

# **NATIONAL POSTGRADUATE MEDICAL COLLEGE OF NIGERIA**



## **OBSTETRIC ANAESTHESIA AND ANALGESIA CURRICULUM**

### **FACULTY OF ANAESTHESIA**

**APPROVED BY THE SENATE ON 5<sup>TH</sup> DECEMBER, 2024**

A handwritten signature in blue ink, appearing to read 'F. A. Arogundade', is positioned above the name of the Registrar.

**DR F. A. AROGUNDADE, MD FMCP  
COLLEGE REGISTRAR**

## **FACULTY OF ANAESTHESIA**

### **NATIONAL POSTGRADUATE MEDICAL COLLEGE OF NIGERIA CURRICULUM FOR OBSTETRIC ANAESTHESIA AND ANALGESIA SUBSPECIALTY. (FELLOWSHIP AND DOCTOR OF MEDICINE PROGRAMMES)**

**i) MD Programme:** Doctor of Medicine, Obstetric Anaesthesia. (MD, Obstetric Anaesthesia and Analgesia)

**ii) Fellowship Programme:** Fellow of the Medical College in Anaesthesia (FMCA, Obstetric Anaesthesia and Analgesia).

#### **A. INTRODUCTION:**

This curriculum will serve as a detailed document expanding on the existing curriculum for the senior residents need to follow in their training in obstetric anaesthesia. And also to provide guidance on advanced training at high postgraduate medical education level. It will enhance the knowledge and skills acquired during the residency training.

#### **B. PHILOSOPHY**

The core philosophy in the obstetric anaesthesia is to train the residents in all areas of the field. This will ensure that the future Obstetric Anaesthetist will have the clinical, research, and educational foundation required to provide the highest level of care to pregnant women, as well as participate in the scientific evolution of the field. The core philosophy of the advanced training in obstetric anaesthesia is to ensure competent fellows in advanced clinical duties, translational research, and teaching at higher levels.

#### **C) AIMS AND OBJECTIVES**

- i. To produce anaesthetists who are competent in knowledge and skills in the management of healthy pregnant women and those with concurrent medical diseases scheduled for labour analgesia, elective and emergency operative deliveries and non-obstetric procedures.
- ii. To provide safe and quality care to the obstetric patient.
- iii. To evaluate the parturient and institute an appropriate labour analgesia plan.
- iv. To perform immediate resuscitation and follow-up management of acute obstetric emergencies
- v. To evaluate the obstetric patient and institute an appropriate anaesthetic plan for obstetric surgical procedures.
- vi. To develop skills and competencies required to be an effective trainer in Obstetric Anaesthesia and Analgesia.

## **D. ENTRY REQUIREMENTS (ELIGIBILITY)**

**Fellowship Programme:** Part 1 Fellowship of the Faculty of Anaesthesia, National Postgraduate Medical College of Nigeria. Candidates must register for the programme after passing the Part 1 Fellowship examination. Candidates must submit proposal for dissertation in Obstetric Anaesthesia and Analgesia.

**MD Programme:** Candidates with the Part 1 Fellowship of the Faculty of Anaesthesia, NPMCN who have registered for the MD programme.

## **E. DURATION OF PROGRAMME**

**Fellowship Programme:** Minimum of 36 months of which the last 18 months must be in the specialty of Obstetric Anaesthesia and Analgesia.

**MD Programme:** It shall be for Six (6) semesters programme or the candidate presents for examination six (6) months before the Part 2 Final Fellowship examination.

The candidate is advised to do 3 months rotation in a fully accredited institution within the country or in a recognized institution outside the country

## **F. THE FIRST STAGE OF SENIOR RESIDENCY TRAINING**

The duration of this stage is eighteen (18) months.

### **i. GENERAL EDUCATIONAL OBJECTIVES**

This period must be spent in acquiring further knowledge in the subspecialties of Anaesthesia. During this phase of training, residents are expected to perform at a higher proficiency level than they did during their junior residency, to assume a greater degree of responsibility for decision making in patient care as well as cover a much wider scope of anaesthetic practice and procedures, e.g. neonatology. More opportunities are provided at this stage to enable each senior resident participate in teaching junior colleagues, nurses and medical students. He is also introduced to principles of health resource management in addition to problem solving skills as applied to research and anaesthetic practice.

## ii. FORMAT OF TRAINING

The posting rotations for the first stage of Senior Residency Training is as follows:

<b>POSTING</b>	<b>DURATION</b>
Cardiothoracic anaesthesia	2 months
Neuroanaesthesia	2 months
Paediatric (including neonatal) anaesthesia	2 months
Obstetric anaesthesia and analgesia	2 months
Anaesthesia for other surgical specialties- (General Surgery, Urology, Orthopaedics & Trauma, Maxillo-facial, Plastic & Reconstructive, Ophthalmic, Otorhinolaryngology, Gynaecology)	4 months
Intensive Care Medicine	2 months
Pain Medicine	2 months
Regional Anaesthesia	2 months
<b>Total</b>	<b>18 months</b>

## iii. COGNITIVE SKILLS

Throughout the period of the Residency Programme, the Head of Department has the responsibility to expose the residents to a systematic schedule of didactic teaching covering the core knowledge pertinent to the practice of anaesthesia, so as to give them confidence and enable them to demonstrate good judgement in dealing with real problems.

This should be presented in form of seminars, tutorials and structured lectures, use of audio-visual aids, clinical case conferences, mortality and morbidity conferences, Information technology course, management course, teaching sessions, theatres and intensive care experience, journal reviews as well as research seminars. The Senior Resident must be updated from time to time on current opinions/research/practice of the specialty

The planned schedule should identify the scope of knowledge to be covered in cycles of 36 months and thereby provide opportunities for residents to cover the same ground at least twice; one as a junior resident and one as a senior resident.

## iv. PSYCHOMOTOR SKILLS

Each training institution should design its programme in such a way that the resident's acquisition of requisite anaesthetic skills spans over the 5 year (Junior and Senior Programmes) period. The mastery of specific psychomotor skills of increasing degree of complexity, such as stated below should be emphasized.

- (a) The handling and care of anaesthetic machines and auxiliary equipment, storage of gases, safety devices.
- (b) The organization, disinfection and sterilization of auxiliary anaesthetic equipment appropriate for a particular technique of anaesthesia.
- (c) The preparation and setting up of monitoring devices during anaesthesia and intensive care.
- (d) The preparation and positioning of patients for regional techniques and particular operations.
- (e) Participation in the prevention of explosion and fire in the operating room.

#### **v. RESEARCH SKILLS**

The head of department in the training institution should encourage residents to cultivate the habit of systematic clinical problem solving, featuring observation, interpretation, deductive reasoning, and decision-making followed by further observation. These are basic requirements for competence in research, either in the context of clinical problems or basic research projects. Periodic departmental research seminars are recommended as the forum in which young researchers present their project for discussion, and receive the criticism and guidance of their teachers and peers.

#### **vi. COMMUNICATION SKILLS**

It is important that Consultant Anaesthetists should be effective communicators not only in the ordinary run of clinical practice dealing with anxious patients, medical records documentation, or case presentation; but also in the context of scientific conference presentation, scientific journal publication, and indeed examination writing. Therefore training institutions must provide opportunities for the acquisition and testing of various levels of communication skills.

Computers have become important tools in all spheres of anaesthetic practice such as drug prescription, equipment for diagnosis and treatment, anaesthetic machine and others. Record keeping and auditing are also computer based. The knowledge of computer in anaesthesia is relevant in communication skill and should be stressed at this level. This should include literature search, use of internet, the use of statistical software, simulation and Microsoft Power Point for presentations.

#### **vii. CONTACT HOURS AND CREDIT UNITS FOR THE FIRST STAGE OF SENIOR RESIDENCY TRAINING– 18 MONTHS**

In addition to the curriculum outline for the Junior Residency training programme, the Senior Residency Curriculum is advanced with further knowledge of the subspecialties in Anaesthesia, Pain Medicine and Intensive Care.

<b>Specialties</b>	<b>Months</b>	<b>Contact academic (hours)</b>	<b>Theatre/ Clinical contact (hours)</b>	<b>Credit units</b>
ANE 931. Cardiothoracic anaesthesia	2	30	180	6
ANE 932. Neurosurgical anaesthesia	2	30	180	6
ANE 933. Paediatric including neonatal anaesthesia	2	30	180	6
ANE 934. Obstetric Anaesthesia & Analgesia	2	30	180	6
ANE 935. Anaesthesia for other surgical specialties- General Surgery, Urology, Orthopaedics & Trauma, Emergency, Maxillofacial, Plastic & Reconstructive Surgery, Ophthalmology and Otorhinolaryngology and Gynaecology	4	30	180	6
ANE 936. Intensive Care Medicine	2	30	180	6
ANE 938 Pain Medicine.	2	30	180	6
ANE 939 Regional Anaesthesia	2	30	180	6
<b>Total</b>	<b>18</b>			<b>48</b>

**viii (a). SKILLS TO BE ACQUIRED IN FIRST STAGE (18 MONTHS) SENIOR RESIDENCY TRAINING**

	<b>SKILLS</b>	<b>NUMBER REQUIRED TO BE PERFORMED</b>
1	Intubation- routine	150
2	Intubation- nasal	13
3	Intubation- awake	5
4	Intubation- fiberoptic	5
5	Use of supraglottic airway devices	30
6	Difficult airway management	10
7	Double lumen tube insertion	7
8	Cricothyroidotomy	3
9	Percutaneous tracheostomy	3
10	Mini tracheostomy	3
11	Central venous cannulation	10
12	Intra-arterial cannulation	10
13	Intra-osseous cannulation	5
14	Peripheral venous cut-down	3
15	Subarachnoid block	50
16	Epidural block- lumbar	30
17	Epidural block- thoracic	1
18	Combined spinal-epidural block	20
19	Caudal block	25
20	Nerve blocks- brachial plexus, sciatic etc	10
21	Intravenous regional anaesthesia	10
22	Hypotensive anaesthesia	5
23	Total intravenous anaesthesia	5
24	One lung ventilation	7
25	Awkward positioning	25
26	CVP monitoring	5
27	Invasive blood pressure monitoring	5
28	Cardiac echocardiography	Observed/participated
29	Focused assessment for sonography (FAST)	Observed/participated

**viii (b). OTHER RELEVANT SKILLS TO BE ACQUIRED IN THE FIRST STAGE (18 MONTHS) SENIOR RESIDENCY TRAINING**

	<b>SKILLS</b>	<b>NUMBER REQUIRED TO BE PERFORMED</b>
1	Chest tube insertion	1
2	Ultrasound-guided vascular access	2
3	Ultrasound-guided nerve blocks	2
4	Critical care- initiation and weaning off ventilator	20
5	Critical care- arterial blood gas analysis	20
6	Critical care- sedation	12
7	Critical care- use of inotropes, vasopressors, syringe drivers and volumetric pumps	12
8	Critical care- cardiac output studies	Observed/participated
9	Critical care- cardioversion/pacing	2
10	Patient stabilization and transfer	8
11	Advanced Trauma Life Support Course	Attend 1
12	Cardiopulmonary resuscitation Course- adult/paediatric	Attend 1
13	Neonatal resuscitation	13
14	Chronic pain management	5
15	Epidural analgesia	3

**Note:**

- 1) The candidate must be able to manage complex surgical cases as itemized in each module
- 2) Each Candidate is expected to do a minimum of 30 hours of theatre/ clinical sessions per week throughout the 18 months of the first stage of Senior Residency period, taking into cognizance the period of annual leave.
- 3) A Senior resident is expected to attend at least two (2) local or international conferences and the certificate of attendance should be submitted with the examination application form
- 4) A senior resident must attain a minimum of 75% attendance at academic sessions. This must be duly signed up by the supervising consultant.
- 5) The candidate must provide a certificate of Training from a recognized CPR training programme within the 18 months of the first stage of the Senior Residency Training.

**G. THE SECOND STAGE OF SENIOR RESIDENCY TRAINING (M.D. and Subspecialty in Obstetric Anaesthesia and Analgesia)**



The duration of this second stage is eighteen (18) months.

### LIST OF COURSES AND DETAILED COURSE DESCRIPTION

COURSE CODE	COURSE TITLE	DURATION (weeks)	LECTURE (hours)	PRACTICAL (hours)	CREDIT UNIT
ANE 944.1	General principles and applied basic sciences in obstetric anaesthesia	4	30	-	2
ANE 944.2	Pharmacology in relation to obstetric anaesthesia	2	30	--	2
ANE 944.3	Physiology of labour and delivery, Pain Pathways in Labour and Relief	2	30	-	2
ANE 944.4	Neuraxial Labour Analgesia and Effect on Labour.	6	30	90	4
ANE 944.5	Complications of Obstetric Anaesthesia	4	30	90	4
ANE 944.6	Foetal Wellbeing Monitoring.	4	30	90	4
ANE 944.7	General anaesthesia for operative delivery	12	30	90	4
ANE 944.8	Regional anaesthesia for operative delivery	12	30	90	4
ANE 944.9	Post-Caesarean Pain Management and Post-operative Complications	10	30	90	4
ANE 944.10	Major obstetric haemorrhage	4	30	90	4
ANE 944.11	Co-morbidities during pregnancy/high risk	4	30	90	4
ANE 944.12	Sepsis in Obstetrics and the Role of the Anaesthetist	2	30	90	4
PMC 995	Advanced Research Methodology	1	30	-	2
PMC 996	Health Resource Management	1	30	-	2
ANE 999	Dissertation in obstetric anaesthesia	4	90	270	12
#PMC 998	MD Seminar	2	30	-	2
	<b>TOTAL</b>	<b>72 (#74)</b>			<b>60 (#62)</b>

# For MD candidates

*In addition to the listed courses above, candidates who are registered in the MD Programme will take the College Medical Education Course and Faculty Specialty-Based Courses as stipulated in each Specialty-MD curriculum.*

**ANE 944.1 General Principles and Applied Basic Sciences:**

**2 Credit Unit**

**Physiologic changes in pregnancy:** Cardiovascular system, Respiratory system. Gastrointestinal system Coagulation. Endocrine system. Aorto-caval Compression.

**Anatomic changes in Pregnancy:** Thorax. Larynx. Nasopharyngeal and oropharyngeal. The Vertebral column. Epidural space (fats and veins of the epidural space). Lumbar lordosis. Narrowing of the interspinous spaces. CSF volume.

**Pharmacologic changes:** Pharmacokinetics and pharmacodynamic

#### **ANE 944.2 Pharmacology in relation to Obstetric anaesthesia**

**2 Credit Unit**

Pharmacokinetics. Pharmacology of local anaesthetic agents. Toxicity of local anaesthetic agents and management. Adjuvants to local anaesthetic agents (Fentanyl, Pethidine, Dexamethasone, Remifentanyl, Diamorphine, Dexmedetomidine). Uterotonics. Vasopressors (ephedrine, phenylephrine, chlorpheniramine). Anticholinergics (atropine, hyoscine, glycopyrrolate). Opioid analgesics. Naloxone. Tocolytics (magnesium sulphate, salbutamol, beta-mimetic drugs, ephedrine, calcium channel blockers, prostaglandin inhibitors). Uterotonic drugs (misoprostol, oxytocin, ergot alkaloids, prostaglandins, carbetocin). Antihypertensive drugs (hydralazine, labetalol, Aldomet, nifedipine. Drug interactions and obstetric anaesthesia. Interaction of antibiotics, Muscle relaxants, Neostigmine and Calcium, sympathomimetic drugs, Enflurane. Effects of magnesium sulphate interaction with Muscle Relaxants, Crystalloids and colloids. Placental Transfer of Drugs.

#### **ANE 944.3 Physiology of labour and delivery, Pain Pathways in Labour and Relief.**

**2 Credit Unit**

Modern Methods of Measurement of Labour Progress. Factors influencing progress of labour.

Methods for Induction and Augmentation of Labour. Physiology of first, second and third stages of labour.

**Non-pharmacologic methods of pain relief:** Hypnosis. Psychoanalgesia (Natural childbirth. Psychoprophylaxis. Acupuncture, Transcutaneous Electrical Nerve Stimulation (TENS). Water bath. Relief of Labour Pain by **Pharmacologic methods:** Systemic medications (morphine, meperidine, fentanyl, remifentanyl, ketamine). Sedatives and/ or Tranquilizers. Barbiturates. Benzodiazepines. Phenothiazines. Tranquilizers.

**Methods of administration of Epidural:** Patient–Control-Epidural Analgesia (PCEA), Continuous Epidural, Programmed intermittent epidural boluses (PIEB). Extended Volume Expansion.

**Equipment:** Epidural Packs. Epidural needles. CSE Pack. Extra Length Spinal/Epidural needles. PCA Pump. Infusion Pump. Elastomeric pump.

#### **ANE 944.4. Neuraxial Labour Analgesia and Effect on Labour.**

**4 Credit Units**

Advantages and Disadvantages of Neuraxial Labour Analgesia. Indications and Contraindications of Neuraxial Labour Analgesia. Neuraxial Labour Analgesia Techniques- Single shot Spinal technique, Epidural Technique. Combined Spinal Epidural. Choice of drugs for initiation of epidural and spinal labour analgesia. Maintenance of labour analgesia. Management of breakthrough pain. Complications of Labour Analgesia Management.

Resuscitation Equipment (oropharyngeal airways, laryngoscope with different sizes of blades, stylet, bougie, self-inflating bag, Face Mask.

**Resuscitation:** Drugs: Ephedrine. Adrenaline. Phenylephrine. Atropine. Intralipid. Naloxone. Chlorpheniramine. Promethazine. Midazolam.

**ANE 944.5. Complications of Obstetric Anaesthesia****4 Credit Unit**

Awareness. Difficult intubation/Failed Tracheal Intubation. Mendelson's Syndrome. High spinal. Total Spinal. Shivering. Aorto-caval Compression, Hypotension. Pain (acute and chronic). Neonatal depression.

**Complications of Epidural Analgesia and Anaesthesia:** Paraesthesia. Accidental dural puncture. Subdural injection. Massive epidural analgesia. Accidental intravascular injection, Cardiac arrest. Cardiovascular toxicity and Central Nervous System toxicity of Local Anaesthetic Agents. Backache, Methemoglobinemia, Broken epidural catheter. Neurological complications.

**ANE 944.6. Foetal Wellbeing Monitoring.****4 Credit Units**

Intrapartum Foetal Heart Rate Monitoring. Baseline Heart Rate. Baseline variability. Foetal Heart Rate Pattern (Periodic Changes. Early decelerations Variable Deceleration The Role of Electronic Foetal Monitoring.

**ANE 944.7. General anaesthesia for operative delivery.****4 Credit Units**

Indications for Caesarean Section. Types of Caesarean section (scheduled and unscheduled)

**Problems of obstetric Anaesthesia and Management.** Awareness. Difficult intubation – hypoxia. Aspiration pneumonitis. Supine hypotensive syndrome. Haemorrhage. Hypercoagulability. Amniotic Fluid Embolism.

**Anaesthesia for Caesarean Section and Postoperative Analgesia:** Classification of Caesarean Section, Indications for Caesarean Section. Advantages and disadvantages of General Anaesthesia. Preoperative visit. Relevant history (obstetric). Examination (general and systemic). Airway assessment. Investigations Premedication and consent. Crystalloids/Colloids. Blood transfusion. Acid aspiration prophylaxis. Monitoring. Patient positioning, **WHO checklist**. Induction of anaesthesia. Rapid sequence induction. Laryngoscopy and intubation. Maintenance of anaesthesia. Fluid maintenance. Blood loss and replacement. Urine output. Postoperative pain management.

**Equipment:** Anaesthetic Machine, Patient Multiparameter Monitor, Suction Machine, Laryngoscopes (types, blades) Intubating aids. LMA. Video laryngoscope. Difficult intubation tray. Oropharyngeal airway. Elastomeric pump. Devices for Simulation (Supraglottic, Manikin for intubation, Fibreoptic laryngoscope, Trachlight.

*Note: Candidates are encouraged to practice on their own, to enhance competence in the use of these devices.*

Drugs: Oxygen. Ranitidine. Metoclopramide. Omeprazole, Ondansetron, Sodium Citrate. Induction agents. Muscle relaxants. Oxytocin, Ergometrine. Carbetocin. Tranexamic acid. Analgesics (NSAIDs, opioids, dexamethasone. paracetamol, Acupan). Induction agents (thiopentone, propofol, etomidate, midazolam, ketamine). Muscle relaxants (suxamethonium, atracurium, pancuronium, rocuronium, vecuronium).

**ANE 944.8. Regional anaesthesia for operative delivery.****4 Credit Units**

**Spinal, epidural, Combined spinal epidural.**

Advantages and disadvantages of each. Acid aspiration prophylaxis. Resuscitation equipment oxygen and drugs. Positioning. Supine Hypotensive Syndrome. Preloading/co-loading. Monitoring. Venous access. Preparation for general anaesthesia. Ancillary items (laryngoscopes, oropharyngeal airway, ETT, stylet, bougie, functioning suction machine, experienced assistant. Vasopressor drugs. Uterotonics. Complications of neuraxial anaesthesia and management. Pencil-point spinal needles, sizes 25, 26, Epidural Pack with size 18 g needle. Acid aspiration prophylaxis. Positioning (left lateral tilt), (crystalloids, colloids). Vasopressor drugs. Dermatomal level for spinal anaesthesia. Fluid and blood maintenance. Uterotonic drugs (misoprostol, oxytocin, ergometrine, carbetocin).

**Epidural:** Methods of locating space. Test dose. Complications (Inadvertent dural puncture, patchy block-single orifice catheter, unilateral block, failed block, total spinal, catheter shearing, unintentional intravascular injection of local anaesthetic through the epidural catheter).

**Combined Spinal Epidural Anaesthesia for Caesarean Section:** Indications: prolonged surgery, previous scar (caesarean section >2, myomectomy). Advantages: rapid reliable onset, may be used for postoperative pain relief.

**Complications of Local anaesthetic:** Toxicity- CNS (convulsion, respiratory arrest), CVS (arrhythmias, cardiac arrest. Management of LA toxicity.

**Resuscitation drugs:** Atropine, glycopyrrolate, adrenaline, ephedrine, phenylephrine, sodium bicarbonate, calcium gluconate, hydrocortisone, nor-epinephrine, dopamine, dobutamine, dexamethasone, tranexamic acid, intralipid.

#### **ANE 944.9. Post-Caesarean Pain Management and Post-operative Complications. 4 Credit Units**

Multimodal concept of pain management, drugs and routes of administration (IV, IM, Rectal).

Epidural analgesia. Transversus abdominis plane (TAP) block.

**Drugs:** Opioids, NSAIDs, paracetamol, Acupan, dexamethasone, tramadol

**Wound infiltration:** plain bupivacaine

Post-operative complications (Acute Pain, DVT, Airway morbidity, nerve injuries, Post dural puncture headache (PDPH) Chronic pain. Maternal mortality, definition, causes. Cardiopulmonary resuscitation in pregnancy.

#### **ANE 944.10. Major Obstetric Haemorrhage**

**4 Credit Units**

Definition. Classification. Risk factors (increasing age, existing complex medical disorders. assisted reproduction resulting in multiple pregnancies, increasing caesarean section rate. Causes (placenta praevia, previous caesarean section, abruption placenta, placenta accreta/increta/pacreta, uterine atony, retained products, cervical or vaginal lacerations, uterine rupture, uterine eversion, uterine fibroids, retained dead foetus, incompatible blood, coagulopathy. **Inherent** (a)-idiopathic thrombocytopaenic purpura, (b)-Von Willebrand disease. **Acquired**-(a)-Pre-eclampsia) heparin (c)-disseminated intravascular coagulopathy

**Assessment, Management of PPH:** Blood and blood products (FFP, Platelet concentrate, Cryoprecipitate).

**Point of Care Test & Devices:** Haemocue, Blood Warmer. Level 1 Rapid Infusor Device, Thromboelastographic machine.

#### **ANE 944.11. Co-morbidities during pregnancy/high risk**

**4 Credit Units**

**Hypertensive Disorder:** Essential hypertension. Gestational hypertension. Gestational hypertension with complications. Preeclampsia/Eclampsia.

**Morbid obesity:** Regional and general anaesthesia techniques in morbidity obese parturient

**Respiratory Disease,** Asthma. Obstructive sleep Apnoea, ARDS. Amniotic fluid embolism. Pulmonary embolism, Pulmonary oedema.

**Cardiac Disease:** Congenital heart disease. Left to right shunt. Right to left shunt (Tetralogy of Fallot).

Pulmonary hypertension (Eisenmenger's Syndrome). Coarctation of aorta. Ischaemic heart disease, Valvular heart disease. Peripartum cardiomyopathy. Cardiac arrhythmia.

**Endocrine Disease:** Diabetes mellitus. Thyroid disease.

**Haematological and Coagulation Disorders:** Anaemia (including sickle cell disease). Coagulation disorders (platelet, factor, DIC). Anticoagulation.

**Neurological; Disease-**Multiple sclerosis. Spinal cord injury. Myasthenia gravis. Guillain Barre. Seizure disorders. Subarachnoid hemorrhage or vascular malformations. Elevated intracranial pressure. Puerperal psychosis.

**Substance Abuse, HIV Infection, Sexually Transmitted Disease:** Substance abuse. Ethanol abuse, Opioid abuse and barbiturate use. Cocaine abuse. HIV Infection. Sexually transmitted diseases.

**Miscellaneous Disorders:** Renal diseases. **Anaphylaxis,** Liver diseases. Musculoskeletal disorders. Scoliosis, Prior back surgery. Pregnancy following organ transplantation. Non-obstetric surgery during pregnancy, Autoimmune disorders. Recurrent abortions. Cervical cerclage and other therapies.

#### **ANE 944.12. Sepsis in Obstetrics and the Role of the Anaesthetist.**

**4 Credit Units**

Definition, World Health Organization definition of puerperal infections, classification, the immune system in pregnancy. Management.

Risk factors and causes of sepsis in obstetrics, Microbiology, Clinical Presentation and diagnosis. Management and Surviving Sepsis Campaign, Suggested intravenous antibiotic therapy in obstetric sepsis.

Role of the Anaesthetist in the management of sepsis in obstetrics.

#### **PMC 995 Advanced Research Methodology (College Course).**

**2 Credit Units**

The main objective of this course is to facilitate acquisition of sound knowledge and necessary skills for research in anaesthesia. Definition, Spectrum and Types of Health Research Design. Defining Research problems, Setting Objectives, Statistics and Research Methods. Writing Research Proposals (Planning, Protocol Development and Report Writing) Good Clinical Practices and Clinical Trials. Role of Computer in Medical Research (EPI Info and SPSS). Literature review, Use of Physical and Virtual Library, Use of Internet, Search Engines, Systematic Reviews and Meta-analysis. Ethical considerations in medical research. Clinical Governance. Writing –Up, presentation and defense of Theses. Evidence Based Health

Care. Statistical Methods (Summary, Inferences and Interpretation). Principles of Writing Articles for Publications. Research integrity and Plagiarism. Budget and Sources of Funding for Research.

**PMC 996. Health Resource Management (College Course).**

**2 Credit Units**

The objective is to facilitate acquisition of knowledge and necessary skills required for management of health resources in Health institutions and for programme implementation. Principles and application of Management. Strategic Management. Health Care Planning. Health Policy formulation and evaluation. Health Resources mobilization and allocation. Human Resources Management. Organization. Monitoring and Evaluation of Health Services. Performance Management. Sustainable Development. Problem Solving and Decision-Making skills. Emotional Intelligence. Leadership. Management of Change. Risk Management. Financial Management, Material Resources Management. Quality assurance in health and equity in health. Managing the Health team-leadership and Team building. Health Care Financing. Financial Resources Management and Cost-Recovery Systems. Health Economics- the Economic appraisal of Health Programme. Public Private Partnership (PPP). Health Services Management Information Systems. Essentials of Budgeting and Accounting. Social Marketing of Health Programmes. Ethical and Legal Considerations in Medical practice.

**ANE 999. Dissertation in obstetric anaesthesia**

**12 Units**

An approved Dissertation based on original work of candidate on an appropriate topic in Obstetric anaesthesia, which will be supervised and will be presented for assessment at the end of the programme.

**H) SKILLS:** The trainee should

1. Undertake satisfactory preoperative assessment of the pregnant patient.
2. Demonstrate the ability to clearly explain and prepare an obstetric patient for surgery.
3. Demonstrate the use of techniques to avoid aortocaval compression
4. Demonstrate the ability to provide epidural analgesia in labour.
5. Demonstrate the ability to provide spinal anaesthesia for caesarean section
6. Demonstrate the ability to convert epidural analgesia to epidural anaesthesia for surgical intervention.
7. Demonstrate the ability to provide general anaesthesia for caesarean section
8. Demonstrate an appropriate choice of anaesthesia/analgesia for instrumental delivery
9. Demonstrate an appropriate choice of anaesthesia for retained placenta.

10. Demonstrate safe and effective management of post-delivery pain relief.
11. Demonstrate the ability to provide advanced life support for a pregnant patient.
12. Demonstrate the ability to provide basic neonatal life support
13. Demonstrate the ability to provide intravenous opiate analgesia including PCA for labour.
14. Demonstrate the ability to manage complications of regional block including failure to achieve an adequate block.
15. Demonstrate the ability to provide CSE for an operative delivery.
16. Demonstrate the ability to choose the most appropriate regional technique for an operative delivery and justify the decision
17. Demonstrate the appropriate management of accidental dural puncture and post- dural puncture headache
18. Demonstrate the ability to provide appropriate anaesthesia for a caesarean section for placenta praevia under direct supervision
19. Demonstrate the ability to manage a high dependency obstetric patient with distant supervision

#### **I) COMPETENCIES.**

1. Appropriately directed History and Physical Examinations for obstetric patients including those with complex pathology
2. Develop appropriate patient-specific analgesia plans for labor patients including those with complex pathology
3. Develop appropriate patient-specific anesthetic plans for Obstetric Surgical Procedures in all patients including those with complex pathology
4. Placement and Management of Lumbar Epidural Anesthesia for Obstetric Surgical Procedures in all patients including those with complex pathology
5. Placement and Management of Lumbar Epidural Analgesia (a minimum of 25) -
6. Placement and Management of Lumbar Epidural Analgesia – Patient Controlled/Continuous infusion
7. Placement and Management of Spinal Anesthesia for Labor
8. Placement and Management of Spinal Anesthesia for Obstetric Surgical Procedures-A minimum of 100 cases
9. Placement and Management of Combined Spinal Epidural Analgesia for Labor
10. Placement and Management of Combined Spinal Epidural Anesthesia for
11. Obstetric Surgical Procedures. A minimum of cases
12. Management of General Anesthesia for Obstetric Surgical Procedures
13. Appropriate perioperative and intraoperative management of obstetric patients with cardiac pathology
14. Appropriate perioperative and intraoperative management of obstetric patients with pregnancy induced hypertensive diseases.
15. Formulate appropriate perioperative care and management of regional or general anesthesia for vaginal or cesarean delivery in the obstetric

patient with pregnancy induced hypertensive diseases.

16. Multidisciplinary management-physicians, obstetricians, neonatologist, haematologist, cardiologist and endocrinologist.

**J) Summative Evaluation.**

Candidates is eligible to take the Fellowship examination after completing the total 36 months of academic and clinical training. However, MD candidate shall be eligible for the examination after completing six semester courses or at least six months before the part 2 final examination. Standard setting with the Modified Angoff method will be used for summative assessment of all candidates in both MD candidates or the subspecialty candidates.

**i) MD Programme:** Candidates will defend the MD thesis in Obstetric Anaesthesia during the MD defense examination.

To proceed to the Fellowship, candidates will take the following during the Part 2 Fellowship examinations (Theory Paper-MCQ/SBA, OSCE and Structured Oral examination

- Theory Paper: 2 hours. MCQ (SBA). 100. Obstetric Anaesthesia- Applied Basic Sciences (25), Medicine (15) and Surgery (15) as applicable to the specialty, foeto-maternal medicine (10), Principles and Practice of Obstetric Anaesthesia (35).
- **OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE): SIX STATIONS:** Duration of 1 hour comprising: (a) HISTORY TAKING/COMMUNICATION- 10 marks. (b) PHYSICAL EXAMINATION- 15 marks. (c) SKILLS-. 20 marks. (d) SKILLS. - 20 marks (e) INVESTIGATIONS (XRAYS, CT, HAEMATOLOGY, ECHO. ECG, ABG. CLINICAL CHEMISTRY)- 15 marks. (f) PATIENT MANAGEMENT- 20 marks
- Structured Oral examination shall be assessed with Modified Angoff method. General (50%) and subspecialty (50%)

**ii) Fellowship Programme:** Part 2 Fellowship Examination

The Part 2 Fellowship examination consists of the following: Theory Paper-MCQ/SBA, OSCE and Structured Oral examination all parts of the examination shall be assessed with Modified Angoff method.

- Theory Paper: 2 hours. MCQ (SBA). 100 (Obstetric Anaesthesia- Applied Basic Sciences (25), Medicine (15) and Surgery (15) as applicable to the specialty, foeto-maternal medicine (10), Principles and Practice of Obstetric Anaesthesia (35).
- **OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE): SIX STATIONS:** Duration of 1 hour comprising: (a) HISTORY TAKING/COMMUNICATION- 10 marks. (b) PHYSICAL EXAMINATION- 15 marks. (c) SKILLS-. 20 marks. (d) SKILLS. - 20 marks (e) INVESTIGATIONS (XRAYS, CT, HAEMATOLOGY, ECHO. ECG, ABG. CLINICAL CHEMISTRY)- 15 marks. (f) PATIENT MANAGEMENT- 20 marks (TOTAL 100 marks)



- Structured Oral examination. General (50%) and subspecialty (50%). Duration is 1 hour
- Dissertation presentation and defense in Obstetric Anaesthesia

## GRADING OF MARKS

GRADE	PERCENTAGE %
A (excellent)	≥ 70%
B (very good)	60-69%.
C (good)	55-59%
D (pass)	50-54%
E (borderline)	45-49%
F (fail)	< 45%

### K) CONDITION FOR A PASS

- Candidate must pass all sections of the examination to be awarded a pass
- Candidate who fails any section(s) of the examination will be required to repeat the failed section(s) in a subsequent examination.

### L) ACCREDITATION REQUIREMENTS

**i) General Requirements for Residency Training:** The anaesthesia training programme is aimed at producing specialists in anaesthesia of a high degree of competence, comparable in the extent and depth of the training of anaesthesia Fellows in other parts of the world. The anaesthesia specialist should have a firm grasp of the scientific basis of 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 objectives of the training and should cover the main areas of modern anaesthetic practice.

The institution must have accreditation for general fellowship training in addition to accreditation for training in anaesthesia.

Number of Trainers, related surgical specialties, minimum case load and variety cases, and, training facilities specific for the neuro-anaesthesia

- Clinical Anaesthesia: Pre-Operative Care. Intra-Operative Care. Post-Operative Care
- Resuscitation
- Intensive Care
- Pain Medicine

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 the core 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 Obstetric anaesthesia must have a Department of Anaesthesia run by specialists in general and other subspecialties of anaesthesia, pain medicine and intensive care medicine, who are themselves Fellows of the National Postgraduate Medical College of Nigeria or are Fellows of other recognized Colleges or have equivalent qualifications. A minimum of two Fellows (one of them shall be a fellow of NPMCN) 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 and Trauma Surgery, Dental Surgery, Paediatrics and Plastic Surgery. While it is desirable to have a neurosurgical unit and a cardio-thoracic unit, it is not mandatory for basic specialist training. Residents in institutions without neurosurgical and cardio-thoracic units must do senior and junior residency rotations in fully accredited institutions as specified by the Faculty.
- (iii) There must be an out-patient complex with Emergency Rooms and facilities for resuscitation, as well as out-patient theatre(s) for minor surgery and casualty.
- (iv) Laboratories – The hospital must also have facilities for investigation in
  - (a) Chemical Pathology
  - (b) Microbiology for routine and special investigations, and emergency
  - (c) Haematology and Blood Bank.
- (v) There should be an Intensive Care Unit for the management of critically ill or traumatised patients.
- (vi) There 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 equipment. It is vital that there should be a recovery room equipped with monitors, resuscitation equipment to take a minimum, of two to four beds depending on the number of theatres.
- (viii) The Radiology Department must be capable to doing routine – X-rays and other sophisticated investigations (CT, MRI, contrast studies, Ultrasound, Doppler) which may be required by existing specialties and such facilities should extend to theatre and ICU.
- (ix) There must be a good library with current anaesthesia journals and books in anaesthesia and related subjects. Internet connectivity and subscription to data bases should be available.

- (x) Other departments viz: Medicine, Paediatrics, Surgery, Obstetrics & Gynaecology and Psychiatry must be suitably well developed to give the residents in training some experience in these disciplines.
- (xi) There must be a suitable number of Anaesthetic and Monitoring equipment in all areas of Anaesthetic service. In addition to service equipment, there should also be equipment and simulation devices for teaching and research including teaching aids, models, audio-tapes, computers, CD Rom, etc.

### **Additional Requirements for Obstetric Anaesthesia:**

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. At least two consultants in the specialty of Obstetric Anaesthesia, one of whom must be a Fellow of the College are required for accreditation. 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 as stipulated in the Residency Training Programme in Anaesthesia Hand Book to make up for the deficit. Additional specific requirements for obstetric anaesthesia include the following:

- i. Point of Care Investigation: Haemocue. Thromboelastogram
- ii. Dedicated obstetric services blood bank
- iii. Inline blood warmer
- iv. Epidural pumps (PCEA, PIEB -Programme intermittent epidural boluses). Infusion pump.
- v. Elastomeric pump.
- vi. Airway maintenance devices: Oropharyngeal airways, nasopharyngeal airways. ETT,
- vii. Intubating devices and aids- Fiber optic bronchoscope. Video laryngoscope. McCoy laryngoscope. Intubating LMA. Gum elastic bougie. Macintosh laryngoscope. Miller laryngoscope. Stylet.
- viii. Needles. Pencil point Spinal needles. Sizes 25G and 26G. Epidural Packs, size 18G
- ix. Patient warming device (Bair-Hugger)
- x. Level 1 rapid infusor
- xi. Bag-mask device

- xii. Epidural simulators for needle insertion training
- xiii. Point of care ultrasound machine for TAP block
- xiv. Stimuplex needles.