

Final FRCA Syllabus

Obstetrics

Physiological changes of pregnancy

Anaesthesia in early pregnancy

Antenatal assessment of the pregnant woman

Medical diseases complicating pregnancy

Pain relief in labour

Anaesthesia for operative obstetrics

Emergencies in obstetrics

Maternal morbidity and mortality

Neonatal resuscitation

ENT

Preoperative assessment, particularly prediction of a difficult intubation. Management of patients of all ages to include patients with:

- stridor
- intubation difficulties
- sleep apnoea
- concomitant diseases

Local techniques and surface analgesia

Acute ENT emergencies (e.g. bleeding tonsils, croup, epiglottitis, foreign bodies)

Laryngoscopy and bronchoscopy

Knowledge of special tubes, gags and equipment for microlaryngoscopy, bronchoscopy, laser surgery (e.g. Venturi devices, ventilating bronchoscope and fibre-optic bronchoscopy)

Middle ear surgery including hypotensive techniques Major head and neck surgery

Emergency airway management including tracheostomy

Postoperative management

Dental/ Maxillofacial

Preoperative assessment

Day case/inpatient requirements

Resuscitation facilities

Dental chair anaesthesia

Paediatric anaesthesia

Sedative, anaesthetic and analgesic techniques for dental extractions

Assessment and management of the difficult airway including fiberoptic intubation

Anaesthesia for maxillofacial surgery including the perioperative management of the fractured jaw and other major facial injuries

Postoperative management for all patients undergoing dental or maxillofacial procedures

Orthopaedic

Preoperative assessment with particular reference to the problems of children, the elderly and the patient with rheumatoid arthritis

Emergency anaesthesia for fractures

Routine anaesthesia for joint replacement surgery, arthroscopy, fractured bones, dislocations and tendon repair

Procedures under tourniquet

Anaesthesia for spinal surgery

Regional blocks

Perioperative analgesia

Prevention, diagnosis and management of fat emboli, deep vein thrombosis and pulmonary emboli

Trauma

Management of head injury, spinal injury and multiple trauma with major blood loss

Major incident management, triage and anaesthesia in situations outside the hospital

Transfer of the traumatized patient

Management of the burned patient

Vascular

Resuscitation and management of major vascular accidents

Management of the patient with atherosclerotic disease

Management of the patient for major vascular surgery

Postoperative management

Postoperative analgesia

Anaesthesia for non-cardiac surgery in patients with cardiac disease

Ophthalmic

Preoperative assessment with particular reference to patients with underlying disease

Strabismus, cataract and detached retina surgery

Penetrating eye injury

Control of intraocular pressure

Anatomy relevant to local anaesthetic blocks

Peribulbar and retrobulbar techniques of local anaesthesia

Postoperative care

Paediatric

Preoperative assessment and psychological preparation for surgery

Anaesthetic management of children for major elective and emergency surgery

The anaesthetic implications of major congenital anomalies including congenital heart disease

Management of recovery.

Management of postoperative pain in children

Management of acute airway obstruction including croup and epiglottitis

Day stay

Selection criteria and preoperative evaluation

Instructions to patients

Regional analgesia

General anaesthesia

Appropriate drugs

Recovery assessment

Postoperative analgesia

Diagnostic Imaging - Anaesthesia and Sedation

Preanaesthetic preparation

Techniques appropriate for adults and children for CT scanning

MR imaging and angiography

Post-investigation care

Regional, cardiac, thoracic and neurosurgical

Regional

Basic sciences applied to regional anaesthesia: anatomy, physiology and pharmacology

Principles and practice of spinal and extradural anaesthesia, intravenous regional anaesthesia and nerve blocks

Recognition and management of adverse effects

In addition, candidates will be assessed on their understanding of principles in the following areas:

Cardiac Anaesthesia

Preoperative assessment and management of patients with cardiac disease

Anaesthesia for cardiovascular imaging Pacemakers

Non-invasive and invasive vascular and non-vascular monitoring appropriate to the cardiovascular system

Anaesthesia for cardiac surgery

Principles of cardiopulmonary bypass and cardiac surgery

Postoperative management

Thoracic Anaesthesia

Preoperative lung function tests

Local and general anaesthesia for bronchoscopy to include techniques of ventilation

Familiarity with fiberoptic bronchoscopic techniques for airway management and diagnostic procedures

Techniques of one-lung anaesthesia to include single and double lumen endobronchial tubes

Principles of thoracic anaesthesia to include management of pneumothorax

Principles of underwater seals on chest drains

Tracheostomy and other techniques of emergency airway management

Neurosurgical Anaesthesia

Preoperative assessment and management of patients with neurological disease
Anaesthesia for imaging relevant to the CNS
Principles of anaesthesia for craniotomy, to include vascular disease, cerebral tumours and posterior fossa lesions
Perioperative management of interventional neuroradiological procedures
Anaesthesia for spinal column surgery
Principles of immediate postoperative management
Neurological monitoring
Neonatal and other specialised areas

Neonatal Anaesthesia

Preoperative assessment
Recognition of common congenital anomalies requiring surgical correction at birth and their anaesthetic implications (including oesophageal atresia, diaphragmatic hernia, exomphalos, intestinal obstruction)
Principles of anaesthetic management in the neonate undergoing major surgery
Congenital pyloric stenosis
Postoperative pain management
Transport of the critically ill neonate
Transplantation
Principles and complications of immunosuppression
Specific anaesthetic problems associated with renal transplantation
Anaesthetic management of patients with transplanted organs

Other specialised areas

Anaesthesia for:

Electro-convulsive therapy (ECT)
Radiotherapy
Minimal access surgery
Plastic surgery
Burns
Perioperative management of a patient with sleep apnoea

Applied anatomy and physiology

APPLIED ANATOMY

Candidates should be able to demonstrate a good understanding of human anatomy relevant to the practice of anaesthesia. The syllabus for the Primary FRCA examination is considered core knowledge. For the Final FRCA examination, application of this knowledge to clinical practice will be explored. This will include the knowledge of anatomy as demonstrated by endoscopic and imaging techniques.

APPLIED PHYSIOLOGY

Candidates are expected to be able to apply the basic knowledge of human physiology necessary to pass the Primary FRCA examination to the clinical practice of anaesthesia and intensive care medicine.

While all branches of physiology are of importance, it is recognised that clinical relevance dictates the topics selected for the examination.

Haematological

Anaemia

Polycythaemia

Immunity and allergy

Inflammation

Blood groups

Alternative oxygen carrying solutions

Abnormalities of coagulation and haemostasis

Abnormal haemoglobins

-sickle cell disease

-thalassaemia

Muscle Function

Muscle contracture and malignant hyperthermia

Disturbances in neuromuscular transmission

Myopathies

Cardiovascular

Abnormal electrocardiogram and arrhythmias

Cardiomyopathy and abnormal ventricular function

Heart failure

Hypovolaemia and shock

Ischaemic heart disease

Valvular defects

Hypertension

Common congenital heart defects

Kidney and Body Fluids

Disturbances of fluid balance, oedema and dehydration

Management of acid-base abnormalities

Assessment of renal function

Renal failure and its management

Diuresis

Plasma electrolyte disturbances

Liver

Hepatic failure

Jaundice

Respiration

Disorders of respiratory mechanics, gas exchange and gas transport

Disorders of the pulmonary circulation

Respiratory failure and ventilatory support

Effects of changes in ambient pressure

Nervous System

Consciousness and sleep

Depth of anaesthesia

Consequences of spinal cord injury and deafferentation

Monitoring of spinal cord function under general anaesthesia

Mechanisms of pain; somatic, visceral, neuropathic

Control of cerebral circulation, intracranial and intraocular pressures

Disorders of the autonomic nervous system

Gastrointestinal Tract

Nausea and vomiting
Oesophageal reflux
Obstruction
Swallowing disorders
The mucosal barrier
Metabolism and Body Temperature
Hormonal and metabolic response to trauma
Hyperthermia and hypothermia
Starvation/obesity
Endocrinology
Endocrine diseases of significance in anaesthesia
Obstetrics and Paediatrics
Principles of neonatal physiology
Effects of prematurity
Development in infancy and childhood
Physiology of normal and abnormal pregnancy

Applied Clinical Pharmacology

This section requires a wider knowledge of drugs than in the Primary FRCA examination. For drugs used in anaesthesia and intensive care medicine, candidates will also be expected to be aware of new drugs which are undergoing evaluation and whose human application has been reported in the mainstream anaesthetic journals.

There will be emphasis on the practical application of pharmacological and pharmacokinetic knowledge, and upon an appreciation of the hazards and limitation of individual techniques.

General therapeutics.

Pharmacological management of:

Heart failure, coronary insufficiency and arrhythmias
Hypertension, including hypertension in pregnancy
Acute and chronic respiratory diseases
Hepatic and renal failure
Gastrointestinal disorders including modification of gastric contents
Musculo-skeletal problems such as rheumatoid and osteoarthritis
Myasthenia and muscle diseases
Pituitary, adrenal and thyroid dysfunction
Depression, anxiety states and schizophrenia
Epilepsy
Bacterial, fungal and viral infections
Malignant disease
Adverse reactions:
Types of reactions
The yellow card system
Regulation of drug licensing

Application of pharmacological principles to the practical management of anaesthesia:

Premedication:

The use of anxiolytics, sedatives and antisialogogues. Pro-kinetic and anti- emetic

drugs. H₂ and proton pump antagonists

Inhalational anaesthesia:

Control of alveolar tension during induction and recovery

Control of anaesthetic depth and prevention of awareness

Management of sedation techniques

Intravenous anaesthesia:

Methods for achieving specified plasma concentrations. Bolus, infusion, and profiled administration

Management of neuromuscular blockade:

Techniques for the use and reversal of muscle relaxants

Management of abnormal responses

Regional anaesthesia:

Choice of agent and technique. Additives

Systemic effects. Avoidance of toxicity

Application of pharmacological principles to the control of acute pain (including intraoperative analgesia and postoperative pain management) and chronic pain:

Opioid and non-opioid drugs

Opioid infusions

Patient-controlled analgesia

Regional techniques

Inhalational techniques

Other drugs used to manage chronic pain - antidepressants, anticonvulsants, antiarrhythmics, etc.

Management of severe pain and associated symptoms in terminal care

Non-pharmacological methods (e.g. T.E.N.S., acupuncture)

Application of pharmacological principles to neurosurgery and management of head injuries:

Effect of drugs on cerebral blood flow

Control of intracranial pressure

Control of convulsions

Management of cerebral ischaemia

Pharmacological control of myocardial function, vascular resistance, heart rate and blood pressure

Anticoagulant and thrombolytic therapies. Management of coagulopathies

Pharmacological control of blood sugar

Pharmacological problems in cardiopulmonary bypass. Cardioplegia

Therapeutic problems associated with organ transplantation: heart, lung, liver,

kidney

Management of malignant hyperthermia

Pharmacological considerations in cardiopulmonary resuscitation, major trauma and

exsanguination

Pharmacological control of severe infections

Pharmacological treatment of severe asthma

Effects of renal or hepatic impairment on drug disposition

The Statistical Basis of Clinical Trial Management

Candidates will be expected to understand the statistical fundamentals upon which most clinical research is based. They may be asked to suggest suitable approaches to test problems, or to comment on experimental results. They will not be asked to perform detailed calculations or individual statistical tests.

Data collection and analysis:
simple aspects of study design
defining outcome measures and the uncertainty of measuring them

Application to clinical practice:
distinguishing statistical from clinical significance
understanding the limits of clinical trials

the basics of systematic review and its pitfalls
Study design.
defining a clinical research question understanding bias
controls, placebos, randomization, blinding exclusion criteria
statistical issues, especially sample size ethical issues

Clinical Measurement

The Final examination assumes knowledge of the Primary FRCA examination syllabus, with the addition of more sophisticated measurements. There is an emphasis on clinical applications of clinical measurement, such as indications, practical techniques and interpretation of acquired data. Candidates will be expected to understand the sources of error and the limitations of individual measurements.

Assessment of respiratory function
Assessment of cardiac function, including echocardiography
The electroencephalograph (EEG) and evoked potentials
The electromyograph (EMG) and measurement of nerve conduction
Principles and practice of in vitro blood-gas measurements.
Interpretation of biochemical data
Interpretation and errors of dynamic pressure measurements including systemic, pulmonary arterial and venous pressures, intracranial, intrathoracic and intra-abdominal pressures
Methods of measurement of cardiac output and derived indices; limitations and interpretation

Principles of imaging techniques including CT, MRI and ultrasound. Doppler effect
Interpretation and errors of capnography, oximetry and ventilatory gas analysis

ITU, transport of the critically ill, nutrition and trauma

INTENSIVE CARE MEDICINE

Candidates should have a good understanding of the diagnosis and management of the critically ill patient and should be skilled in resuscitation to an advanced

standard. An understanding of the particular problems associated with the critically ill child (excluding neonates) will be expected.

All candidates should be familiar with the monitoring and life support equipment used in the treatment of critically ill patients. Candidates must be able to demonstrate their knowledge of practical invasive procedures, with an understanding of the principles and hazards involved. Interpretation of data from such procedures.

An awareness of the importance of communication skills and interpersonal relationships will be expected.

Transport of the Critically Ill

Infection and Multiple Organ Failure

Sepsis and endotoxaemia

Nosocomial infections

Assessment and management of oxygen delivery

Antibiotics and immunotherapy

Reperfusion injury and antioxidants

Cardiovascular System to include

Pathophysiology and management of cardiogenic and hypovolaemic shock

Pulmonary embolism

Investigation and management of cardiac failure

Investigation and management of arrhythmias

Respiratory System to include

Airway care

Ventilators and modes of pulmonary ventilation

Management of acute and chronic respiratory failure

Nervous System to include

Central nervous system infection

Acute polyneuropathy

Traumatic and non-traumatic coma

Encephalopathies

Cerebral ischaemia

Status epilepticus

Brain stem death

Renal, Electrolyte and Metabolic Disorders to include

Diagnosis, prevention and management of acute renal failure

Fluid, electrolyte and acid-base disorders

Body temperature

Haematological Disorders to include

Coagulopathies

Immunocompromised patients

Gastrointestinal Disorders

Acute liver failure - diagnosis and management

Acute pancreatitis

Gut ischaemia

Gastrointestinal ulceration and bleeding

Translocation and absorption disorders

Nutrition

Requirements for enteral and parenteral nutrition

Analgesia, Anxiolysis and Sedation

Trauma

Management of multiple injuries

Near-drowning

Burns and smoke inhalation

Management of Acute Poisoning

Organ Donation

Scoring Systems and Audit

Ethics

Pain Management

A detailed knowledge of the control of acute pain in the context of postoperative and post-traumatic conditions will be expected, as will an understanding of the principles of chronic pain management in the pain clinic setting.

Anatomy, physiology, pharmacology and basic psychology relevant to pain management

Assessment and measurement of acute pain - including special problems with children, the elderly, and patients who are unconscious or in intensive care

Assessment of patients with chronic pain and pain in patients with cancer

Use of medication for pain management; conventional analgesics and adjuvant analgesics; side effects; problems of drug dependency and addiction

The role of and indications for neural blockade:

peripheral nerve, plexus, epidural and subarachnoid blocks, techniques of sympathetic blockade, neurolytic agents and procedures, implanted catheters and pumps for drug delivery

Stimulation produced analgesia including transcutaneous techniques and acupuncture Other treatment modalities; physical therapy, surgery, psychological approaches,

rehabilitation approaches, pain management programmes Symptom control in terminal illness

The organisation of pain management services

Principles and ethics of pain research

Anaesthesia

Trainees will be expected to demonstrate knowledge consistent with post-Primary FRCA examination training under the following headings:

Anaesthetic equipment

Preoperative assessment

Pre-medication

Pre-, per- and postoperative management of anaesthesia

Anaesthesia for patients with coexisting disease including diabetes and cardiovascular disorders

Anaesthesia for particular disciplines - obstetric, ENT, dental/ maxillofacial, orthopaedic, trauma, vascular, ophthalmic, paediatric, day stay, neuroradiology (anaesthesia and sedation)

Regional anaesthesia

Audit and quality control

Ethics, relevant legislation and the duty of care, consent, and information given to patients before anaesthesia