

**WEST AFRICAN COLLEGE OF
SURGEONS**

**FACULTY OF
SURGERY**

**TRAINING PROGRAMMES
AND
CURRICULA**

INTRODUCTION

1. AIMS

The aim of the College of Surgeons is to train high calibre surgeons to provide accessible high quality surgical services throughout the subregion.

2. LEARNING OBJECTIVES

- a. GENERAL EDUCATIONAL OBJECTIVES:** By the end of his over-all training in the Residency programme, each resident in Surgery should be able to:
- i.** *Obtain*, at first consultation, as complete a data base (History, Physical Examination) and Laboratory data) as is compatible with the urgency and complexity of the patient's problems.
 - ii.** *Recognise* within the database, problems that:
 - 1.** require further investigation or
 - 2.** require therapeutic or supportive intervention.
 - iii.** *Investigate* clinical problems using relevant tests and other appropriate tools in order to clearly define the patient's problems.
 - iv.** *Interpret* clinical findings and the results of diagnostic investigations, and by a clear process of deductive reasoning reach appropriate decision on clinical management and therapeutic intervention.
 - v.** *Perform* all common operative procedures required for the restoration and/or maintenance of health for the individual patient.
 - vi.** *Explain* and defend the rationale of, and the technique and procedure employed in standard surgical operations.
 - vii.** *Effect* adequate post-operative care and full rehabilitation of his patient.
 - viii.** *Demonstrate* a clear, knowledge of the pathology, pathophysiology, clinical features, management options and result of therapy of common surgical diseases.
 - ix.** *Provide* effective supervision for his junior professional colleagues in their performance of simple surgical procedures.
 - x.** *Teach* surgical concepts and operating skills to junior colleagues.
 - xi.** *Explain* concepts of surgical diagnosis and treatment not only to his patients, but also to other members of the health team, so as to facilitate successful surgical care.
 - xii.** *Demonstrate* problem-solving ability by designing and implementing a simple research project relevant to the needs of his local environment.
 - xiii.** *Demonstrate* general management competence in the appropriate use of resources (man, materials and money) to achieve effective surgical care.

xiv. *Provide effective and purposeful leadership of the surgical team.*

3. **QUALIFICATIONS FOR ACCEPTANCE INTO THE PROGRAMME**

- a. Candidates must possess a basic medical degree or qualification registrable by the local medical council.
- b. Candidates must have served the pre-registration year/years in their own country or in any other country accepted by the local medical council and must have been fully registered.

4. **DURATION OF TRAINING**

The duration of the training programme shall be as follows:

- a. Part I/Membership: 30 - 36 months
- b. Part II/Fellowship: 36 - 48 months depending on the sub-specialty
- c. Post Fellowship Diploma in Trauma Care. (12-18months)

A candidate may be exempted from part of the training programme and examination following an application and approval by Council, on the recommendation of the Credentials Committee through the Faculty Board.

5. **EXAMINATIONS**

The examinations for the fellowship are held in April and October and shall be in four parts:

- a. **Primary examination in the Basic Sciences:** This examination can be taken only after completion of pre-registration internship and full registration by the local medical council. The examination which is in each of the three subjects shall be multiple choice questions. (MCQs).
- b. **Part I Final Examination** This examination is on principles of surgery, surgical pathology and operative surgery in general. The examination can only be taken after all the following conditions are met by a candidate;
 - i. Success at or exemption from the primary examination in basic sciences.
 - ii. Successful completion of a 30 months period of rotation in various aspects of surgery as described in the curriculum, in accredited institution(s).
 - iii. Present a logbook of procedures participated in during the 30 -months period as prescribed in the faculty logbook for Part I.
 - iv. A minimum number of operative cases stipulated in the curriculum must be met by candidates applying for the part one examination.
 - v. Attendance at relevant mandatory courses
- c. **Part II Final Examination:** This examination is in various specialties as follows;
 - Cardiothoracic surgery

- General Surgery
- Neurosurgery
- Orthopaedic and Trauma Surgery
- Paediatric Surgery
- Plastic and Reconstructive Surgery
- Urology

The examination shall be; Written; Clinical; Oral and Dissertation defense.

The examination in any given specialty shall be conducted entirely by examiners in that specialty. The candidate must show evidence of the following to be qualified for this examination:

- i. Evidence of success at or exemption from the Part I examination.
- ii. Evidence of successful completion of a minimum of 36 - 48 completed months (this may vary from specialty to specialty) of training in the relevant specialty in accredited institution (s).
- iii. A logbook of procedures participated in since during the period of specialist training, as prescribed in the logbook for the relevant specialty.
- iv. Attendance to relevant/mandatory courses

d. Post Fellowship Diploma in Trauma Care.

- i. Formal onsite evaluation of trainees by trainers every 3 months (4 times)
- ii. College approved assessors to be present at evaluation at 6 months and 12 months
- iii. A trainee that does not meet expected milestones at these evaluation points should be given additional opportunity by extension of training (for 1-3 months), given additional course work and provided with additional supervision for the period of training
- iv. Peer reviewed and published Research work on any aspect of trauma and surgical critical care is a requirement for the final certification.
- v. Formal exit examination consisting of MCQs, and an oral examination
- vi. Certificate to be awarded: **Post Fellowship Diploma in Trauma Care**

CURRICULUM FOR THE PRIMARY EXAMINATION IN BASIC SCIENCES.

The Subjects shall be

- i. Applied Anatomy
- ii. Applied Physiology (including Biochemistry & Pharmacology)
- iii. General Principles of Pathology, Microbiology and Parasitology as related to Surgery;
 - a) The Faculty has prepared a Basic Science syllabus or course content for the guidance of the candidate, teachers and the examiners and this is reproduced below:
 - b) The Faculty may offer short courses in Basic Sciences preparatory to the Primary Fellowship Examination. Currently, there is an annual Basic Sciences Revision Course, which lasts for four weeks and takes place in the Department of Surgery, University College Hospital, Ibadan, Nigeria: The course takes place usually in March/April

ANATOMY:

Head and Neck:

The scalp

Topography of the anterior and lateral regions of the neck The root of the neck

Pharynx, Larynx

The face and its vascularization

The Infratemporal and pterygopalatine fossae The temporo-mandibular joint

The orbit

The buccal cavity, tongue palate and major salivary glands

Development and morphology of the thyroid; thymus, parathyroid and tonsils

Osteology Skull and the cervical vertebrae.

Neuro-Anatomy:

The brain major divisions surface anatomy.

The cranial nerves

The meninges, venous sinuses, cerebral vessels

Spinal cord and its centres

Anatomy of the circulation of the cerebrospinal fluid

Essentials of development of the brain and spinal cord

Thorax and Diaphragm:

Anatomy of the thoracic wall with particular consideration of mammal gland.

The thoracic cavity and its contents.

Osteology of thoracic cage

The strength of the spinal column

Development of the diaphragm.

Abdomen:

Anatomy of the abdominal wall particularly the postero-lateral, inguinal and umbilical regions.

Development, gross anatomy and microscopic structure of the abdominal viscera.

Pelvis and Perineum:

The development, gross anatomy and microscopic structure of the pelvic viscera and the perineum.

Development of the urogenital systems.

The Limbs

Osteology of the limb bones

The pelvic and shoulder girdles

Gross anatomy and cutaneous innervation of the upper and lower extremities emphasis on segmental innervation.

Classification and description of joints of the body.

Histology and Intracellular Anatomy:

Microscopic structure of normal tissues Intracellular anatomy

Correlative normal and pathological anatomy

Basic principles of histochemistry.

Brief introduction of electron microscopy

Genetic influences in development as applied to surgery.

Radiological anatomy of the body relevant to clinical surgery.

APPLIED PHYSIOLOGY: (INCLUDING BIOCHEMISTRY, CHEMICAL PATHOLOGY AND PHARMACOLOGY)

General Physiological Principles:

1. Structure of Living

Matter Biological integration

- a. The living cell, functions and changes in its mechanisms
- b. Function of nucleoproteins in the integration of the cell as a unit of living matter.

2. Energy Changes in the Living System

- a. Thermodynamics of the living organism and its potential energy status.
- b. Oxygen-utilization of the living cell

Heat production and heat loss, (basal metabolism, specific dynamic action

c.

regulation of body temperature).

- d. Homeostasis.

3. General considerations in Water, Electrolytes and Acid-Base Balance

- a. Distribution of water and electrolytes in extra and intracellular spaces of the body.
- b. Brief survey of biological transport of water and solutes.

c. Water and Electrolyte balance. .

- i. Causes and effects of dehydration and oedema.

ii. Sodium and Potassium Metabolism.

4. Acid-Base Balance

pH Regulation:

- a. PH of the body fluids and buffer systems of the body.
- b. Respiratory acidosis and alkalosis as encountered in surgical practice
- c. Metabolic acidosis and alkalosis as encountered in surgical practice.

5. Enzymes and Co-Enzymes

Effects of enzymes in intermediary metabolism.

General aspects of metabolism of carbohydrates, lipids, proteins and nucleoproteins.

6. General principles of nutrition surgery including parenteral nutrition.

Vitamins, Folic Acid, etc.

7. Mineral Metabolism:

Iron, Calcium/Phosphate, Vitamin D and Parathyroid hormone: Magnesium and trace elements, e.g. copper, cobalt.

8. Effects of Physical Agents Radiation

Hypothermia

Hyperbaric Oxygen

9. Principles of electronics

SYSTEMIC PHYSIOLOGY

Cardiovascular System

Haemodynamics

a) Flow:

The basic principles of the arterial circulation Poiseuille's

b) Blood Pressure:

Arterial, the normal blood pressure and factors maintaining it. Changes in the normal blood pressure, hypertension and hypotension, shock, syncope and cardiovascular regulations.

c) Venous circulation and venous pressure

d) *Haemorrhage*

The clotting mechanism

i. Cardiac muscle physiology: Cardiac Cycle, mechanism and electrical.

ii. Determinants of cardiac function: Cardiac Output, Regional Circulation, Coronary Circulation.

iii Cardiac failure

Acquired heart Disease: Congenital Heart Disease

iv. Correlation and clinical interpretation of the pathophysiology of cardiovascular disease and symptoms.

2. Respiratory System:

Ventilation and Respiration:

Tests of Pulmonary Function:

Ventilation/Perfusion relations, Control of respiration.

The pulmonary circulation and its control.

b. Protective mechanism of the lungs

Respiratory failure.

3 Renal System:

a) *Tests of Secretory Function:*

Glomerular filtration rate and renal blood flow concentration and dilution tests. Re-absorption mechanism: Tm measurement.

b. Urine formation.

c. Renal handling of Na^+ and K^+

d. Endocrine Function: Erythropoietin, pressor and antipressor agents

e. Renal failure.

4. Digestive System:

a) Oesophagus:

Functional disorders

Mechanism of pain

b) Stomach

Movements and secretory function

Disorders of these:

Peptic ulceration

Pathogenesis, symptomatology and diagnostic procedures

c) Intestine

Regulation of gastric secretion Movements and secretory function

Digestion and Absorption

d) Pancreas and gall bladder

Secretory functions and their regulation

e) Liver Physiology

Jaundice, Detoxification, Liver failure, Oedema, Ascites

5. Haemopoietic and Reticulo-Endothelial Systems:

Hypersplenism, Haemolytic disorders

6. Muscles and Joints:

Skeletal muscle and disorder of its function,

Electromyography

7. Nervous System

Consciousness and higher integrative functions sensation.

Motor System: Pyramidal and extra-pyramidal systems.

Spinal reflexes, maintenance of muscle tone.

Control of spinal injuries

8. Endocrines:

Glandular physiology; Dynamic physiology of the hormones

Metabolic and endocrine response to surgery **Pharmacology:**

General Principles of Pharmacology

1. Route of administration, Absorption Distribution, Metabolism and Excretion of Drugs.
2. Mechanisms of Drug action
3. Dose-effect relationship, Biological assay
4. Factors modifying Drug Effects; age, Sex, Body Weight, Route of Administration, Timing, Inactivation, Excretion, Environmental and Genetic Factors. Drug interaction.
5. Drug Toxicity.
6. Development, Evaluation and Control of Drugs: Clinical Trial.

Specific classes of drugs

Anaesthetic agents, Antibiotics, Steroids/

Drugs acting on the autonomic nervous system: Choline and anti-choline drugs:

Sympathetic and Adrenergic Drugs.

Drugs acting on the cardiovascular system Antituberculous, Antihelminthic and Antiamoebic Drugs Cancer Chemotherapy

PATHOLOGY (INCLUDING MICROBIOLOGY):

This shall be largely concerned with general pathology. General principles underlying disease process Inflammation; Trauma, Degeneration, Regeneration, Repair, Hypertrophy, Hyperplasia, Blood coagulation, thrombosis, Embolism, Infarction Ischaemia, Neoplasia, Oedema. Principles underlying tissue replacement.

HAEMATOLOGY

Anaemias, Leukaemias, Myelo-proliferative disorders, haemorrhagic disorders and the Haemoglobinopathies.

Principles underlying blood transfusion

MICROBIOLOGY

Routine diagnostic methods, identification of bacteria, viruses and other organisms of surgical importance.

Serological Tests:

Principles of sterilization and disinfection.

Principles of immunology: Toxins, antibodies, allergy, the immune diseases. Methods of action of antibodies

Common parasitic and fungal diseases in the tropics

CURRICULUM FOR THE PART I /MEMBERSHIP EXAMINATION IN SURGERY

The candidate is advised to seek admission into an accredited hospital for training for this part of the examination.

The rotation for the part one examination is for a minimum period of 30 months as follows;

- | | |
|--|-----------|
| 1. General Surgery | 9 months |
| 2. Trauma (Accident and Emergency or Casualty): | 6 months. |
| 3. Urology: | 3 months |
| 4. Orthopaedics: | 3 months |
| 5. Anaesthesia: | 3 months |
| 6. Rural Posting | 3 months |
| 7. Electives (preferably paediatric surgery, cardiothoracic surgery, neurosurgery, or plastic and reconstructive surgery): | 3 months |

Each candidate should keep a daily and up to date record of operative procedures he/she participated in during this period of training, using the prescribed logbook published by the faculty.

During this period, the candidate is encouraged to attend the integrated revision course in surgery regularly organized by the college.

Core Postings for Membership. The rotations for the membership certification shall be the same as for Part one candidates. Membership candidates who have passed the part one examination must also complete a further six months of **documented and supervised rural posting in an accredited hospital.** They must fulfill the minimum number of operations as prescribed in the log-book i.e. (150% of the part 1 requirement). The Faculty board shall ensure this is fully complied with before the candidates are recommended for the award of membership certificate.

NB: Without prejudice to the foregoing, candidates who have passed part 1 but are unable to proceed with a full fellowship program will be required to complete the mandatory six months rural posting in a fully accredited centre before being recommended for the award of certificate of membership. In a similar vein membership holders who decide to complete fellowship program must fulfill all the requirements including post part one rotations, courses and dissertation writing before applying for the final fellowship examination in their desired subspecialty

The course shall involve:

- 2hours of didactic lectures/ tutorials/seminar presentation daily i.e. 10 hours per week.

-10 hours of practical skill acquisition/clinical exposure daily i.e. 50 hours per week.

Course credit allocation

1hour of lectures/tutorials/seminar per week for 3 months is allocated 1 credit unit

5 hours of practical skill acquisition/clinical exposure per week for 3 months is allocated 1 credit unit

Therefore a 3months posting has a total of 20 credit score; 10 credit units for lectures and 10 credits for practical skill acquisition/clinical exposure.

A minimum of 200 Units over a period of at least 30 months in the appropriate postings will make a candidate eligible to sit for the Part I Fellowship examinations.

Syllabus

Training in all aspects is in principles of surgery, clinical case management and operative surgery. The content of training should be as follows;

General principles of surgery

Sepsis and asepsis

Sterilisation and disinfection

Antibiotics and surgery

Theatre design and management

Surgical diathermy

Trauma

Venous access and resuscitation

Tracheostomy

Wound café, exploration and repair

Fracture management

Management of hand and foot injuries

Amputation and tendon repairs

Management of abdominal trauma

Blunt/penetrating

Management of chest trauma, including thoracostomy and thoracotomy

Management of multiply injured patient

Management of head injury and spinal injury

Management of paediatric trauma, including non-accidental injuries

General surgery

Management of soft tissue infections

Abscesses

Cellulites

Management of lumps

*Tissue biopsies**Fine needle/open/trucut**Hernias and hydrocoeles**Oesophageal conditions**Motility disorders**Reflux**Benign/malignant tumours**Management of intestinal obstructions**Benign/malignant**Management of bowel perforation**Gastric and duodenal surgery**Endoscopy**Peptic ulcer disease and its complications**Enteral routes for feeding**Gastric neoplasms**Benign/malignant**Small intestinal diseases**Stoma formation and care**Appendix**Appendicitis and its complications**Tumours**Colonic surgery**Endoscopy**Stoma formation and care**Inflammatory diseases**Neoplastic conditions (benign/malignant)**Anorectal surgery**Abscesses**Fistulae**Fissure**Prolapse**Haemorrhoids**Neoplastic conditions (benign/malignant)**Hepatobiliary and splenic surgery**Diagnostic procedures (ERCP etc)**Gallbladder diseases**Obstructive jaundice**Hepatic diseases**Management of pancreatic diseases (neoplasms, cysts, pseudo cysts)**Portal hypertension**Splenic conditions**Breast surgery**Abscesses**Benign and malignant conditions**Endocrine surgery**Thyroid**Parathyroid*

Ovary
Adrenal
Others

Salivary gland conditions

Benign/malignant conditions

Endoscopy

Various endoscopic procedures (diagnosis, therapeutic)

Urology

Principles of renal ultrasonography

Bladder outflow obstruction

Prostatic conditions

Urethral problems

Testicular diseases

Renal and ureteric problems (benign and malignant)

Orthopaedics

Principles of traction and immobilization

Bone and joint infections

Bone tumours (benign/malignant)

Metabolic conditions

Cardiothoracic surgery

Respiratory function

Lung and pleural infections

Pleural collections

Lung and pleural neoplasms

Neurosurgery

Principles of neuroimaging

Neurological assessment

Neural tube defects

Brain tumours

Benign/malignant

Spinal cord compressions (acquired, neoplastic, traumatic)

Paediatric surgery

Evaluation of the paediatric surgical patient

Hernias and hydrocoeles

Congenital and acquired gastrointestinal conditions

Stoma formation and care

Childhood tumours (nephroblastoma, neuroblastoma, teratoma, Burkitt's lymphoma etc)

Plastic and Reconstructive surgery

Principles of reconstructive surgery

Management of burns and its complications

Management of common craniofacial abnormalities

Anaesthesia*General principles of anaesthesia**Local**Regional**General**Principles of critical and intensive care**Principles of analgesia and pain management***Others***Computers and the Internet in surgery**Surgical audit**Surgical ethics/ Informed consent***Course contents for Part 1/Membership****1. PRINCIPLES OF SURGERY IN GENERAL****a. Preoperative Management**

- General assessment of a patient for anaesthesia and surgery
- Applied physiology, anatomy and biochemistry of Respiratory, Cardiovascular and Renal system etc.
- Principles of anaesthesia
- Principles of Fluid and Electrolyte balance
- Shock
- Laboratory investigation
 - Biochemistry
 - Haematology – Blood transfusion, normal and abnormal haemostasis
 - Microbiology
- Imaging – X-ray, Ultrasound, CT-Scan, MRI. Diagnostic and interventional radiology
- Management of co-morbid factors in surgery
 - Malaria
 - Malnutrition
 - Cardiovascular
 - Respiratory Disease
 - Endocrine disorders – Diabetes Mellitus, thyrotoxicosis
 - Anaemia
 - HIV/AIDS patient etc.

b. Perioperative Management

- Surgical Theatre set-up
 - Surgical instrument and equipment
 - Ventilation in the theatre-humidity, temperature
 - Theatre design and layout
 - Sutures and implants
- Infection and the Surgical patient
 - Scrubbing techniques
 - Skin preparation and draping
 - Infection control decontamination
 - Sterilisation and disinfection
 - Antibiotic prophylaxis
 - General principle of infection in the surgical patient
 - Pathophysiology of nosocomial infection, surgically important microorganism

c. Postoperative Management

- Nutrition in Surgery
- Pain management
- Principle of wound healing and management – wound dehiscence, and Surgical Site Infection (SSI)
- Metabolic response in injury
- Postoperative complication- deep vein thrombosis, renal failure etc.
- Basic principles of immunology
- Basic principles of transplant surgery

d. ETHICS OF SURGICAL PRACTICE

- Medical ethics and medico-legal aspect of surgery
- Psychological effects of surgery and bereavement

e. COMMUNICATION SKILLS

- Patient/doctor/other health staff
- Report writing, presentation skills

f. HOSPITAL MANAGEMENT

- Administrative procedures

- Financial management
- Human resources management
- Logistic management

g. RESEARCH METHODOLOGY/COMPUTER SKILLS

- Basic principles of statistics
- Computer skills

h. CLINICAL AUDIT

- Decision making in surgery

2. TRAUMA

Clinical assessment

- Prehospital Care
- Triage
- Transport of the injured patient
- Primary assessment and resuscitation
 - Assessment of the injured patient
 - ABCDE of resuscitation (CPR, BTLS, ATLS: - “hands-on”)
 - Shock: - management of haemorrhagic shock, cardiopulmonary bypass-general principles
 - Care of the multiple injured patient
 - Trauma scoring system
 - Gunshot/Blast injuries
 - Management of mass casualty
- Principles of traumatic wound management – Compound fractures

Head, Neck and Spinal Injury

- Applied anatomy and physiology of head, neck and the spine
- Management of the head injured patient
- Management of neck injuries
- Management of the spinal injured patient

Chest Injuries

- Applied anatomy and physiology of the chest
- Management of chest injuries
 - Pneumothorax, Haemothorax
 - Rib fractures, Flail chest
 - Mediastinal, parenchymal and diaphragmatic injuries

Abdominal Injuries

- Applied anatomy and physiology of the abdomen
- Management of blunt and penetrating injuries of the abdomen
 - Solid organ injuries (liver, spleen, pancreas etc)
 - Hollow organ injuries (blood vessels, intestines, stomach, oesophagus etc)

Genitourinary Injuries

- Applied anatomy and physiology of the genitourinary system
- Management of genitourinary injuries
- Kidneys, ureters, bladder, prostate, urethra, penis, testis, vagina, uterus

Pelvic Injuries

- Applied anatomy physiology of the pelvis
- Management of pelvic injuries

Limb Injuries

- Applied anatomy and physiology of the limbs
- Management of hand injuries:- nerve, tendons, vessels and bones
- Management of upper limb injuries
- Management of lower limb injuries
- Fractures
 - pathophysiology of fracture healing
 - principles of fracture management
- Non-union, delayed union and complications
- Bone grafting
- Compartment syndrome, Traumatic oedema, Fat embolism

- Brachial plexus injury

Management of Severely Injured Patient

- Systemic and metabolic response to trauma
- Mass casualty

Rehabilitation of Trauma Patient

- Physiotherapy
- Prosthesis

c. BURNS

- Applied anatomy and physiology of the skin
- Pathophysiology of Burns
- First Aid at site and safety
- Immediate care – resuscitation – ABCDE and fluid therapy
- Escharotomy
- Burn wound care
 - Wound dressing
 - Excision and skin graft
- Rehabilitation – scar management – keloids, hypertrophic scars

d. INTENSIVE CARE

- Organisation, staffing and function
- Indications for admission
- Scoring
- Costs
- Sepsis, predisposing factors:-localized, pneumonia, lung abscess
- Vascular access
- Monitoring of cardiovascular, respiratory and renal system in the critically ill-patient
- Endotracheal intubation, laryngotomy, tracheostomy
- Multisystem failure
- Systemic response to trauma

- Shock management
- Applied pharmacology
- Applied anatomy, and physiology of the respiratory, cardiovascular, renal and endocrine system

e. *PRINCIPLES OF ONCOLOGY*

- Epidemiology of common neoplasms- the role of Cancer Registry
- Principles of carcinogenesis and pathogenesis of cancer
- Clinico-pathological staging of cancer
- Principles of cancer management by surgery, radiotherapy, chemotherapy, immunotherapy and hormonal therapy
- Immunology
- Special investigation
- Molecular biology of cancers and mechanism of invasion
- Cancer screening and prevention programmes
- Care of the terminal cancer patients
- Rehabilitation and psychological support after surgery

f. *SYSTEM SURGERY*

Abdomen

- Abdominal wall
 - applied anatomy of the abdominal wall:- incisions, laparoscopic access
 - the anatomy of the abdominal wall:- hernias; inguinal canal, femoral canal, etc
 - Hernias:- clinical features, complications and management
- Acute abdominal condition
 - applied anatomy and physiology of abdominal viscera: peritoneum, solid and hollow viscera
 - management of acute abdominal conditions:-
 - Inflammatory conditions
 - Obstruction of hollow viscus
 - Perforations
 - Haemorrhage
 - Pancreatitis

Gynaecological conditions

Others: - e.g. non-surgical conditions – sickle cell crisis, pneumonia, ulcerative colitis, typhoid and amoebic infections

- Elective abdominal condition
 - Stomach and Duodenum - Peptic ulcer disease etc.
 - Oesophagus
 - Spleen and Portal hypertension
 - Liver and biliary tree - Jaundice – differential diagnosis and treatment, Hepatocellular carcinoma etc.
 - Pancreas
 - Common and peri-anal disorders: -haemorrhoids, anal fissure, fistula-in-ano
 - Enterocutaneous fistula
 - Abdominal masses
 - Herniae
 - Colorectal tumours – management and colonic obstruction
 - Irritable bowel syndrome
 - Diverticular disease

Genitourinary

- Applied anatomy and physiology of the renal system
- Management of the upper urinary tract conditions:
 - urinary tract infection
 - haematuria
 - urinary calculi
 - tumours
- Management of lower urinary tract conditions
 - urinary retention
 - disorders of the prostate
 - pain and swelling in the scrotum – testicular torsion
 - tumours of the prostate, bladder, testis

Breast

- Applied anatomy and physiology of the breast
- Investigation of breast diseases
- Inflammatory conditions of the breast
- Benign neoplastic diseases of the breast
- Malignant diseases of the breast

Neck and Endocrine Glands

- Applied anatomy and physiology of the endocrine glands
- Patho-physiology of the thyroid, parathyroid, pituitary, adrenal cortex, adrenal medulla; the gut as endocrine gland
- Management of common neck swellings
- Thyroid – the role of surgery in thyroid disease including hospitalization and thyroidectomy
- Parathyroid – hyperparathyroidism, hypercalcaemia
- Secondary hypertension
- Pancreatic conditions of surgical importance
- Adrenal conditions of surgical importance

Paediatric Surgery

- Examination of the paediatric surgical patient
- Fluid and electrolyte balance
- Neonatal physiology
- Special problems of anaesthesia and surgery I in the newborn
- Specific paediatric surgical disorders:
 - Pyloric stenosis
 - Hernias
 - Intussusception
 - Undescended testis
 - Torsion
 - Neonatal intestinal obstruction

- Abdominal wall abnormalities
- Phimosiis
- Posterior urethral valves

Lumps and Swellings

- Applied anatomy and physiology of the skin and subcutaneous tissue
- Superficial soft tissue swellings and their management.

Plastic Surgery

- Management of chronic ulcers – skin grafting
- Lymphoedema
- Congenital malformations – Cleft lip and palate, haemangiomas

Arterial and Venous Disorders

- Vascular and Lymphatic systems
 - Arterial diseases
 - Venous diseases
 - Lymphatic disorders

Cardiothoracic Surgery

- The thorax
- The Heart

Neurosurgery

- Hydrocephalus
- Spine and cord defects
- Intracranial infections
- Neoplastic lesions

Orthopaedics

- Acute and chronic bone infections including TB
- Poliomyelitis
- Osteoarthritis and low back pain
- Compartment syndromes
- Congenital deformities
- Bone tumours

Principles of Minimally Invasive Surgery

Day Care Surgery

CURRICULUM FOR THE PART II FINAL EXAMINATION IN GENERAL SURGERY

Following successful completion of the part I examination, the candidate wanting to train in GENERAL SURGERY should seek admission into an accredited hospital for training in this specialty.

The training is for a minimum period of 36 months and training is in various aspects of general surgery.

Each candidate should keep a daily and up to date record of operative procedures he/she participates in during this period of training, using the prescribed logbook for general surgery published by the faculty.

During this period, the candidate is advised to attend the integrated revision course in surgery, and other courses regularly organized by the college. The candidate must write and submit a copy of a dissertation project. **(see details below.)**

CORE POSTINGS These shall be the core postings;

- a. Surgical Oncology [including Breast diseases, Surgical endocrinology and Skin / soft tissue lesions] - 6-12 months
- b. Gastroenterology [including upper GIT, Colo-proctology, Laparoscopic and Endoscopic Surgery] - 12months
- c. Hepatopancreaticobiliary surgery [may be combined with Gastroenterology but ideally should have a separate unit] - 6 months

ELECTIVE POSTING: The remaining 6-12 months should be undertaken in 2-4 of the following areas:

- a. Burns & Plastic Surgery
- b. Paediatric Surgery
- c. Orthopaedics/Trauma
- d. Neuro Surgery
- e. Urology
- f. Cardio thoracic/Vascular Surgery
- g. Radiation oncology and Medical Oncology

The course shall involve:

- 2hours of didactic lectures/ tutorials/seminar presentation daily i.e. 10 hours per week.

-10 hours of practical skill acquisition/clinical exposure daily i.e. 50 hours per week.

Course credit allocation

1hour of lectures/tutorials/seminar per week for 3 months is allocated 1 credit unit

5 hours of practical skill acquisition/clinical exposure per week for 3 months is allocated 1 credit unit

Therefore a 3months posting has a total of 20 credit units; 10 credits for lectures and 10 credits for practical skill acquisition/clinical exposure.

The dissertation project is allocated 20 credit units

Minimum total number of 260 Credit Units (240 units plus 20 Units for Thesis) over a period of at least 36 months in the appropriate postings and submission of dissertation will make a candidate eligible to sit for the Part II FINAL Fellowship examinations

Syllabus

The candidate is expected to acquire detailed theoretical knowledge and skill in the pathology, pathophysiology, evaluation and management (including operative surgery) in the following areas and aspects of surgery;

1. Trauma

- a) *General management of the injured*
- b) *Mass casualty and multiple injury*
- c) *Craniocerebral trauma*
- d) *Thoracic trauma*
- e) *Abdominal trauma*
- f) *Skeletal trauma*

2. Abscesses

- a) *Breast*
- b) *Injection*
- c) *Perianal*
- d) *Pyomyositis*

3. Lumps and Bumps

- a) *Lipoma*
- b) *Sebaceous cyst*
- c) *Dermoid cyst*
- d) *Ganglion*

4. Ingrowing nails

5. Hernias

- a) *Inguinal*
- b) *Femoral*
- c) *Umbilical/paraumbilical*
- d) *Epigastric*
- e) *Incisional*
- f) *Others*

6. Hydroceles

7. Diseases of the oesophagus

- a) *Perforation*
- b) *Oesophagitis*
- c) *Stricture*
- d) *Motility disorders*
- e) *Malignancies*

8. Gastro-intestinal bleeding**9. Gastric and duodenal diseases**

- a) *Peptic ulcer and its complications*
- b) *Benign and malignant neoplasms*
- c) *Others*

10. Problems of the Appendix

- a) *Appendicitis and its complications*
- b) *Mucocele*
- c) *Carcinoma*

11. Intestinal obstruction**12. Intestinal and Colonic diseases**

- a) *Infections and infestations*
 - i. *Typhoid and its complications*
 - ii. *Amoebiasis*
 - iii. *Ascariasis*
 - iv. *Schistosomiasis*
 - v. *Others*
- b) *Enterocutaneous fistula*
- c) *Inflammatory bowel disease*
- d) *Diverticular disease*
- e) *Benign and malignant neoplasms*

13. Anorectal diseases

- a) *Trauma*
- b) *Infections and infestations*
- c) *Abscesses*
- d) *Fistula*
- e) *Fissure*
- f) *Haemorrhoids*
- g) *Prolapse*
- h) *Benign and malignant neoplasms*

14. Hepatobiliary diseases

- a) *Infections and infestations*
- b) *Portal hypertensions*
- c) *Bile duct obstruction*

- d) *Cholelithiasis and cholecystitis*
- e) *Benign and malignant neoplasms*

15. Splenic diseases

- a) *Infections and infestations*
- b) *Hypersplenism*
- c) *Benign and malignant neoplasms*
- d) *Others*

16. Endocrine surgery

- a) *Pituitary*
- b) *Thyroid*
- c) *Parathyroid*
- d) *Adrenal gland*
- e) *Ovaries*

17. Breast surgery

- a) *Infections and infestations*
- b) *Lumps and other benign problems*
- c) *Carcinoma*
- d) *Other malignancies*

18. Salivary gland diseases

- a) *Parotid*
- b) *Submandibular*
- c) *Sublingual*
- d) *Minor glands*

19. Diseases of the skin and integuments

- a) *Infections and infestations*
- b) *Malignancies*
 - i. *Squamous cell carcinoma*
 - ii. *Basal cell carcinoma*
 - iii. *Malignant melanoma*
 - iv. *Cutaneous metastasis*
 - v. *Others*
- c) *Others*

20. Urologic problems

- a) *Urine retention*
- b) *Prostatic diseases*
- c) *Urethral stricture*
- d) *Ureteric obstruction*
- e) *Kidney diseases*

21. Paediatric surgery

- a) *Intestinal obstruction in childhood*

- b) Hirschsprung's disease*
- c) Hernias and hydrocele*
- d) Infantile hypertrophic pyloric stenosis*
- e) Childhood tumours*

22. Cardio-thoracic surgery

- a) Empyema and pleural collections*
- b) Infections of the lung*
- c) Air way obstruction*
- d) Cardiac tamponade*
- e) Constrictive pericarditis*
- f) Benign and malignant neoplasms*

23. Plastic and reconstructive surgery

- a) Burns and its complications*
- b) Polydactyly and syndactyly*
- c) Skin grafting*

24. Gynaecologic problems

- a) Salpingitis and pelvic abscess*
- b) Ectopic pregnancy*
- c) Surgical complications of gynaecologic procedures*
- d) Ovarian tumours*

25. Investigative procedures

- a) Endoscopy (all types)*
- b) Ultrasonography*
- c) Plain radiography*
- d) Contrast radiography (all types)*
- e) Computed tomography*
- f) Magnetic resonance imaging*
- g) Others*

26. Others, including transplant surgery

CURRICULUM FOR THE PART II FINAL EXAMINATION IN UROLOGY

Following successful completion of the part I examination, the candidate wanting to train in UROLOGY should seek admission into an accredited hospital for training in this specialty.

The training is for a minimum period of 36 months and training is in various aspects of urology and compulsory rotation of eight (8) weeks each in nephrology, radiology/radiotherapy and three (3) weeks in histopathology.

Each candidate should keep a daily and up to date record of operative procedures he/she participates in during this period of training, using the prescribed logbook for urology published by the faculty.

During this period, the candidate is encouraged to attend the integrated revision course in surgery, and other courses regularly organized by the college. The candidate must write and submit a copy of a dissertation project. (details of dissertation as below).

The course shall involve:

- 2hours of didactic lectures/ tutorials/seminar presentation daily i.e. 10 hours per week.

-10 hours of practical skill acquisition/clinical exposure daily i.e. 50 hours per week.

The course shall involve:

- 2hours of didactic lectures/ tutorials/seminar presentation daily i.e. 10 hours per week.

-10 hours of practical skill acquisition/clinical exposure daily i.e. 50 hours per week.

Course credit allocation

1hour of lectures/tutorials/seminar per week for 3 months is allocated 1 credit unit

5 hours of practical skill acquisition/clinical exposure per week for 3 months is allocated 1 credit unit

Therefore a 3months posting has a total of 20 credit units; 10 credits for lectures and 10 credits for practical skill acquisition/clinical exposure.

The dissertation project is allocated 20 credit units

Minimum total number of 260 Credit Units (240 units plus 20 Units for Thesis) over a period of at least 36 months in the appropriate postings and submission of dissertation will make a candidate eligible to sit for the Part II FINAL Fellowship examinations

Syllabus

The training involves training in general urology, urologic oncology, reconstruction and trauma, Female urology, paediatric urology, andrology and male infertility, nephrology and transplantation and endourology. Others include radiology and radiotherapy statistical methods and Research method.

General urology-	Physiology of urinary tract Anatomy and embryology Molecular genetics molecular biology, cytokines, growth factors Histopathology Principles of surgery (tumour markers, pain, wound healing etc) Clinical examination Physiology of bowel The cell (division, abnormal cell growth) Anatomy and embryology of the abdomen, anterior abdominal wall, pelvis, perineum and retroperitoneal space (endoscopy, laparoscopic surgical anatomy)
Diagnostic urology	Uroradiology and radiopharmaceutics Instrumentation and endoscopy Uro ultrasonography Urodynamics
Reconstruction and trauma	General principles of substitution in the urinary tract (bowel, buccal mucosa, and other). Lower urinary tract (urethral Strictures, BPH) BPH Epidemiology, Pathogenesis, Assessment, TURP, other. Upper urinary tract disease. Reconstruction. Short and long ureteric defects. Reimplantation. Bladder (augmentation cystoplasty, replacement). Penile: Peyronie's fracture Scrotum-elephantiasis etc Kidney: pyeloplasty
Oncology	Principles and biology of cancer spread Principles of cancer therapy (radiotherapy, chemotherapy and Immunotherapy, Phototherapy) Adrenal tumours Kidney benign and malignant tumours Urothelial tumours Cancer bladder, Prostate cancer, assessment, treatment options. Principles of screening and prevention of Prostate cancer. Bladder cancer – Epidemiology, radical cystectomy and urinary diversion adrenal cancer

- Penile cancer
- Testicular cancer
- Scrotal cancer
- Female urology
 - Urodynamic principles and practice
 - Urinary incontinence assessment and approach to treatment (slings, injectable materials. Operation for prolapse)
 - Post op care
 - Acquired fistulae
 - Female urethra: trauma, tumours, infections, urethral syndromes
 - UTI
- Paediatric urology
 - Evaluation of the paediatric patient
 - Perinatal urology
 - Neonatal urologic emergencies
 - Renal disease in child hood
 - UTI in Infants and children
 - Kidney anomalies of the PUJ
 - Cystic diseases of the kidney
 - Ureteric embryology anomalies(megaureter, vesicoureteric reflux)
 - Prune Belly Syndrome
 - Exstrophy-Epispadias Complex
 - Cloacal Malformations
 - Neurogenic dysfunction in children
 - Enuresis
 - Preputial pathology-Circumcision
 - Puv, Anterior urethral valves
 - Mega urethral, duplex urethral
 - Hypospadias (embryology and treatment options)
 - Ureterocele assessment and treatment.
 - Genitalia: Embryology anatomy and what goes wrong .The neonate with ambiguous genitalia.
 - Intersex Classification, evaluation, surgical options
 - Cryptorchidism, embryology of testis descent, pathology and treatment, varicocele, testicular torsion, Patent processus vaginalis anomalies
 - Wilm's tumour, Rhabdomyosarcoma of the GUT.

Andrology and Male infertility

- Biology of spermatogenesis and gene control
- Sexual function and dysfunction
- Ejaculation: physiology and disorders
- Physiology of penile erection
- Pathophysiology of erectile dysfunction
- Surgical and non-surgical treatment of ED (oral drugs, injection prosthesis and counsel)
- Peyronie's Disease
- Priapism

genitalia	Warts and genital ulcers. HIV/AIDs urogenital lesions. Cutaneous lesions of the male Fungal, bacterial, inflammatory, viral. Genitourinary tuberculosis Genitourinary bilharzia Genitourinary filariasis.
Statistical methods and research methodology	
Radiation, medical physics and radiotherapy	
Radiology	Uroradiology: The candidate is expected to acquire detailed theoretical knowledge and skill in the pathology, pathophysiology, evaluation and management (including operative surgery) in the following areas and aspects of urology;

CURRICULUM FOR THE PART II FINAL EXAMINATION IN ORTHOPAEDIC AND TRAUMA SURGERY

Following successful completion of the part I examination, the candidate wanting to train in ORTHOPAEDIC AND TRAUMA SURGERY should seek admission into an accredited hospital for training in this specialty.

The training is for a minimum period of 36 months and training is in various aspects of Orthopaedic and trauma surgery.

Each candidate should keep a daily and up to date record of operative procedures he/she participates in during this period of training, using the prescribed logbook for Orthopaedic and trauma surgery published by the faculty.

During this period, the candidate is encouraged to attend the integrated revision course in surgery, and other courses regularly organized by the college. The candidate must write and submit a copy of a dissertation project. (details of dissertation as below).

The course shall involve:

- 2hours of didactic lectures/ tutorials/seminar presentation daily i.e. 10 hours per week.

-10 hours of practical skill acquisition/clinical exposure daily i.e. 50 hours per week.

Course credit allocation

1hour of lectures/tutorials/seminar per week for 3 months is allocated 1 credit unit

5 hours of practical skill acquisition/clinical exposure per week for 3 months is allocated 1 credit unit

Therefore a 3months posting has a total of 20 credit units; 10 credits for lectures and 10 credits for practical skill acquisition/clinical exposure.

The dissertation project is allocated 20 credit units

Minimum total number of 260 Credit Units (240 units plus 20 Units for Thesis) over a period of at least 36 months in the appropriate postings and submission of dissertation will make a candidate eligible to sit for the Part II FINAL Fellowship examinations

Syllabus

The candidate is expected to acquire detailed theoretical knowledge and skill in the pathology, pathophysiology, evaluation and management (including operative surgery) in the following areas and aspects of orthopaedics and trauma;

General Principles*Bone formation and healing**Wound healing***Trauma***Vascular access and resuscitation**Evaluation and management of the multiply injured**Wound care**Conservative and operative management of various fractures**Hand injuries**Foot injuries***Orthopaedic***Orthopaedic infections**Hand/upper limb surgery**Children's Orthopaedic surgery**Syndactyly**Club foot**Rickets**Joint reconstructions/revision surgery**Foot surgery**Spinal surgery**Scoliosis**Cervical spine**Tuberculosis**Knee surgery**Tumours (benign/malignant)***Plastic surgery***Basic principles of plastic surgery**Grafts**Flaps*

CURRICULUM FOR THE PART II FINAL EXAMINATION IN PLASTIC AND RECONSTRUCTIVE SURGERY

Following successful completion of the part I examination, the candidate wanting to train in PLASTIC AND RECONSTRUCTIVE SURGERY should seek admission into an accredited hospital for training in this specialty.

The training is for a minimum period of 36 months and training is in various aspects of general surgery.

Each candidate should keep a daily and up to date record of operative procedures he/she participates in during this period of training, using the prescribed logbook for plastic and reconstructive surgery published by the faculty.

During this period, the candidate is encouraged to attend the integrated revision course in surgery, and other courses regularly organized by the college. The candidate must write and submit a copy of a dissertation project, (details of dissertation as below).

The course shall involve:

- 2hours of didactic lectures/ tutorials/seminar presentation daily i.e. 10 hours per week.
- 10 hours of practical skill acquisition/clinical exposure daily i.e. 50 hours per week.

Course credit allocation

1hour of lectures/tutorials/seminar per week for 3 months is allocated 1 credit unit

5 hours of practical skill acquisition/clinical exposure per week for 3 months is allocated 1 credit unit

Therefore a 3months posting has a total of 20 credit units; 10 credits for lectures and 10 credits for practical skill acquisition/clinical exposure.

The dissertation project is allocated 20 credit units

Minimum total number of 260 Credit Units (240 units plus 20 Units for Thesis) over a period of at least 36 months in the appropriate postings and submission of dissertation will make a candidate eligible to sit for the Part II FINAL Fellowship examinations

Syllabus

The candidate is expected to acquire detailed theoretical knowledge and skill in the pathology, pathophysiology, evaluation and management (including operative surgery) in the following areas and aspects of plastic and reconstructive surgery;

General principles

Principles of wound healing and wound repair
Tissue transfer (free grafts, vascular pedicles, micro anastomosis)
Use of non-autogenous grafts and implants, tissue expansions
Principles of aesthetic surgery
Patient selection
Scars (cosmesis, hypertrophic, keloids)
Management of benign skin diseases (naevi etc)
Principles of Laser therapy

Management of acute trauma

Hand injuries (tendon, neurovascular, bones)
Hand infections
Soft tissue injuries of the face
Fractures of the nose, malars
Principles of management of maxillary and mandibular fractures

Burns

Resuscitation of major burns
Nutrition and infections
Primary treatment of burns wounds
Management of post burns scaring

Paediatric plastic surgery

General principles of cleft lip and palate management
General principles of craniofacial surgery
General principles of hypospadias management
General principles of congenital hand surgery

Malignant skin tumours

Melanoma, including surgical management of metastatic spread to regional lymph nodes
Squamous and basal cell carcinomas
Soft tissue sarcoma of skin and other tissues
Non-surgical managements of the above conditions

Head and neck tumours

Principles of management
Carcinoma of floor of mouth, palate and maxillary antrum
Functional and radical neck dissection
Functional and aesthetic reconstruction
Mandibular reconstruction
Prosthetic, parotidectomy, reconstruction of the facial nerve

Hand surgery

Contractures (Duputyren's)
Carpal tunnel syndrome
Tendon transfers

Congenital malformations
Complex posttraumatic surgical rehabilitation

Reconstructive and aesthetic plastic surgery

Reconstruction of facial defects (upper and lower lips)

Face lifts

Reconstructive rhinoplasty

Reconstructive and aesthetic surgery of the eyelid

Reconstructive and aesthetic surgery of the ear

Reconstructive and aesthetic surgery of the breast

Benign and malignant tumours

Gynaecomastia

Reconstructive and aesthetic surgery of the trunk and limbs

Reconstruction of chest and abdominal wall defects (pectus excavatum, abdominoplasty)

Treatment of lipotrophy

Surgical management of metastatic and malignant diseases of skin and soft tissues

Reconstructive surgery of the external genitalia

Hypospadias/epispadias

Vaginal reconstruction and gender reassignment

Principles of research

Familiarity with relevant and scientific publications and detailed knowledge of recent advances

Detailed knowledge of investigation and management of relevant and syndromic diagnoses

CURRICULUM FOR THE PART II FINAL EXAMINATION IN PAEDIATRIC SURGERY

Following successful completion of the part I examination, the candidate wanting to train in PAEDIATRIC SURGERY should seek admission into an accredited hospital for training in this specialty.

The training is for a minimum period of 36 months and training is in various aspects of general surgery.

Each candidate should keep a daily and up to date record of operative procedures he/she participates in during this period of training, using the prescribed logbook for paediatric surgery published by the faculty.

During this period, the candidate is encouraged to attend the integrated revision course in surgery, and other courses regularly organized by the college. The candidate must write and submit a copy of a dissertation project. (details of dissertation as below).

The course shall involve:

- 2hours of didactic lectures/ tutorials/seminar presentation daily i.e. 10 hours per week.
- 10 hours of practical skill acquisition/clinical exposure daily i.e. 50 hours per week.

Course credit allocation

1hour of lectures/tutorials/seminar per week for 3 months is allocated 1 credit unit

5 hours of practical skill acquisition/clinical exposure per week for 3 months is allocated 1 credit unit

Therefore a 3months posting has a total of 20 credit units; 10 credits for lectures and 10 credits for practical skill acquisition/clinical exposure.

The dissertation project is allocated 20 credit units

Minimum total number of 260 Credit Units (240 units plus 20 Units for Thesis) over a period of at least 36 months in the appropriate postings and submission of dissertation will make a candidate eligible to sit for the Part II FINAL Fellowship examinations

Syllabus

The candidate is expected to acquire detailed theoretical knowledge and skill in the embryology and embryogenesis, teratology, pathology, pathophysiology, evaluation and management (including operative surgery) in the following areas and aspects of paediatric surgery;

General principles

Surgical embryology and teratology
Principles of prenatal diagnosis and fetal therapy
Physiology of the neonatal and paediatric surgical patient
Fluids and electrolytes
Nutritional support
Infection and immunity
Haematological problems and their management
Paediatric anaesthesia
Trauma and resuscitation
Malignancy and chemotherapy

Neonatal surgery

Evaluation and handling of the surgically ill neonate
Air way obstruction
Intestinal obstruction
Stoma formation and care
Abdominal wall defects
Neural tube defects
Neonatal tumours

Head and neck

Thyroglossal duct remnants
Thyroid problems
Cystic swellings (hygromas, branchial cysts etc)
Cleft lip and palate

Thoracic surgery

Surgical aspects of congenital heart disease
Tracheostomy
Foreign bodies in the aerodigestive tract
Chest infection and its complications
Pleural collections
Chest wall deformities
Oesophageal surgery
Atresia and TOF
Caustic and corrosive injuries
Replacement and reconstruction

Gastrointestinal surgery(including endoscopy 26/05/2014)

Intestinal obstruction
Stoma formation and care
Intestinal malrotation
Intestinal duplication
Vitelline duct anomalies
Pyloric stenosis
Gastro-oesophageal reflux

Anorectal anomalies
Hirschsprung's disease
Appendicular diseases
Splenic diseases
Hepatobiliary surgery
Biliary atresia
Choledochal cyst
Pancreatic problems
Cysts/pseudocysts

Paediatric urology

Bladder exstrophy/epispadias
Hypospadias
Vesico-ureteric reflux
Bladder outlet obstruction
Urinary stones
Urinary diversion/undiversion
Ambiguous genitalia
Endoscopy
Renal tumours

Paediatric neurosurgery

Neural tube defects
Spina bifida
Hydrocephalus
Encephalocoeles
Phakomatosis
Von Recklinghausen's disease
Sturge Weber
Von Hippel Lindau
Tuberous sclerosis
Others
Head and spinal injury

Transplant surgery

Renal
Liver
Intestinal

Childhood tumours

Management of various childhood tumours (nephroblastoma, neuroblastoma, teratoma, rhabdomyosarcoma, hepatoblastoma, lymphoma etc)

Principles of research

CURRICULUM FOR THE PART II FINAL EXAMINATION IN CARDIOTHORACIC SURGERY

Following successful completion of the part I examination of either WACS or CES , the candidate wanting to train in CARDIOTHORACIC SURGERY should seek admission into an accredited hospital for training in this specialty.

The training is for a minimum period of 48 months and training is in various aspects of cardiothoracic surgery.

Each candidate should keep a daily and up to date record of operative procedures he/she participates in during this period of training, using the prescribed logbook for cardiothoracic surgery published by the faculty.

During this period, the candidate is encouraged to attend the integrated revision course in surgery, and other courses regularly organized by the college. The candidate must write and submit a copy of a dissertation project. (details of dissertation as below).

The duration of training shall involve the following rotations:

- 1) General Thoracic surgery -----24 months.
- 2) Cardiac surgery ----- 12 months.
- 3) Vascular surgery ----- 6 months.
- 4) Cardiology—Adult and Paediatric ---- 3 months.
- 5) Cardio-Pulmonary Imaging ----- 3 months.

While it is possible for rotations should be integrated ,i.e run concurrently. It is preferred that general surgical rotations should precede that of cardiac surgery. Where rotations 2 and 4 are not available in West African subregion, they may be done in an accredited institution in South Africa, India, Western Europe or North America.

The course shall involve:

- 2hours of didactic lectures/ tutorials/seminar presentation daily i.e. 10 hours per week.

-10 hours of practical skill acquisition/clinical exposure daily i.e. 50 hours per week.

Course credit allocation

1hour of lectures/tutorials/seminar per week for 3 months is allocated 1 credit unit

5 hours of practical skill acquisition/clinical exposure per week for 3 months is allocated 1 credit unit

Therefore a 3months posting has a total of 20 credit units; 10 credits for lectures and 10 credits for practical skill acquisition/clinical exposure.

The dissertation project is allocated 20 credit units

Minimum total number of 340 Credit Units (320 units plus 20 Units for Thesis) over a period of at least 48 months in the appropriate postings and submission of dissertation will make a candidate eligible to sit for the Part II FINAL Fellowship examinations

Syllabus

The candidate is expected to acquire detailed theoretical knowledge and skill in the pathology, pathophysiology, evaluation and management (including operative surgery) in the following areas and aspects of cardiothoracic surgery;

General principles

Principles of surgical embryology as it relates to the heart and great vessels, and tracheobronchial tree, chest wall and diaphragm

Physiology of neonatal circulation, univentricular circulation, pulmonary circulation and management of pulmonary vascular diseases

Morphology and classification of congenital heart diseases

Haemostatic mechanisms, anticoagulants and antiplatelet agents

Investigations, including angiography and cardiac catheter data

Basic biochemical studies

Electrocardiograms, cardiac isotope studies

Radiological investigations, including CT scan and MRI

Pathologies of emphysema, lung carcinoma, oesophageal carcinoma, mesotheliomas, cardiac tumours

Cardiopulmonary resuscitation

Endoscopy

Indications and preparation of patients for various endoscopic procedures including laryngoscopy, bronchoscopy, Oesophagoscopy thoracoscopy

Thoracic surgery

Congenital problems

Trauma

Infective problems and their complications

Obstructive and restrictive air diseases

Oesophageal problems and their management

Tumours (benign/malignant)

Cardiac surgery

Principles of cardiac catheterization

Management of congenital heart diseases (PDA, ASD, VSD, Fallot's tetralogy etc)

Management of anomalies of the great vessels

Pacemakers

Valve design and construction

Management of acquired valvular diseases

Pericardial diseases and their management

Aneurysms

Arrhythmias and their management

Management of venous thrombosis

Pulmonary embolism and management

Cardiac tumours and their management

Transplant surgery

Cardiac, lung, heart-lung

Mechanical circulatory support

Organ retrieval, preservation and monitoring of rejection

Harvest and utilization of homografts in congenital heart surgery

Cardiomyoplasty

Principles of research

Audit and analyses of scientific data

Detailed knowledge of basic immunology, pharmacology

CURRICULUM FOR THE PART II FINAL EXAMINATION IN NEUROSURGERY

Following successful completion of the part I examination, the candidate wanting to train in NEUROSURGERY should seek admission into an accredited hospital for training in this specialty.

The training is for a minimum period of 48 months and training is in various aspects of neurosurgery.

Each candidate should keep a daily and up to date record of operative procedures he/she participates in during this period of training, using the prescribed logbook for neurosurgery published by the faculty.

During this period, the candidate is encouraged to attend the integrated revision course in surgery, and other courses regularly organized by the college. The candidate must write and submit a copy of a dissertation project. (details of dissertation as below).

The course shall involve:

- 2hours of didactic lectures/ tutorials/seminar presentation daily i.e. 10 hours per week.
- 10 hours of practical skill acquisition/clinical exposure daily i.e. 50 hours per week.

Course credit allocation

1hour of lectures/tutorials/seminar per week for 3 months is allocated 1 credit unit

5 hours of practical skill acquisition/clinical exposure per week for 3 months is allocated 1 credit unit

Therefore a 3months posting has a total of 20 credit units; 10 credits for lectures and 10 credits for practical skill acquisition/clinical exposure.

The dissertation project is allocated 20 credit units

Minimum total number of 340 Credit Units (320 units plus 20 Units for Thesis) over a period of at least 48 months in the appropriate postings and submission of dissertation will make a candidate eligible to sit for the Part II FINAL Fellowship examinations

Syllabus

The candidate is expected to acquire detailed theoretical knowledge and skill in neuropathology; neuroradiology, neurology, embryogenesis, neuroanatomy and neurophysiology to enable the candidate diagnose, evaluate and treat pathological processes which affect the nervous system. Neurosurgery includes the operative, non-operative, intensive care management and rehabilitation of patients with disorders of cranium, spine and nervous system. The syllabus includes;

General principles*Infections in neurosurgery**Pathophysiology of neurotrauma, neoplastic conditions**Embryogenesis of neural tube defects**Fluid and electrolytes in neurosurgery**Hormones in neurosurgery**Detailed knowledge of neurophysiology, including neurotransmitters**Neuroradiological diagnoses (X-rays, CT, MRI, angiogram, myelogram)***Neurotrauma***Management of head injury, including mechanism, non-surgical and surgical management***Infections in neurosurgery***Osteomyelitis, brain abscessed, subdural empyema**HIV and neurosurgery***Brain tumours***Theories about causation of brain tumours**Classification and grading of various brain tumours**Detailed knowledge of management (medical and surgical) of various brain tumours**Knowledge and user of CUSA in brain tumour surgery**Meningiomas**Classification and management**Posterior fossa tumours**Others***Pituitary surgery***Pituitary tumours (micro/macro) presentations and management (medical and surgical, including transphenoidal and transcranial approaches)***Vascular surgery***Aneurysms, presentations and management (medical and surgical), familiarity with the microsurgical instruments and the operating microscope**Carotid endarterectomy**Caroticocarvenous fistula**Others***Skull base surgery****Spinal surgery***Tumours (benign and malignant)**Degenerative diseases**Cervical disc diseases**Cervical canal stenosis**Lumbar disc diseases**Spinal tuberculosis*

Others

Paediatric neurosurgery

Detailed embryogenesis of spina bifida and their management

Management of hydrocephalus, including knowledge of the mechanism of shunt functions and malfunctions

Tumour – like malformations

Phakomatosis (Von Recklinghausen's, Sturge-weber, Hippel von Lindau, Tuberosclerosis)

Craniosostenosis

Pain management

Trigeminal neuralgias, pathophysiology and surgical management

Cordotomy

Others

Stereotactic surgery

Principles of stereotactic surgery, including familiarity with the frames

Indications for application of stereotaxy in biopsy, definitive treatment and tissue transplant in neurosurgery

Principles of research

Reading should include standard neurosurgical texts and major neurosurgical journals.

DISSERTATION FOR PART II FINAL FELLOWSHIP EXAMINATION

1. INTRODUCTION

The objective of a dissertation is to strengthen the research capability of the final product of the trained surgeon of the West African College Surgeons. The resident must show an ability to conduct a meaningful research. The dissertation does not need to break new grounds but must contribute to knowledge.

The work is given a value by an assessment. The dissertation should be defended before a panel of not less than 2 assessors

Passing of dissertation is compulsory.

The dissertation is the 4th component of the final Part II examination in surgery and shall be of two parts (a) the written dissertation and (b) the defense (oral) of the dissertation.

The work must be prospective and some measurement should be involved. It should be work in which the candidate has personally been involved and he/she must show evidence of the personal involvement.

2. SUPERVISORY PERSONNEL:

A candidate must:

- 2.1. register the names of 2 supervisors nominated by his/her training centre, one of whom should be a Fellow of the Faculty of Surgery of at least 5 years standing.
- 2.2. submit written attestations by the supervisors indicating their willingness to supervise the project, i.e. planning the project, collection of data, analysis of data and the general write up of the dissertation, not merely serving as proof readers of the dissertation.
- 2.3. submit a certificate of clearance by his institution's Ethical committee in case of a research project involving animal or human subjects.

3. **TIMING:** It is expected that within 6 months of passing the part I, a candidate will submit the proposal for his/her dissertation to the Faculty Chairman through the Secretariat of WACS for approval. The candidate must submit a detailed proposal, clearly defining the subject chosen for study, the scope of the study, and its objective(s). The proposal must also contain a critical review of the literature as well as the materials and methods of the study.

4. **ORGANIZATION:** The contents of the proposal should be organized in the following format:

(a) Title

- (b) Literature review
- (c) Materials and Methodology
- (d) Projected expectation
- (e) Application to improve service
- (f) Bibliography

- 4.1. The work should be clinical or laboratory based and it must involve some measurements and have a null hypothesis with an alternative hypothesis. Theoretical work is not acceptable. Where data is collected it should be done over a period not less than 12 months.
 - 4.2. Each proposal should be submitted in both soft and hard copies. Each candidate must include an active email address in the contact information on the Dissertation.
 - 4.3. For each applicant, the Faculty Chairman shall appoint two fellows in that subspecialty to review the proposal of the dissertation for approval.
 - 4.4. The Faculty Secretariat should provide a feedback to the candidate on the suitability or otherwise of his proposal within 3 months of this submission.
 - 4.5. One of the final assessors during the defense should be among those who approved the title and should also have assessed the written dissertation.
 - 4.6. A dissertation shall be stale after 3 years of the candidate's first attempt at the Part II examination.
 - 4.7. The remuneration for assessment of the dissertation shall be as is paid to examiners of final part II of the WACS examination.
5. The final dissertation submitted should follow the approved format, namely
 - 5.1. A title page featuring:

The title of the work

“submitted by”

(The name of the author)

to

“THE WEST AFRICAN COLLEGE OF SURGEONS”

in part fulfillment of the requirements for the award of the Final Fellowship of the West African College of Surgeons (WACS) “Month Year”

- 5.2. The Declaration page: In which the candidate declares that the work presented has been done by him under the appropriate supervision, and that it has not been submitted in part or in full for any other examination.
- 5.3. A Dedication page: which is optional may be included here.
- 5.4. The Attestation page: In which the Supervisor(s) himself (themselves) attest(s) to the fact that the work has been done and the dissertation written under his (their) close supervision.
- 5.5. The Acknowledgement Page: In which the candidate specifically acknowledges all the assistance he has received in the course of the work, including copyright permissions.
- 5.6. The Summary or Abstract: The main work begins with a summary of the dissertation featuring the *key points*, in not more than 250 words. Nothing should feature in the summary that has not been presented in greater detail in the main body of the work.
- 5.7. Introduction: The introductory chapter should contain a clear *definition* of the problem to be studied, including a *justification* for the study, a delimitation of the *scope of the study*.
- 5.8. Review of the Literature
- 5.9. Statement of objectives of the study.
- 5.10. Materials (Patients) and Methods: A description of the study design, otherwise titled “Materials (Patients) and Method” of study, including a description of the statistical analysis intended to be used for processing the result.
- 5.11. The Results
- 5.12. The Discussion
- 5.13. Conclusions and Recommendations.
- 5.14. References, using the system proposed by the International Committee of Medical Journal Editors, “Uniform Requirements for manuscripts submitted to biomedical Journals” Br. Med. J. 1988, 296. 401 – 5 which is also reproduced in the College’s Research Methodology Handbook. Candidates are advised not only to acquire a copy of this handbook, but also to endeavor to attend at least one of the yearly intensive courses in Research Methodology or Manuscript writing mounted by the College.

5.15. When a candidate is appearing for the oral examination on his/her dissertation, he/she is required to bring a copy of the dissertation paged in the same way as the 3 copies previously submitted for the examination.

6. The Dissertation Examination

There will be a comprehensive oral examination on the candidate's dissertation. This "Dissertation Defense" shall focus on candidate's accomplishment of those objectives of the dissertation

NOTE: Candidates for the Part II Fellowship must submit their Resident's log-book along with the dissertations at the time they submit their applications for the examination. They should in addition bring their file of the raw results of the dissertation with them to the venue of the Oral examination.

It is the candidate's responsibility to retrieve both his/her log-book and dissertations at the end of the examination. A copy of the dissertation shall be kept by the College.

7. Dissertation Examination Results

Grading of the dissertation shall be as follows:

8: Failed in the dissertation. There are major issues with the dissertation. Candidate to repeat the dissertation.

9: Provisional pass. Significant substantial corrections needed to be made which the candidate must address within 3 months failure of which the candidate will be downgraded to 8 i.e. referred in the dissertation.

10: Clear pass in the dissertation. Only typographical errors entertained.

11: Excellent work with no corrections at all.

12: Ground breaking research with no corrections.

To obtain an overall pass in the final part II examination a candidates must in addition to passing in the dissertation:

- a. Obtain a Pass (20) in the Clinical Examinations:
- b. Obtain an aggregate Pass (60) overall;

There can be no compensation at all for a failure (<20) in the clinical examination.

A candidate who scores 9 in the dissertation but passed in the rest of the examination shall be awarded a Provisional pass. Such candidates will have 3 months to make all corrections pointed out in the dissertation in order to earn a full pass. If the candidate fails to make the necessary corrections after 3 months, the candidate will be downgraded to 8 in the dissertation and will be referred in the dissertation only.

A candidate may be referred in either the dissertation alone or the main examination alone or in both the examination and the dissertation.

CURRICULUM FOR POST FELLOWSHIP DIPLOMA IN TRAUMA CARE.

GOAL

The goal of this training programme is to prepare and equip the fellow with advanced knowledge and high level of skills in the management of trauma and critically ill surgical

patients, so that he/she can be in a position to provide leadership in care, teaching and research in trauma and surgical critical care.

EXPECTATIONS

On completion of this training, the fellow is expected to have the following capabilities:

1. Provide specialized care to the injured and critically ill surgical patients.
2. Teach the specialty of trauma and surgical critical care.
3. Design and undertake research and investigations into the various areas of trauma and surgical critical care, including quality improvements, new instrumentation/equipment, identification of important physiologic parameters, evaluation of pharmacologic agents in critically ill surgical patients, trauma and surgical critical care related health outcomes and health policy issues
4. Provide leadership and administration of trauma and surgical critical care unit (this would include appointing, educating and supervising specialized personnel, establish policy and standard operating procedures for such unit, and coordinating collaboration with other units/specialties and aspects of the hospital).

CLINICAL RESPONSIBILITIES

1. The fellow will be attached to a general surgery unit and will participate in the Trauma/Emergency general surgery call schedule with the general surgery specialties.
2. The fellow will cover 9 months of Trauma service.
3. The fellow will cover clinics with the respective general surgery services.
4. The fellow will be present and direct trauma resuscitations for all admitted trauma patients.
5. The fellow will conduct early morning trauma rounds daily.

EDUCATIONAL RESPONSIBILITIES

1. The fellow is expected to participate in all specific conferences and seminars of the department of Surgery.
2. The fellow are expected to attend all unit meetings
3. The fellow will anchor and coordinate Seminars and Journal Club meetings in Trauma and Surgical Critical Care.
4. The fellow will coordinate Trauma Board (trauma morbidity and mortality) meeting.
5. The fellow should commit time to self-directed education and completion of appropriate reading.

RESEARCH/ACADEMIC RESPONSIBILITIES

1. Complete one research project in any aspect of Trauma and Surgical Critical Care. This should involve:
 - a. Identification of a mentor for the research project
 - b. Developing a draft research proposal for the project and implementing it
 - c. Presentation of the completed research findings to the department and at an appropriate national or international meeting
 - d. Final publication of the research project in an appropriate peer reviewed journal
2. Attend and participate in at least one national or international conference
3. Assist and participate in teaching of surgical residents and other clinical staff

ADMINISTRATIVE RESPONSIBILITIES

1. Develop and maintain the Trauma Registry

2. Participate in Trauma Quality Improvement (QI) processes.
3. Develop Standard Operating Procedures/Protocols and Guidelines for trauma care.
4. Participate in QI processes for Surgical Critical Care.
5. Develop Standard Operating Procedures/Protocols and Guidelines for Surgical Critical Care as necessary.

ROTATIONS

The total duration of training is 12 months, which should be spent in the following rotations. The rotations must be done in centres accredited for training in that aspect (accreditation by the Faculty of Surgery of the West African College of Surgeons).

1. Trauma care: **6 months**
(This should be spent entirely in the trauma Unit)
2. Visit to established level I trauma centre: **2 months**
(in North America, Europe or South Africa)
3. Intensive care and Critical care: **2 months**
(ICU, PICU, SICU, Cardiac ICU etc)
4. Radiology: **1 month**
(ultrasonography, CT, plain radiology, interventional radiology, MRI)
5. Cardiology/respiratory/renal medicine: **1 months**

COURSES TO ATTEND

1. Advance trauma and life support (ATLS) course (Mandatory)
2. ATLS Instructor course
3. Advanced trauma operative management (ATOM) course (Mandatory)
4. ATOM Instructor course
5. Focused Assessment with Sonography for Trauma (FAST) (Mandatory)
6. Trauma course (to be organized by WACS) (mandatory)
7. Others (as relevant)

TRAINING CENTRES AND ACCREDITATION REQUIREMENTS.

1. LEVEL 1 TRAUMA CENTRE:

Every accredited centre should have been designated as a specialized trauma centre (level 1 trauma centre)

The maximum number of Fellows training at an accredited centre at any given time should not exceed 3 (three)

2. MINIMUM CORE STAFFING:

- i. General surgery: 2
- ii. Orthopaedic surgery: 2
- iii. Neurosurgery: 1
- iv. Paediatric surgery: 2
- v. Urology: 2
- vi. Plastic surgery: 1
- vii. Cardiothoracic surgery: 1
- viii. Maxillofacial surgery: 2

- ix. Radiology: 2
- x. Anaesthesia and intensive care: 2
- xi. Cardiology: 1
- xii. Respiratory medicine: 1
- xiii. Nephrology: 1
- xiv. Obstetrics & Gynaecology: 2
- xv. Trained Trauma (accident & emergency) nurses: 6
- xvi. Trauma registry staff: 4
- xvii. There must be 24 hour coverage by all above specialties. Visiting or sessional consultants are not acceptable.

3. TRAINING /EDUCATIONAL PROGRAM:

- i. Training modules should be developed at each centre based on the curriculum.
- ii. Training should include the following:
 - Seminars/Discussions and interactions with consultants in the relevant specialists, clinical skills acquisition and operative skills acquisition
 - Journal reviews
 - Trauma board (morbidity and mortality) meeting
 - Early morning trauma rounds daily
 - Involvement in research
- iii. **A Director for trauma & surgical critical care should be appointed to lead/coordinate the programme in each training centre** (this must be a WACS approved consultant with experience/training and interest in trauma care).

4. ACCIDENT AND EMERGENCY REQUIREMENTS:

- i. Minimum 10 dedicated trauma beds
- ii. Minimum 2 bed dedicated trauma resuscitation bay
- iii. Dedicated trauma procedure and operating room
- iv. Well-equipped and functional ICU
- v. Easy access to CT and plain radiography
- vi. On site 24 hour laboratory services and blood banking
- vii. Central oxygen/ medical gases
- viii. Facilities for multi parameter patient monitoring for all trauma beds and resuscitation beds
- ix. Ultrasound equipment for FAST/guided procedures
- Staffing ratios (doctor/ patient, nurse / patient) to be determined
- x. Ambulance services (well-equipped and with facilities for going out to bring in trauma victims)
- xi. Computerized/ central records
- xii. Medical social worker coverage
- xiii. Patient relations room, Patient waiting area
- xiv. Rest rooms and facilities for staff on duty
- xv. Helipad will be desirable.
- xvi. Reception, equipped with adequate staffing and facilities for communication/information centre.

5. ICU FACILITIES:

General ICU (minimum of 3 beds): adequately equipped
 Access to specialized ICU (NICU, PICU, SICU, CICU, Burns ICU)
 On site CT scanning
 Access to angiography /interventional suite
 Organ support and replacement (dialysis, haemofiltration)
 Resuscitation Foyer 10 trolley

Details to be provided

6. SUPPORT SERVICES:

- Emergency Medical Technicians
- Plaster technicians
- Physiotherapists
- Medical social workers
- Porters
- Anaesthetic technicians
- Radiographers
- Haematologists
- Microbiology/ Infection control
- Chemical pathology
- Medical records
- Dietician/ Nutritionist

7. TYPE OF ACCREDITATION TO BE GRANTED:

Full accreditation ONLY for a minimum duration of 2 years
 maximum of 5 years.

Partial accreditation should not be granted to any centre. This is to allow for entire training to be completed in one centre

CURRICULUM

The training programme setting, resources and opportunities for the Fellow to acquire advanced knowledge, skills and expertise in all aspects of the curriculum detailed below. The training should include seminars and discussions, clinical and operative teaching.

Seminars/Discussion Curriculum

This should focus on the various aspects of evaluation and management.

1. Cardiorespiratory resuscitation
2. Physiology, pathophysiology, diagnosis, and therapy of disorders of the cardiovascular, respiratory, gastrointestinal, genitourinary, neurological, endocrine, musculoskeletal, and immune systems, as well as of infectious disease
3. Metabolic, nutritional, and endocrine effects of trauma and critical illness
4. Haematologic and coagulation disorders
5. Prehospital trauma care
6. Trauma systems and trauma registry
7. Blunt trauma
8. Penetrating trauma
9. Blast trauma

10. Thermal injuries
11. Electrical injuries
12. Radiation injuries
13. Inhalation and immersion injuries
14. Evaluation and care of paediatric trauma
15. Evaluation and care of the pregnant trauma patient and her unborn child
16. Trauma prevention and control
17. Evaluation of the septic patient. Pre-operative management and intra-operative control of sepsis and soft tissue infections. Infections in special areas.
18. Microbiology, bacteriology and care of nosocomial infections
19. Critical obstetric and gynecologic disorders
20. Critical care of patients with cerebrovascular disease including cerebrovascular accidents and subarachnoid haemorrhage
21. Critical care of patients post transplant
22. Critical care of patients post cardiac surgery
23. Monitoring and medical instrumentation
24. Critical pediatric surgical conditions
25. Multiple system organ failure
26. Pharmacokinetics and dynamics of drug metabolism and excretion in trauma and critical illness
27. Introduction to interventional radiology
28. Ethical and legal aspects of trauma and surgical critical care
29. Principles and techniques of administration and management
30. Biostatistics and experimental design

Clinical Curriculum

This aspect of the training is intended to help the fellow gain competence and expertise in the performance and application of relevant trauma and critical care skills. The training must be supervised. The skills to be covered include:

1. Respiratory: airway management, including endoscopy and management of respiratory system
2. Circulatory: invasive and noninvasive monitoring techniques, including trans-esophageal and pericardial cardiac ultrasound and application of transvenous pacemakers; computations of cardiac output and of systemic and pulmonary vascular resistance; monitoring electrocardiograms and management of cardiac assist device
3. Neurological: the performance of complete neurological examinations; the use of intracranial pressure monitoring techniques and of the electroencephalogram to evaluate cerebral function; application of hypothermia in the management of cerebral trauma
4. Renal: the evaluation of renal function; peritoneal dialysis and haemofiltration; knowledge of the indications and complications of haemodialysis
5. Gastrointestinal: utilization of gastrointestinal intubation and endoscopic techniques in the management of the critically ill patient; application of enteral feedings; management of stomas, fistulas, and percutaneous catheter devices
6. Haematologic: application of auto transfusion; assessment of coagulation status; appropriate use of component therapy

7. Infectious disease: classification of infections and application of isolation techniques, pharmacokinetics, drug interactions, and management of antibiotic therapy during organ failure; nosocomial infections; indications for applications of hyperbaric oxygen therapy
8. Nutritional: application of parenteral and enteral nutrition; monitoring and assessing metabolism and nutrition
9. Monitoring/bioengineering: use and calibration of transducers, amplifiers, and recorder
10. Use of traction and fixation devices
11. Use of special beds for specific injuries
12. Use of pneumatic antishock garments

Operative Curriculum

The fellow should obtain and develop competence in the operative management of common blunt, penetrating and blast trauma, and burns, involving various part of the body.

- The fellow will maintain an up to date LOG BOOK of these operations
- The log book should be reviewed at the end of every 3 months with the trainers

The areas to be covered must include the following surgeries:

1. CRANIOCEREBRAL

- 1.1. Craniotomy
- 1.2. Elevation of depressed skull fracture

2. THE NECK

- 2.1. Standard neck (pre-sternomastoid) incision
- 2.2. Control and repair of carotid vessels
 - 2.2.1. Zone II
 - 2.2.2. Extension into zone III
 - 2.2.3. Division of digastric muscle and subluxation or division of mandible
 - 2.2.4. Extension into zone 1
- 2.3. Extension by supraclavicular incision
 - 2.3.1. 1.3.1 Ligation of proximal internal carotid artery
 - 2.3.2. 1.3.2 Repair with divided external carotid artery
- 2.4. Access to control of and ligation of internal jugular
- 2.5. Access to and repair of the trachea
- 2.6. Access to and repair of the cervical oesophagus

3. THE CHEST

- 3.1. Incisions
- 3.2. Anterolateral thoracotomy
- 3.3. Sternotomy
- 3.4. Thoracotomy
 - 3.4.1. Exploration of thorax
 - 3.4.2. Ligation of intercostal and internal mammary vessels
 - 3.4.3. Emergency department (resuscitative) thoracotomy
 - 3.4.3.1. Supradiaphragmatic control of the aorta

- 3.4.3.2. Control of the pulmonary hilum
- 3.4.3.3. Internal cardiac massage
- 3.5. Pericardiotomy
 - 3.5.1. Preservation of phrenic nerve
 - 3.5.2. Access to the pulmonary veins
- 3.6. Access to and repair of the thoracic aorta
- 3.7. Lung wounds
 - 3.7.1. Oversewing
 - 3.7.2. Stapling
 - 3.7.3. Partial lung resection
 - 3.7.4. Tractectomy
 - 3.7.5. Lobectomy
- 3.8. Access to, and repair of, the thoracic oesophagus
- 3.9. Access to, and repair of, the diaphragm
- 3.10. Compression of the left subclavian vessels from below
- 3.11. Left anterior thoracotomy
- 3.12. Visualization of supra-aortic vessel
- 3.13. Heart repair
 - 3.13.1. Finger control
 - 3.13.2. Involvement of coronary vessels
 - 3.13.3. Insertion of shunt

4. THE ABDOMINAL CAVITY

- 4.1. Midline laparotomy
 - 4.1.1. How to explore (priorities)
 - 4.1.2. Packing
 - 4.1.3. Localization of retroperitoneal haematomas – when to explore
 - 4.1.4. Damage control
 - 4.1.5. Extension of laparotomy incision
 - 4.1.5.1. Lateral extension
 - 4.1.5.2. Sternotomy
 - 4.1.6. Cross-clamping of the aorta at diaphragm (division at left crus)
- 4.2. Abdominal oesophagus
 - 4.2.1. Mobilization
 - 4.2.2. Repair
 - 4.2.3. Mobilization of fundus to reinforce sutures
- 4.3. Stomach
 - 4.3.1. Mobilization
 - 4.3.2. Access to vascular control
 - 4.3.3. Repair of anterior and posterior wounds
 - 4.3.4. Pyloric exclusion
 - 4.3.5. Distal gastrectomy
- 4.4. Intestines
 - 4.4.1. Repair
 - 4.4.2. Resection
 - 4.4.3. Small and large bowel anastomosis
 - 4.4.4. Stomas

- 4.4.4.1. Colostomy
- 4.4.4.2. Ileostomy

5. **THE LIVER**

- 5.1. Mobilization (falciform, suspensory, triangular and coronary ligaments)
- 5.2. Liver packing
- 5.3. Hepatic isolation
 - 5.3.1. Control of infrahepatic inferior vena cava
 - 5.3.2. Control of suprahepatic superior vena cava
 - 5.3.3. Pringle's manoeuvre
- 5.4. Technique of finger fracture
- 5.5. Repair of Parenchymal laceration
- 5.6. Tractectomy
- 5.7. Packing for injury to hepatic veins
- 5.8. Hepatic resection
- 5.9. Non-anatomical partial resection
- 5.10. Use of tissue adhesives
- 5.11. Tamponade for penetrating injury (Foley/Penrose drains/Sengstaken tube)

6. **THE SPLEEN**

- 6.1. Mobilization
- 6.2. Suture
- 6.3. Mesh wrap
- 6.4. Use of tissue adhesives
- 6.5. Partial splenectomy
 - 6.5.1. Sutures
 - 6.5.2. Staples
- 6.6. Total splenectomy

7. **The PANCREAS**

- 7.1. Mobilization of the tail of the pancreas
- 7.2. Mobilization of the head of the pancreas
- 7.3. Localization of the main duct and its repair
- 7.4. Distal pancreatic resection
 - 7.4.1. Stapler
 - 7.4.2. Oversewing
 - 7.4.3. Use of tissue adhesives

8. **THE DUODENUM**

- 8.1. Mobilization of the duodenum
- 8.2. Kocher's manoeuvre (rotation of duodenum)
- 8.3. Medial visceral rotation
- 8.4. Division of ligament of Treitz
- 8.5. Repair of duodenum

9. **GENITOURINARY SYSTEM**

- 9.1. Kidney

- 9.1.1. Mobilization
- 9.1.2. Vascular control
- 9.1.3. Repair
- 9.1.4. Partial nephrectomy
- 9.1.5. Total nephrectomy
- 9.2. Ureter
 - 9.2.1. Mobilization
 - 9.2.2. Stenting
 - 9.2.3. Repair
- 9.3. Bladder
 - 9.3.1. Repair of intraperitoneal rupture
 - 9.3.2. Repair of extraperitoneal rupture

10. ABDOMINAL VASCULAR INJURIES

- 10.1. Exposure and control
- 10.2. Aorta
 - 10.2.1. Exposure
 - 10.2.2. Repair
- 10.3. Inferior vena cava (IVC)
 - 10.3.1. Suprahepatic IVC
 - 10.3.2. Infrahepatic IVC
 - 10.3.3. Control of hemorrhage with swabs
 - 10.3.4. Repair
- 10.4. Pelvis
 - 10.4.1. Control of pelvic vessels
 - 10.4.2. Packing
 - 10.4.3. Repair of artery and vein
 - 10.4.4. Ligation of artery and vein
 - 10.4.5. Packing/ anchor ligation of sacral vessels

11. PERIPHERAL VASCULAR INJURIES

- 11.1. Extremities vascular access
- 11.2. Axillary
- 11.3. Brachial
- 11.4. Femoral
- 11.5. Popliteal
- 11.6. Fasciotomy
 - 11.6.1. Upper limb
 - 11.6.2. Lower limb

12. MUSCULOSKELETAL INJURIES

- 12.1. The crushed extremity
- 12.2. Operative fixation of fractures
- 12.3. Limb amputations

13. BURNS

- 13.1 Burn wound excision

13.2 Burn wound cover

END OF CURRICULA SUBMISSION

BY

A handwritten signature in black ink, appearing to be 'King-David Terna Yawe', written over a circular stamp or seal.

**PROFESSOR KING-DAVID TERNA Yawe.
CHAIRMAN, FACULTY OF SURGERY**

JULY 2011. RE-SUBMITTED OCTOBER 2013. FINAL SUBMISSION MARCH 2014.