Paediatrics**

### *Paediatrics / Neonatology*

Awareness of common paediatric and neonatal medical conditions and investigations and recognising the related surgical complications; ability to assess patient and differentiate surgical from non-surgical conditions.

Understanding the close relationships between medical and surgical pathologies of the child, through attendance for an appropriate period of time (at least 3 months) of paediatric wards and clinics, including an exposure to paediatric intensive care in neonatal and paediatric ICU.

### *Neonatal /Paediatric Intensive Care Unit (NICU / PICU)*

Knowledge of high care, intensive care and artificial ventilation and management of critically ill paediatric and neonatal patients.

## **Paediatric Anaesthesia**

### *Anaesthesiology Techniques*

Basic understanding of the different techniques of general anaesthesia; their indications and contra-indications; local and regional anaesthesia; explosive hazards relating to general anaesthesia and endoscopic surgery; central venous catheterisation; fluid replacement, infusion therapy and parenteral alimentation; blood transfusion and

serology; blood coagulation disorders and substitution measures; blood gas analysis and acid base balance.

### *Critical Surgical illness and Intensive Care Medicine*

The applied basic science relevant to the clinical assessment of critically ill children and to the understanding of disorders of function caused by haemorrhage, shock and sepsis: posttraumatic, preoperative, preoperative and postoperative intensive care medicine; cardiopulmonary and pharmacological resuscitation; single organ failure (heart, liver, kidney); multiple system organ failure (pathophysiology and treatment); respiratory failure, pulmonary oedema “shock lung”, acute respiratory distress syndrome; septic inflammatory response syndrome; malignant hyperthermia.

### **Paediatric Surgery**

Paediatric surgical core activity covers acute and non-acute diseases and injuries and acute and elective procedures in children in their pre-, peri- and postoperative aspects. PS includes surgical pathologies of the *central and peripheral nervous system*; head, neck and face; respiratory system; gastrointestinal tract; *genitourinary system*; vascular and musculoskeletal system (including skin); endocrine system; lymphoreticular system; *orthopaedic traumatology*.

Within the domain of PS specific skills in the areas above written in *italics* are not included in the core curriculum in some European Countries; basic understanding of the principles of these subspecialties is nevertheless required.

Although paediatric cardiac surgery is not part of the domain of PS, awareness of surgical pathologies in this area is required.

### **Preoperative and Postoperative Care**

#### *Screening programs and prenatal diagnosis*

Knowledge of the possibilities offered by pre- and postnatal screening programs for the early diagnosis of congenital malformations, preventable diseases and tumours. Knowledge of the possibilities offered by the various methods of prenatal diagnosis of surgical malformations, the likely modes of presentation, and indications for pre-natal intervention, as well as the ability to plan post-natal management.

#### *Laboratory tests*

Knowledge of the haematological, immunological, biochemical and histo-pathological changes that accompany paediatric surgical diseases. Ability to interpret and relate such knowledge and results to clinical scenarios.

#### *Imaging*

Knowledge of the indications for, and basic interpretation of, imaging techniques such as conventional X-rays, sonography, Doppler sonography, CT / MRI / PET scans and radio-isotope techniques in the investigation of the paediatric surgical diseases. Understanding

of security measures in Radiology. Knowledge of radiation-sparing indications for X-ray investigations.

#### *Endoscopic techniques*

Knowledge of the indications and technical skills required for employing various endoscopic techniques such as gastrointestinal, respiratory and urologic endo-scopy, both for diagnostic and therapeutic purposes. Handling of endoscopes and hygiene measures. Exposure to the opportunity of gaining knowledge and experience of evolving technological methods.

#### *Other instrumental techniques*

Knowledge of the indications and technical skills required for employing instrumental techniques in functional diagnosis, such as oesophageal and gastric manometry, anal manometry, urodynamics, etc.

### **Neonatal Surgery**

Surgical care of the neonate, pre-term or full term, including comprehensive management of complex congenital malformations in close cooperation with all professionals involved; deep knowledge of fluid-electrolyte management of the baby.

Knowledge of incidences of associated anomalies and complications and risks of transfer from one unit to another.

Understanding the place of operative and non-operative managements and outcome in short and long-terms.

### **Emergency Surgery**

Care of critically ill children with underlying conditions including coordinated multidisciplinary management; clinical assessment of more or less severely injured children and to the understanding of disorders of function caused by trauma, thermal injuries, haemorrhage and shock. Diagnosis and treatment of the battered / abused child. Principles of pre-hospital care; clinical assessment of critically ill and severely injured children - scoring systems; management of the unconscious child; monitoring of vital functions in critically ill or severely injured children; initial management of children with multiple trauma; resuscitation and haemodynamic support; haemorrhage and shock; maintenance of airway in severely injured and unconscious patients; management of cranial, thoracic, abdominal and pelvic trauma; management of soft tissue trauma.

### **General Paediatric Surgery**

#### *Central and peripheral nervous systems*

The surgical anatomy and pathology and treatment options of spina bifida, hydrocephalus, myelomeningocele, ventriculo-peritoneal shunts, together with their relationship with other organ systems such as gastrointestinal or genitourinary (i.e., neurogenic dysfunctional urinary bladder).

### *Head and neck surgery*

The surgical anatomy and pathology of the head and neck, embryology of the congenital malformations of the area including labiopalatine clefts, regional lymph nodes, access to the great vessels of the neck.

### *Thoracic surgery*

The surgical anatomy and pathology of the tracheobronchial tree, chest wall, diaphragm and thoracic viscera and the applied cardio-respiratory physiology relevant to clinical examination, interpretation of special investigations and understanding of disorders of cardio-respiratory function caused by disease, injury and surgical intervention.

### *Gastrointestinal surgery*

The surgical anatomy of the abdomen and its viscera and the applied physiology of the alimentary system, relevant to clinical examination, to the interpretation of special investigations, to the understanding of disorders of function and to the treatment of congenital and acquired abdominal diseases.

### *Genitourinary surgery*

The surgical anatomy, applied physiology and pathology of the genito -urinary system, relevant to: clinical examination, interpretation of special investigations, understanding of disordered function and principles of the surgical treatment of congenital and acquired genito-urinary disease and injuries.

### *Orthopaedic traumatology*

Musculo-skeletal anatomy, physiology and pathology relevant to the clinical examination of the locomotor system and to the understanding of disordered locomotor function with emphasis on the effects of trauma. Pathophysiology of fracture healing, non-union, delayed union, complications, principles of surgical treatment, principles of bone grafting. Principles of conservative and operative treatment of fractures. Principles of nerve regeneration and nerve repair; peripheral nerve lesions; principles of tendon repair; soft tissues trauma; traumatic oedema and the compartment syndromes.

### *Tumour Surgery*

Surgical oncology, including coordinated multidisciplinary management of the child affected by tumours; the applied basic sciences relevant to the understanding of the clinical behaviour, diagnosis and treatment of neoplastic disease. The role of cancer registers; clinico-pathological staging of cancer and premalignant states; principles of cancer treatment by: surgery, radiotherapy, chemotherapy, immunotherapy, hormone therapy; terminal care of cancer patients, pain relief.

### *Endocrine Surgery*

Interpretation of special investigations, assessment and management of children with thyroid, parathyroid, adrenal and pancreatic conditions.

### *Minimally invasive surgery*

Knowledge and skills of therapeutic intraluminal endoscopy, thoracoscopy, and laparoscopy.

### *Day case surgery*

Understanding of the clinical, surgical and organisational implications of the routine surgical pathologies amenable to be treated as day cases.

### **Prescribed reading**

Farquharson's Textbook of Operative Surgery

Spitz L, Operative Paediatric Surgery 7th ed. 2013, Arnold Holder Publications

### **Recommended reading**

Puri P, Paediatric Surgery Diagnosis and management,

Ashcraft KW, Holcomb III GW, Murphy P, Ashcraft's Pediatric Surgery 4th ed 2010 Elsevier Kliegman RM., Behrman RE, Jenson HB et al, Nelson Textbk of Pediatrics, 18th ed, 2007 Saunders.

Hulley SB, Cummings SR, Browner WS, et al, Designing Clinical Research. 3rd ed.

## **YEAR 3**

### **Principles and Practice of General Surgery and Paediatric General Surgery:**

#### **Description Of Course**

The Paediatric Surgery course at this stage of training is largely clinical with some didactic lectures and further introduces and reinforces the trainees to the principles and practice of Paediatric Surgery they would have met in Year 2.

#### **Objectives for the Paediatric General Surgeon (PGS) course Year 3**

To practice as a PGS Registrar

#### **Knowledge**

- PGS trainees must know how to assess and manage PGS diseases: head and neck, thoracic (cardiac and non-cardiac), abdominal/GIT, Urology, hepatobiliary and trauma
- PGS trainees must recognize and manage patients with PGS conditions and refer conditions to colleagues in other specialities appropriately.

#### **Skills**

- To perform a complete surgical and relevant medical history including chief complaint, history of present illness, review of systems, past medical history and social history for neonates, infants, children and adolescents
- To perform a thorough physical examination in surgical emergencies, trauma and nonemergency situations
- To generate a differential diagnosis and unique treatment plan for each patient following currently knowledge
- To perform literature searches in order to gather information on the most up-to-date treatment and management of PGS.

#### **Behaviours**

- PGS trainees must demonstrate respect, compassion, and integrity in their professional behaviour
- PGS trainees will place patient safety and care above all competing considerations at all times.
- PGS trainees will approach patients/guardians, and in a professional demeanour.
- PGS trainees must demonstrate sensitivity and responsiveness to patients' culture, age, gender, disabilities, religion, and other parameters of human diversity.
- PGS trainees will operate with respect for patient confidentiality with due consideration to patient.



### **Teaching Methods**

- One on one precepting and Didactic lectures given by faculty
- Case presentations in clinical teaching rounds,
- Case conferences, i.e. clinical vignette presentations at PGS conference, □  
Journal club

### **Assessment Methods for Year 3**

- Observation during clinical care □ Formal evaluations by faculty.
- Evaluation of presentations at Case Conferences (clinical vignettes, journal club)
- Continuous assessment tests 50%
- Examination (Written and OSCE) 50%

### **Prescribed Readings:**

Spitz L, Operative Paediatric Surgery 7th ed. 2013 Arnold Holder Publications

Puri P, Paediatric Surgery Diagnosis and management

Ashcraft KW, Holcomb III GW, Murphy JP, Pediatric Surgery 4th ed 2010 Elsevier

### **Recommended Readings**

Kliegman, RM., Behrman, R E.,Jenson, H B et al, Nelson Textbk of Pediatrics. 18th ed, Saunders. 2007

Ameh EA, Bickler SW, Lakoo K et al, Paediatric Surgery:A Comprehensive Text for Africa, Global Help.2011

Journal of Paediatric Surgery

Seminars in Paediatric Surgery

## **YEAR 4**

### **Principles and Practice of Operative Paediatric General and Surgery**

#### **Description Of Course**

The STP Year 4 will build on the third year course and consolidate the knowledge and practice of paediatric general surgery. The year will prepare the trainee to practice independently as a paediatric general surgical specialist.

#### **Aim of the course**

- To consolidate principles and practice of operative paediatric general surgery.
- To consolidate the knowledge of the concepts of operative paediatric general, neonatal and oncologic surgery.

#### **Course Objectives**

- To practice independently as a PGS Consultant

#### **Knowledge**

- PGS trainees must know how to assess and manage neonatal and paediatric surgical patients
- PGS trainees must understand different PGS conditions.

#### **Skills**

- To generate a differential diagnosis and unique treatment plan neonatal and paediatric patient
- To perform literature searches in order to gather information on the most up-to-date treatment and management of PGS.
- To prescribe appropriate treatment based on current knowledge.
- To perform necessary elective and emergency management /surgery on the neonatal and paediatric patient.

#### **Attitudes and Behaviours**

- PGS trainees must demonstrate respect, compassion, and integrity in their professional behaviour
- PGS trainees will place patient safety and care above all competing considerations at all times.
- PGS trainees will approach patients/guardians, and in a professional demeanour.
- PGS trainees must demonstrate sensitivity and responsiveness to patients' culture, age, gender, disabilities, religion, and other parameters of human diversity.
- PGS trainees will operate with respect for patient confidentiality with due consideration to patient and guardian.

- PGS trainees must be able to work effectively with others as a member or leader of a health care team or other professional group

### **Course Contents**

- Embryology, Neonatology and Surgery of Neonatal Surgical conditions
- Paediatric Surgical Oncology
- Paediatric General Surgical operative procedures

### **Training Methods**

- One on one precepting
- Didactic lectures given by faculty
- Case presentations in clinical teaching rounds,
- Case conferences, i.e. clinical vignette presentations at PGS conference,
- Journal club

### **Assessment Methods**

- Observation during clinical care □ Formal evaluations by faculty.
- Evaluation of presentations at Case Conferences (clinical vignettes, journal club)
- Continuous assessment tests 50%
- Examination (Written and OSCE) 50%
- Logbooks

### **Prescribed Readings:**

Spitz L, Operative Paediatric Surgery, 7th ed. 2013 Arnold Holder

Puri P: Paediatric Surgery Diagnosis and Management,

Ashcraft KW, Holcomb III GW, Murphy P, Pediatric Surgery 4th ed 2010 Elsevier

Carachi R, Grosfeld JL, Azmy AF, The Surgery of Childhood Tumors, 2nd ed, 2008, SpringerVerlag

### **Recommended Readings**

Kliegman, RM., Behrman, R E., Jenson, H B et al, Nelson Textbk of Pediatrics. 18th ed, 2007, Saunders.

Journal of Paediatric Surgery

Seminars in Paediatric Surgery

Paediatric Surgery in Africa 2vol

## **PAEDIATRIC SURGERY ROTATION FOR STP 4 TRAINEES**

Trainees will spend a minimum of two (2) months in another hospital on a rotational basis. The rotation options will include Arthur Davison Hospital.

### **Assessment Methods**

- End of rotation evaluation by Supervisor at site
- Assessment by reports and logbooks

## **STP PS OUTPATIENT CLINICS ROTATION**

- To be carried out during the training throughout the 4-year training period  At least 12 months of direct supervision
- Each trainee will attend PGS clinic for a minimum of 4 hours each week. The clinic will be in continuity during the last two years of the PGS training.
- The objectives of the outpatient clinic exposure training are as follows:

### **Knowledge**

- Be familiar with most general PGS conditions needing immediate surgical treatment and elective management of most general paediatric surgery conditions encountered.

### **Skills**

- Demonstrate how to perform minor paediatric surgical clinic procedures such as dilatation of phimosis in acute urinary retention and other procedures
- Develop time management skills and efficiency required in a busy outpatient clinic
  - Be able to communicate effectively with the referring provider

### **Attitude**

- Team player
- Respect for other colleagues

## **RESEARCH TRAINING**

### **Goal of research training**

The goal of the research component of the STP PS is to train clinical investigators capable of conducting research.

### **Description**

The knowledge should include epidemiology, biostatistics and research proposal development. PGS trainees are expected to identify a research topic and a potential research supervisor by the beginning of their 2<sup>nd</sup> year of training.

## Assessment

The Clinical Research Course will be assessed based on the Research Project Report submitted in the final year.

## INTERNATIONAL FELLOWSHIP/LOCUM AND CASE MIX FOR THE STP PS

- The conditions that the STP PS trainees will see will be varied and representative of paediatric general surgery.
- STP PS consults will include various paediatric medical and surgical conditions such as: skin and soft tissue pathologies, head and neck conditions, thoracic conditions, abdominal conditions, neurosurgical and oncologic conditions; their treatments and surgical complications.
- It is envisaged that during or after the STP PS programme the trainee consultant in training will be exposed to modern practices of paediatric surgery at other advanced regional centres.

## INDICATIVE RESOURCES

1. Ameh EA, Bickler SW, Lakoo K et al, Paediatric Surgery:A Comprehensive Text for Africa, Global Help.2011
2. Ashcraft KW, Holcomb III GW, Murphy P, Ashcraft's Pediatric Surgery 4th ed 2010 Elsevier
3. Bailey & Love. Principles and Practice of Surgery, 2nd ed, 2007, Davis Company
4. British Journal of Surgery
5. Farquharson's Textbook of Operative Surgery
6. Ganong W.F, Review of Medical Physiology, 21th Ed., 2005,Lange McGraw-Hill
7. Guyton, AC, Hall JE Text Book of Medical Physiology, 11th ed,2000, Elsevier.
8. Hulley SB, Cummings SR, Browner WS, et al, Designing Clinical Research.3rd ed.
9. Israel W, General Pathology
10. Journal of Paediatric Surgery
11. Kliegman, RM., Behrman, R E.,Jenson, H B et al, Nelson Textbk of Pediatrics. 18th ed, Saunders. 2007
12. McMinn R.M.H, Last's Anatomy, Regional and Applied, 9th Ed., 2003, Churchill Livingstone.
13. Puri P, Paediatric Surgery Diagnosis and management,
14. Rafferty AT, Delbridge MS, Basic Science for the MRCS, 2006, Churchill Livingstone

15. Robbins, Stanley L, Kumar. V et al, Robbins pathologic basis of disease.3<sup>rd</sup> ed 1999, Saunders
16. Roitt I, Rabson A, Really A, Essential Medical Immunology
17. Seminars in Paediatric Surgery
18. Snell RS, Clinical Anatomy 7th ed, 2004, Lippincott Williams and Wilkins.
19. Spitz L, Operative Paediatric Surgery 7th ed. 2013 Arnold Holder Publications
20. Surgery in Africa Ptolemy Online resource