WEST AFRICAN COLLEGE OF SURGEONS
FACULTY OF ANAESTHESIA
CURRICULUM FOR POSTGRADUATE TRAINING IN ANAESTHESIA

Title: Curriculum for Membership and Fellowship in Anaesthesia

Aims: To train highly proficient and knowledgeable Anaesthetists capable of functioning independently in the West African sub-region and elsewhere in the world.

Admission Requirements:

1. Basic Medical Degree
2. Full registration by the National Medical and Dental Council of individual countries.
3. The candidate must have passed the primary Examination of the fellowship training in Anaesthesia
4. Two referee's reports from Fellows in Anaesthesia attesting to the suitability of the candidate for postgraduate training.

Duration of Course: The course shall run for a total of 5 years which shall be in 2 parts consisting of Membership (3years) and Fellowship (Membership plus 2 years).

Course Structure: This shall be a structured programme run in accredited institutions

Membership: Training shall be for 36 months in an accredited institution

Fellowship: Further training for 24 months is required for Fellowship certification.

Course content:

PRIMARY EXAMINATION OF THE FELLOWSHIP

Objectives

The objective of this part of the examination is to ensure that trainees have a firm understanding of the Basic Sciences relevant to the specialty of Anaesthesia.

Trainees may attend short courses in Basic Sciences run by the Postgraduate Medical Colleges within the sub-region.

Subjects to be covered

- Basic and Applied physiology
- Basic and Applied Pharmacology
- Basic and Applied Anatomy
- Physics relevant to Anaesthesia

- General Pathology as related to Anaesthesia
- Biochemistry

Basic and Applied Physiology

- Organization of the human body and control of the internal environment
- Physiology of the cells including receptors, cellular metabolism
- Protective mechanisms of the body
- **Respiratory system**: Mechanisms of respiration, Respiratory muscles, Lung Volumes
- Control of respiration
- Blood Gases: Oxygen transport and delivery, Carbon Dioxide Transport, Hypoxia and Hypercarbia
- Ventilation perfusion abnormalities
- **Cardiovascular system** (Heart as a pump)
- Cardiac conduction (rhythm generation and conduction)
- Cardiac cycle: pressure and volume relations
- Electro cardiogram
- Control of blood pressure
- The Circulation- arterial, capillary, Venous, pulmonary, Lymphatic
- Oncotic pressure, osmolarity, osmolality
- Lymphatic system
- Special body fluids: cerebrospinal fluid, pleural pericardial, peritoneal
- Circulation through special organs.
- **Haematology** – Blood cells, blood groups, haemostasis
- **Renal physiology** – renal blood flow, renal function tests, glomerular filtration
- Fluid and electrolyte homeostasis
- Acid base balance
- Body enzymes
- **Central nervous system**: Brain, Cranial Nerves, Spinal cord, Pain pathways and peripheral Nerves
- Autonomic nervous system

- Neuromuscular transmission
- Temperature Regulation
- **Gastrointestinal System**: Digestion and absorption of food and nutrients.
- Fat, protein and carbohydrate metabolism
- Regulation of Gastrointestinal Function
- Liver and the Biliary System
- **Endocrinology** – Hypothalamus Pituitary, Thyroid, Pancreas, Adrenals
- Allergy and immunology
- Prostaglandins, leucotrienes, encephalins, endorphins

Basic and Applied Pharmacology

- Drugs – Definition
- Mechanisms of drug action
- Receptors
- **Principles of Pharmacokinetics**

  Routes of administration of drugs

  Drug Distribution

  Metabolism

  Elimination
- **Pharmacodynamics** –

Drug and the sites of action

Receptors, Ion Channels, Enzymes etc

Agonist and antagonist action

- **Specific anaesthetic and analgesic drugs**-

Gases and Volatile agents

Intravenous anaesthetic agents, barbiturates, ketamine, propofol, etomidate

Steroids, benzodiazepines, neuroleptanalgesia, imidazole etc

Opiates and their antagonists

Non opiate analgesics e.g. NSAID

Local anaesthetic agents

Neuromuscular Blockers

Anticholinesterases

Autonomic Nervous System Agents

Antihypertensive drugs

Cardiac glycosides

Antiarrhythmic drugs

Respiratory drugs including Bronchodilators, phenothiazines/ antihistamines

CNS stimulants

Anticonvulsants

Psycho Pharmacological agents

Antiemetics

Diuretics

Haematinics, Vitamins and Minerals, Hormones

Antibiotics

Intravenous fluids – crystalloids, colloids

Hypoglycaemic Agents

Anticoagulants

Cytotoxic drugs

Development and assessment of new drugs.

Basic and Applied Anatomy

All plexuses e.g. brachial, lumbar

Upper limb/lower limb nerve supply, venous drainage

Upper airway, pharynx, larynx, differences between child and adult – innervation, blood supply

Rib cage, Intercostal space, Thoracic inlet

Diaphragm and other muscles of respiration

Larynx-cartilages, nerve supply, blood supply

Trachea and bronchi

The Lungs

Phrenic nerve

Pleura and the mediastinum

Oesophagus

Heart – conducting system, blood and nerve supply

Large veins e.g. inferior and superior vena cavae, subclavian and jugular veins

Foetal and maternal-foetal circulations

Central nervous system – The brain, its divisions and cranial nerves

Eye and orbit Spinal cord

Epidural space

Surface anatomy – Antecubital fossa. Axilla

Large veins, nerves of lower and upper limbs, anterior abdominal wall.

Landmarks for tracheostomy, cricothyrotomy, spinal, epidural and plexus blocks.

Physics Relevant to Anaesthesia

- Basic units of measurements SI units, bar, mmHg
- Work, energy and power
- Elementary mathematics relevant to anaesthesia (natural exponential functions, sine waves)
- Ultrasonic waves
- The gas laws
- Manufacture, storage and supply of anaesthetic gases
- Density and viscosity of gases
- The physics of Flow: Laminar and turbulent flow
- Vapour pressure, latent heat, vaporisers
- Diffusion and osmosis
- Solubility

- Humidity and humidification, nebulizers
- Heat, thermometry, freezing point
- Conduction, convection and radiation
- Fires and explosions, electrocution
- Basic electricity, Capacitors capacitance, electrical safety, diathermy
- Principles of surface tension
- Anaesthetic machine, breathing systems etc

Biochemistry

- Cellular metabolism
- Acid -base balance – Henderson – Hasselbach equation. Chemical buffers, acidosis and alkalosis
- Liver function test – pathophysiology of jaundice
- Renal function tests
- Other diagnostic Enzymes

General Pathology

- Inflammation
- Sepsis
- Septicaemia
- Immunology, Coagulopathies
- Shock

Format of the Primary Examination

The examination consists of ONE (1) multiple choice paper (MCQ) covering the subjects mentioned above. The paper shall consist of 150 (One hundred and fifty) questions of Single Best Option format.

Duration is 180 minutes.

Condition for a pass is a score of 50% and above

MEMBERSHIP-

The training shall be for 3years consisting of:

- Basic training in Principles & Practice of Anaesthesia, Clinical measurements, Instrumentation and Resuscitation.
- Mandatory postings in Critical Care, Internal Medicine, Cardiothoracic and Neuro-anaesthesia.
- Candidates shall be exposed to Statistics, Research Methodology, Health service Management and Administration.
- Candidates are required to keep a Log book of 1000 cases.

POSTINGS

General Surgery	6 months
Orthopaedics and Trauma	2 months
Urology	6weeks
ENT & Ophthalmology	3 months
Plastic & reconstructive surgery and Dental	2 months
Paediatric emergency/neonatal care	1month
Obstetrics	4 months
Medicine	3 months
ICU/HDU	2 months
Gynaecology	6wks
Neuroanaesthesia	6wks
Cardiothoracic anaesthesia	6wks
Rural Posting	3 months

The training shall commence with 2 weeks introduction to Anaesthesia.

This will entail familiarisation with the Basic Principles of Anaesthesia including Monitoring, Anaesthetic Machine, Airway Equipment, Basic Life Support , Safety in Anaesthesia/Theatre Environment, WHO safety check list, Record keeping, Ethics and Team Work .

The rotations will thereafter follow.

The trainees shall be evaluated continuously during the rotations and there shall be Formative and Summative assessments.

The trainees shall be exposed to research in anaesthesia and shall be encouraged to attend conferences and courses.

They shall be allowed periods of annual vacation.

FORMAT OF TRAINING

The Membership Programme which shall last thirty six months has the relevant components as follows:

1. The preoperative evaluation; preparation and care of patients coming for surgery under anaesthesia.
2. Intraoperative management.
3. Immediate post-operative care; recognition and treatment of postoperative complications related to anaesthesia.
4. Intensive Care Management/High dependency Unit.
5. Methods of postoperative pain relief/management of pain in general

6. During the rotations, the trainees will be assigned to theatre lists in the fields of:

(i) General Surgery

(ii) Orthopaedics

(iii) Trauma

(iv) Obstetrics; Analgesia and Anaesthesia

(v) Ophthalmology

(vi) Burns and Plastic

(vii) Gynaecological Surgery

(viii) Urology

(ix) Maxillo-facial Surgery

(x) Paediatric Surgery

(xi) Otorhinolaryngology

(xii) Neurosurgery

(xiii) Cardiothoracic

(xiv) Anaesthesia for Radiotherapy, diagnostic radiology & interventional radiology, and Electroconvulsive Therapy.

(xv) Day case surgery – organization of ambulatory services

(xvi) Endoscopic surgery

7. Trainees shall be exposed to all varieties of **anaesthetic techniques** i.e. General Anaesthesia including Total Intravenous Anaesthesia (TIVA) and Regional Anaesthesia

Trainees must be skilled in the following Regional Techniques:

(i) Subarachnoid block (SAB)
(ii) Epidural, Caudal, Combined Spinal Epidural (CSE)
(iii) Nerve blocks and plexus blocks
(iv) Intravenous regional anaesthesia (IVRA)

8. Intensive care medicine

i. Resuscitation and Transfer of Patients
ii. Advanced Life Support
iii. Resuscitation of the critically ill patient

9. Clinical Measurements and Instrumentation in relation to the following systems:

(i) Cardiovascular
(ii) Respiratory
(iii)Temperature & Metabolism
(iv)Nervous

10. **Anaesthetic Equipment:**

Trainees must have in-depth knowledge of the physical principles related to the working of anaesthetic equipment including vaporizers, ventilators and monitoring equipment.

ALLIED SPECIALTIES

Candidates are expected to have a good knowledge of aspects of Medicine, Surgery, Paediatrics, Obstetrics and Gynaecology relevant to anaesthesia for elective and emergency surgery. All candidates are expected to spend 3 months in Medicine rotating through the following units:

(i) Cardiology - 3 weeks
(ii) Respiratory Medicine - 3 weeks
(iii)Neurology - 3 weeks
(iv)Endocrinology/Metabolic Diseases - 1 week
(v) Nephrology - 2 weeks
(vi)Paediatrics - 4 weeks (2weeks in Special Care Baby Unit,
2weeks in Children's Emergency Unit)

In Training Centres with partial accreditation, the following periods are to be spent in the specialties not available in the institution;

(i) Anaesthesia for Cardiothoracic Surgery - 3 months

(ii) Anaesthesia for Neurosurgery including Neuro-radiology - 3 months

(iii) Intensive Care Medicine - 4 weeks

MEDICAL CONDITIONS INCLUDING PATHOLOGY

Trainees are expected to be able to manage the following conditions in the perioperative and critical care settings.

- Pain (including acute, chronic and cancer pain)
- Head injury and conditions with increased intracranial pressure
- Ischaemic heart disease
- Valvular heart disease
- Hypertension
- Cardiac arrhythmias
- Respiratory diseases (obstructive and restrictive)
- Anaemia, sickle cell and other haemoglobinopathies
- Diabetes mellitus
- Acute and chronic renal failure
- Hepatic diseases
- Endocrine diseases and morbid obesity syndromes
- Genetic and congenital diseases and syndromes relevant to anaesthesia

- Arthritis and other orthopaedic problems
- Shock syndromes (hypovolemic, cardiogenic, septic, and anaphylactic)
- Psychiatric disorders
- Pregnancy related diseases
- Infections and infestations
- Connective tissue and degenerative diseases
- Neurological diseases relevant to anaesthesia
- Neuromuscular diseases
- Hypothermia
- Malignant hyperpyrexia
- Poisonings, drowning and near drowning

SKILLS AND PROCEDURES:

All trainees are expected to become proficient in the following skills and procedures:

Administration of general and local anaesthesia
- Administration of inhalational anaesthesia
- Administration of intravenous anaesthesia including *total intravenous anaesthesia(TIVA)*
- *Simple infiltration, nerve blocks and regional anaesthesia*

Airway management
- *Oropharygeal and naso-pharyngeal airways*
- *Laryngeal mask airways*
- Endotracheal intubation
- Fibre optic intubation
- Cricothyrotomy

Ventilation modes and techniques

Vascular Access
- Peripheral intravenous cannulation
- Central venous cannulation
- Arterial cannulation

Measurement of cardiac output (minimally invasive methods)

Insertion of chest drains

Monitoring
- Basic e.g. clinical evaluation
- Standard e.g. NIBP, ECG, Pulse oximetry, Peripheral nerve stimulator, Temperature, $ETCO_2$,

CPR including cardio-version
- Basic Cardiac Life Support (BCLS)
- Advanced Cardiac Life Support (ACLS)
- Advanced Trauma Life Support (ATLS)
- Neonatal Resuscitation.

Interpretation of arterial blood gas analysis

Reading 12 lead ECG for arrhythmias and ischaemia

Reading and interpreting Chest-X-ray, and other imaging techniques.

Reading and interpreting basic laboratory data on FBC, electrolytes, renal, pulmonary and hepatic functions.

Management of acute pain, Patient controlled analgesia, Patient controlled epidural analgesia, Nurse controlled analgesia, and chronic pain e.g. cancer pain.

LOG BOOK

One thousand (1000) cases and procedures are expected to be completed and detailed in the logbook. Each case in the log book must be signed and dated by the supervising consultant. Block signature will not be acceptable. A breakdown of the cases is as follows:

Log book requirement

Cases	Number
General Anaesthesia	650
Regional Anaesthesia	350
General surgery	300
Orthopaedics & Trauma	100
Urology	50
Gynaecology	50
Otorhinolarngology	50
Opthalmology	50
Plastics & Dental	50
Paediatric surgery	60
Obstetrics	230
Neuro anaesthesia	20
Cardio thoracic anaesthesia	20
Intensive care	20
Total	**1000**

CLINICAL MEASUREMENT: Adequate knowledge is required in the following areas.

- Medical gases production, storage and delivery
- Recording of biological potentials
- Pressure
- Oximetry and capnography
- Temperature
- Measurements from the catheter to display
- Respiratory gas analysis
- Arterial blood gas analysis
- Monitoring of neuromuscular function
- Humidity, Nebulizers and humidifiers
- The anaesthetic machine and its safety features
- Anaesthetic circuits
- Mechanical ventilators
- The basic anaesthetic equipment: Laryngoscopes, Masks, laryngeal mask airway, spinal and epidural needles
- Medical gases and gas cylinders

RURAL POSTING

Part of the curriculum of the Membership programme in Anaesthesia requires that the trainee spends a minimum of 3 months practicing in a rural hospital. The goal is to familiarize the trainee with anaesthetic practice outside the Tertiary healthcare facilities where sophisticated monitoring gadgets are not available but where the majority of the population resides and require safe surgical care and to provide service in the rural areas during the training period.

The rural posting, which shall last for 3 months, shall be supervised by Fellows in the various accredited training departments.

It shall start not less than 18months after commencement of the Membership programme and shall be run in selected locations accredited for that purpose.

Such a centre should have:

- At least 1 full time surgeon or general practice doctor who can perform surgeries
- At least 1 physician anaesthetist preferably with a Fellowship or a Diploma in Anaesthesia. Where these are not available, it should be possible for a consultant anaesthetist or senior registrar from an accredited training institution to visit at least twice a month while the trainee is there.
- Facilities for both General (TIVA) and Regional Anaesthesia - Operating room, drugs and basic monitoring equipment (Pulse oximeters, Blood pressure monitor)
- Space for use as recovery area.

EVALUATION

To ensure quality of training and achievement of goals, there shall be periodic evaluation of the trainee and the programme.

IN-COURSE ASSESSMENT

- Constant evaluation of trainee's performance during the course of training should be undertaken and an annual report of the progress should be kept.
- Mandatory periods of secondment to other disciplines or institutions for experience in certain aspects of the discipline must be assessed and graded as satisfactory before the trainee is signed up.
- Feedback from the trainee should be obtained at periodic intervals during the training.
- Each training institution and the trainers shall provide yearly feedback on the trainee and programme to the College.

MEMBERSHIP EXAMINATION

Entry Qualifications

To be eligible to sit for the Membership Examination, a candidate must have:

(i) Passed the Primary Examination
(ii) Undergone training in clinical anaesthesia for not less than 36 calendar months in an accredited institution.
(iii) Obtained a duly signed Certificate of Training.
(iv) Attended at least one Revision Course
(v) Registered in the College as Surgeon- in- Training

Examination

The Examination shall consist of three parts namely:

(i) Written Papers
(ii) Clinical Examination
(iii) Oral Examination

The written Papers shall consist of:

- Paper I (3 Hours): The Principles and Practice of Anaesthesia, ICU and Pain management.
- Paper II (3 Hours): Clinical measurements and instrumentation and Allied specialties - Medicine, Surgery, Obstetrics and Gynaecology as related to Anaesthesia
- Paper III - 2½ Hours, MCQ, 150 questions on Applied Basic Sciences, Measurement and instrumentation, ICU, Pain, Surgery, Medicine, Obstetrics & Gynaecology, Principles and Practice of Anaesthesia.

Clinical Examination

The clinical examination will be held in either of the following formats

(i) Long case/ Short case

OR

(ii) OSCE & projected slides

Long Case

Each candidate is examined on a "Long Case" for 20 minutes.

The candidate's ability is assessed on the following criteria:

- Adequate history taking and interpretation of its significance.
- Ability to demonstrate physical signs
- Ability to discuss the laboratory reports and other investigations in order to arrive at a provisional diagnosis, excluding other differential diagnosis
- Ability to discuss the implications for anaesthesia

Short Case

This is to test the trainee's ability to elicit and correctly interprete physical signs covering a wide range of systems. The trainee shall be examined on two "Short Cases" for 15 minutes each.

OSCE

This shall examine the different aspects of anaesthesia – history, clinical examination & interpretation of results.

Projected Slides

Picture test covering a wide area of anaesthesia to include instruments and medical conditions

Oral Examination: The trainee shall be examined for 30 minutes. The Oral Examination shall cover all areas of the curriculum.

Conditions for a Pass

For a candidate to pass the examination, he must obtain a minimum score of 50% in all the following areas:

i) Principles and Practice (Paper1)
ii) Overall score

iii) Clinical examination

FELLOWSHIP TRAINING IN ANAESTHESIA

y requirements:

1. Membership in Anaesthesia
2. Full Registration with the National Medical and Dental Council

itioners with the Membership in Anaesthesia will be admitted for further training in various sub specialties in Anaesthesia ng to the award of Fellowship.

tion of training.

otal duration of training will be 24 months.

tion of training.

training will be in Institutions accredited for Fellowship Training but up to 12 of the 24 months of the fellowship training be undertaken in other approved institutions **in or outside** the West African Sub-region

cture of training.

- The training will cover both General and Sub-specialty anaesthesia
- Trainees must attend further Courses in Health Management/Administration, Ethics and Research Methodology.
- Within the first 6 months of the Fellowship training, the trainee must have submitted a proposal on the topic of a dissertation in his area of interest.

OBJECTIVES FOR THE DISSERTATION PROJECT

The goal of the dissertation exercise is to enable the resident acquire skills for research. Through his dissertation, each trainee is expected to demonstrate his ability:

(a) To identify a researchable problem, design a feasible methodology, conduct a study, assemble, analyze and interpret the resulting data and discuss findings scientifically.
(b) To review relevant literature and apply this appropriately in interpreting their own data, be these clinical data or laboratory data.
(c) Of proficiency in the methods and procedures claimed in the dissertation unless credit has been duly given to others who helped with such procedures.

- The trainee shall undertake rotations in the following subspecialties

Subspecialties:.

- Paediatric anaesthesia (especially neonatology) 2 months
- Intensive Care 2 months
- Obstetrics Anaesthesia 2 months
- Cardiothoracic Anaesthesia 2 months
- Neuro-Anaesthesia 2 months
- Regional Anaesthesia and Pain Management 2 months.

For the second 12 month period the trainee with specific sub - specialty interest will concentrate on one 12 month or two 6 months specific areas of interest of (sub specialty training) in any of the areas listed above.

- The trainee shall carry out the research alongside their rotations

Learning Methods:

- Self-directed learning by Candidates.
- Participation in departmental or institutional academic programmes, such as clinical meetings including mortality and morbidity meetings, journal clubs meetings, clinical pathological conferences, seminars and tutorials.
- Workshops, update and refresher courses.
- Lectures.

Examination requirements:

- Successful completion of a research project and presentation of an acceptable dissertation at least 3 months before the end of the Fellowship program.
- Presentation of a LOG book of 500 cases in the subspecialties
- The trainee shall present a certificate of training from an accredited institution.
- Evidence of attendance of a Manuscript Writing Course.

Evaluation:

During the training, annual continuous assessment shall be undertaken.
At the end of the 24 months training, trainees will be evaluated.
There will be no written paper.
The examination shall consist of 2 Oral examinations, each lasting one hour.

Oral1. Examination will be on general areas of anaesthesia and sub-specialty anaesthesia.

Oral 2 will be on defense of the dissertation

Certification

Successful candidates will be awarded the Fellowship in Anaesthesia of the West African College of Surgeons.

SUGGESTED READING MATERIALS AND JOURNALS

<u>Core journals</u>

1. Anesthesiology
2. British Journal of Anaesthesia
3. Anaesthesia
4. Anesthesia and Analgesia
5. Canadian Journal of Anaesthesia
6. North American Clinics in Anaesthesiology
7. Balliere's Clinical Anaesthesiology
8. Current Opinion in Anaesthesiology
9. Anaesthesia and Intensive Care

10. Acta Anaesthesia Scandanavica
11. African Journal of Anaesthesia and Intensive Care

Other journals

1. Current opinion in Critical Care
2. Regional Anaesthesia
3. Journal of Clinical Anaesthesia
4. Pain
5. Critical Care Medicine
6. Resuscitation
7. Journal of Trauma
8. Journal of Neurosurgical Anaesthesia
9. Journal of Clinical Monitoring
10. Survey in Anaesthesia

RECOMMENDED TEXTBOOKS:

Anaesthesia and Intensive care

1. Miller RD, Anaesthesia. Churchill Livingstone
2. Aitkenhead, Anaesthesia
3. Yentis A-Z of Anaesthesia
4. Allman KG. Wilson IH. Oxford Handbook of Anaesthesia. Oxford University Press
5. Regional anaesthesia
6. Oh, Intensive care
7. King M, Primary Anaesthesia for the District hospitals, WHO publications

Basic Science

8. Wood M, Wood AJJ, Drugs in Anaesthesia: Pharmacology for Anaesthesiologists..Baltimore, Md. Williams & Wilkins,
9. Stoelting, RK. Pharmacology and physiology in anesthetic practice, Lippincott-Raven, Philadelphia.
10. Neal, medical Pharmacology at a glance. Oxford. Blackwell Science
11. Bovill JG, Howie MB, Cilical pharmacology for anaesthetists. London. WB Saunders
12. Calvey TN, Williams NE, Principles and practice of pharmacology for anaesthetists, Oxford. Blackwell Science
13. Guyton AC, Hall JE, Textbook of medical physiology. London. WB Saunders,
14. Ganong WF. Review of medical Physiology. Stamford, Conn. Appleton& Lange, London, Prentice Hall International
15. West JB. Respiratory physiology - the essentials Philadelphia. Lippincott Williams & Wilkins
16. Lumb AB. Nunn's applied respiratory physiology Oxford. Butterworth-Heinemann,
17. Anatomy for Anaesthetists.

Physics

18. Davis PD. Kenny GNC. Basic physics and measurement in anaesthesia
19. Dorsch JA. Dorsch SE. Understanding anaesthesia equipment. Baltimore. William & Wilkins,
20. Sykes MK, Vickers MD. Principles of measurement and monitoring in anaesthesia and intensive care. Blackwell
21. Medical Statistics

Biochemistry

22. Murray RK, Harper's illustrated biochemistry. 26th ed. New York, London. MGraw-Hill.

Chemical pathology

23. Walmsley RN, White GH, A guide to diagnostic clinical chemistry. Oxford. Blackwell Scientific Publications.

OTHER PUBLICATIONS INCLUDING ELECTRONIC

ASA Annual Refresher Course Lectures

World Anaesthesia Updates in anaesthesia

Local GCPS, NPMCN and WACS journals and refresher course updates

BNF, WHO and Local Drug formularies

CRITERIA FOR THE ACCREDITATION OF TEACHING/ SPECIALIST HOSPITALS AS TRAINING CENTRES FOR THE MEMBERSHIP AND FELLOWSHIP TRAINING IN ANAESTHESIA

The Fellowship training is aimed at producing Specialists in Anaesthesia of a high degree of competence, comparable in the extent and depth of training to Fellows in other parts of the world. Such Specialists should have a firm grasp of the scientific basis of modern anaesthesia, be skilled in the performance of anaesthetic duties and be conversant with research methodology and the interpretation of research data. The provision of facilities for this level of training must be based on the objective of the training and should cover the main areas of modern anaesthetic practice.

(a) Clinical Anaesthesia
Pre-Operative Care

Intra-Operative Care

Post-Operative Care

(b) Resuscitation
(c) Intensive Care
(d) Pain management

As much as possible, adequate facilities should be available in all these areas to give the candidate enough practice both in quantity, quality and variety.

Related disciplines and ancillary facilities for investigation must also be available. These include departments of Internal Medicine, Paediatrics, Surgery, Obstetrics & Gynaecology, Pathology, Radiology, and Medical Records. Details of their equipment in all areas are given below:

(i) An Institution for Postgraduate Training in Anaesthesia must have a Department of Anaesthesia run by specialist Anaesthetists with Fellowship certification in Anaesthesia. A minimum of two Fellows supported by residents in training would be required as a basic teaching unit.

(ii) As many branches of surgery as possible should be available in the hospital. These include General Surgery, Obstetrics & Gynaecology, Urology, Ophthalmology, E.N.T. Surgery, Orthopaedic Surgery, Dental Surgery, Paediatrics and Plastic Surgery neurosurgical unit and a Cardio-thoracic Unit.

(iii) There must be a fully equipped A/E unit with Facilities for resuscitation, as well as operating for immediate management of emergencies

(iv) Laboratories – The hospital must also have facilities for investigations in:
(a) Chemical Pathology

(b) Microbiology for routine and special investigations, and emergency

© Blood Bank.

(d) Haematology

(v) There should be a fully equipped Intensive Care Unit with facilities for invasive monitoring for the management of critically ill or traumatised patients.

(vi). T here should be a Departmental laboratory for research.

(vii) There must be a suitable number of operating theatres to give the various specialties of surgery adequate operating time. Each theatre should have an anaesthetic room attached to it and should be fully equipped with anaesthetic, monitoring and resuscitation equipments. It is vital that there should be a recovery room to take a minimum, of two to four beds depending on the number of theatres.

(viii) The X-ray department must be capable of performing routine – X-rays and other specialized investigations such as CT Scan, MRI which may be required by existing specialties and Mobile x-ray and USS facilities should also be available.

(ix) There must be a good library with current Anaesthetic Journals and books in Anaesthesia and related subjects.

(x) Other departments viz a viz: Medicine, Paediatrics, Surgery, Obstetrics & Gynaecology and Psychiatry must be suitably well developed to give the trainees adequate experience in these disciplines.

(xi) There must be a suitable number of Anaesthetic and Monitoring equipment in all areas of Anaesthetic service.

xii. There should be equipment for teaching and research including teaching aids, Manikins, video-tapes, projectors, audiovisual manuals, computers, CD Roms of various anaesthetic techniques and access to internet.

The number of beds in the hospital as well as the total volume of work and the number of consultants will determine the maximum number of postgraduate trainees which can be handled by the department at any one time. The object of the exercise is to ensure that each resident does a minimum of 500 general anaesthetics and regionals yearly. Where all surgical disciplines are not available, a modified accreditation may be given to the institution requiring that the trainees be sent to other hospitals for varying periods of time to make up for the deficit.

A check list for visiting teams is attached herewith as an Appendix.

APPENDIX A

APPRAISAL OF DEPARTMENTS OF ANAESTHESIA FOR POSTGRADUATE PROFESSIONAL TRAINING

CHECK-LIST FOR THE VISITATION PANEL

Members of the visitation panel would like to inspect facilities available in the hospital for anaesthetic service and training. These include:

1. **Departmental Set-up**
   (a) Office for Staff

   (b) Seminar Room(s)

   © Teaching Aids for Postgraduate Training – TV, Video, Computer,

   CD Rom, Mannikins, Simulators, Laptop Multimedia, TEAL etc.

   (d) Departmental Library.

   Text books, Journals – Anaesthesia, BJA, CJA, AJAIC,

   Anesthesiology, Internet access etc.

2. **Accident/Emergency.**
   (a) Emergency Rooms and Facilities for Resuscitation

   (b) Out-Patient Theatre(s) including Recovery Area

   (c) X-ray Facilities

3. **Surgical Wards** – including all surgical specialties

4. **Gynaecological Wards**

5. **Obstetric Wards**

6. **Labour Ward/Theatre**
   Wards must be equipped with resuscitation facilities.

7. **Special Care Baby Unit (SCBU) –** Resuscitation Equipment Resuscitaire, Incubators

8. **Laboratories**
   (a) Chemical Pathology
   (b) Microbiology

(c) **Haematology**
(d) **Blood Bank**

9. Intensive Care Unit/HDU

10. Departmental Laboratory – PCV, Hb, ABG

11. Hospital Medical Health Records

12. Pharmacy

13. Radiology

14. Main operating theatres/recovery areas

15. Meetings with Consultants/Residents

16. Meeting with the Head of the Hospital

All wards, theatres and Radiology Department must be equipped with facilities for resuscitation.

DIPLOMA IN ANAESTHESIA

Duration: Minimum of 12 calendar months

The trainee must acquire knowledge and skills and develop attitudes that will help in the provision of high quality care to all patients during this period.

A minimum of twelve calendar months in an accredited centre is required to qualify to sit for the examination.

Syllabus:

A. Basic and Applied Medical Sciences

B. Drugs in Anaesthetic practice.

C. Physics for Anaesthetists

D. Principles and Practice of Anaesthesia

A. Basic and Applied Medical Sciences related to anaesthesia pharmacology, physiology, anatomy, pathology and biochemistry.

1. Central Nervous System and Peripheral Nervous System
2. Autonomic Nervous System
3. Neuromuscular transmission
4. Cardiovascular System
5. Respiratory System
6. Gastrointestinal System
7. Urogenital System
8. Endocrine including diabetes, obesity
9. Blood, Fluids, Electrolytes, Acid-base balance
10. Haemoglobinopathies and coagulopathies

11. a. Routine assessment of patients for surgery

b. Assessment and preparation of patient with coincidental medical diseases and problems

c. Psychological preparation

d. Medical conditions requiring intensive care

- Respiratory failure
- Tetanus
- Burns
- Shock/septicaemia/electrolyte imbalance
- Multiple injuries

Cardiovascular including cardiac arrest

B. Drugs in Anaesthetic Practice

Specific anaesthesia drugs, their use, theories of anaesthesia, uptake and distribution, potency, metabolism, elimination and toxicity.

Development and assessment of new drugs.

1. Volatile agents: ethers, halogenated anaesthetics, anaesthetics gases.
2. Intravenous anaesthetic agents:
   Barbiturates, Phenols, benzodiazepines, ketamine, imidazole, neuroleptanalgesia, steroids Opioids and their anatogonists
3. Non opiates – NSAIDS and Acetaminophen
4. Local Anaesthetic Agents
5. Neuromuscular Blockers
6. Anticholinesterases
7. Sympathomimetic and Sympatholytic Agents
8. Anticholinergic Drugs
9. Antihypertensive Drugs
10. CNS Stimulants
11. Diuretics
12. New Drugs

C. Physics for Anaesthesia

i. Physical principles involved in the design of anaesthetic machines and their accessories, their maintenance care and sterilisation.

Anaesthetic gases – manufactures and storage

ii. The Gas laws: Boyle's Law, Charles's Law, Henry's Law and Dalton's law.

iii. Flow of liquids and gases, Flowmeters, Vaporization and Vaporisers, Reducing and expiratory valves, Breathing systems, Monitoring equipment, Ventilators, Oxygen therapy equipment.

iv. Electrical and explosion hazards, theatre pollution.

v. Physiological measurements of temperature, humidity, respiratory, cardiac, neuromuscular, hepatic and renal functions.

vi. Anaesthetic critical Incidents

D. Principles and Practice of Anaesthesia

(a) In general

(b) For specific disease states

(c) For age groups

(d) General Anaesthesia and Regional Anaesthesia

Anaesthesia for Surgical procedures including

- General surgery
- Obstetric /Gynaecology
- Orthopaedic/ Traumatology
- Urology
- Outpatient /Day Care Surgery
- Paediatric Anaesthesia excluding Neonates
- Ophthalmic Surgery
- Otorhinolaryngology
- Dental and Maxillofacial
- Neurosurgery
- Emergency Surgery
- Anaesthesia in patients with Haematological disorders
- Anaesthesia in unfavourable Situations
- Regional/Local Anaesthetic Techniques
- Special Anaesthetic Techniques

- Blood loss assessment
- Management and methods of resuscitation including neonatal resuscitation
- Intravenous infusion and blood transfusion
- Patient monitoring, records medicolegal problems
- Pain assessment and relief
- Post Anaesthetic recovery and post-operative complications
- Tracheotomy
- Intermittent positive pressure ventilation
- Oxygen therapy
- Oxygen delivery devices

Clinical Anaesthesia

Candidates will undertake elective and emergency theatre session, rotate round the major specialties of anaesthesia and undertake pre-and post-operative ward rounds particularly in the following areas:

General Surgery/Urology

Gynaecology

Obstetrics

Emergency surgery

Ophthalmology

ENT/Dental

Paediatric surgery excluding the neonate.

Skills to be demonstrated at the end of the training

- Ability to manage a patient peri-operatively using conventional techniques
- Ability to use regional anaesthesia and intravenous anaesthesia confidently
- Ability to start a new Unit in a Hospital and maintain standards
- Ability to judge limitations so as not to take unnecessary risks
- Ability to take up other medical responsibilities apart from anaesthesia if necessary
- Competence in Information technology

- Good record keeping, Data collection, basic statistics and research
- Ability to work as part of a team, assuming the leadership roles where necessary
- Enthusiasm to continue in personal professional development activities by attending workshops, seminars, clinico-pathologic meetings.
- Ability to teach undergraduates, nurses, technicians and other paramedical staff.

LOGBOOK

A logbook of at least 400 cases managed in the areas designated above must be submitted together with application for examination. APPENDIX II

Assessment

After satisfactorily completing one year training in an accredited centre, the candidate will sit for the Diploma in Anaesthesia Examinations, which consist of:

1. Written paper in Basic Sciences and Principles and Practice of Anaesthesia (MCQ and Essay).
   - Paper I Principles and Practice of Anaesthesia
   - Paper II 100 MCQ (Single best option)

     60 – Basic Science

     40 – Principles and Practice
2. Oral examination on Basic Science and Principles and Practice

A successful candidate must score 50% overall.

Successful candidates will be awarded the Diploma in Anaesthesia (DA WACS).

TRAINING Institutions

1. Those already running the Fellowship Programme

2. Accredited Specialist Hospitals with Fellow and Consultants holding a Diploma in Anaesthesia award. There should be a 12-months training. Candidates should have qualified to sit the examination at the time of the closing date for applications for examinations will be held in April and October of each year.

   An unsuccessful candidate may present himself to re-sit the examinations twice, after which he has to undergo a further 6 months training in an accredited institution before presenting himself again.

FACULTY OF ANAESTHESIA WACS

DIPLOMA IN ANAESTHESIA PROGRAMME LOG BOOK

Appendix 1I

No.	Date	Initials of Patient	Age in years	Sex	Diagnosis	ASA Classification	Emergency/ Elective	Surgical Procedure	Anaesthetic Technique	Role of Resident	Remarks including special procedures	Candidate assessment by Supervisor	Supervisor

1. Position e.g. prone, sitting **2.** Done by Candidate only **3.** Member of team

4. Invasive monitoring - CVP **5.** Done under supervision **6.** Special teaching

ASSESSMENT OF CANDIDATE'S PERFORMANCE: A = EXCELLENT; B=VERY GOOD; C = GOOD; D =FAIR; E= POOR