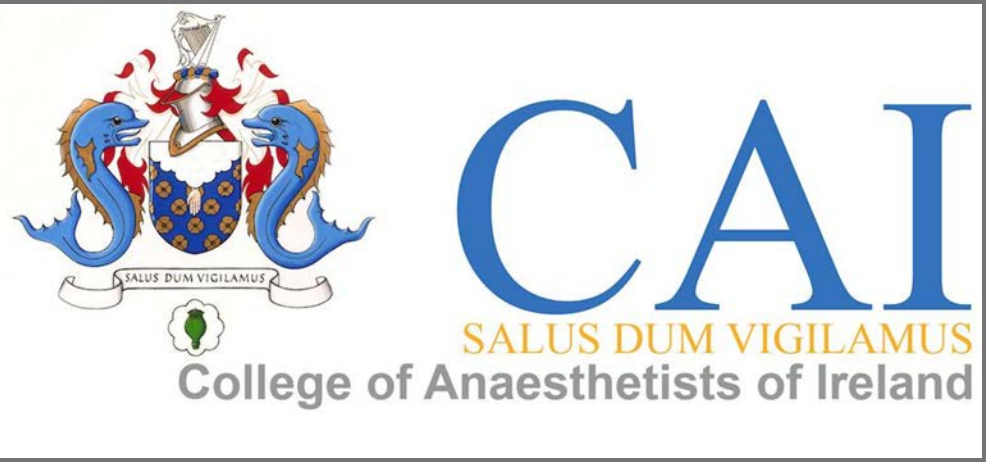
2016

Edition 2

The College of Anaesthetists of Ireland Membership and Final Fellowship Examination Syllabus



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President of Ireland

Introduction

This document forms the Syllabus for the Membership Examination M.C.A.I. (Formerly known as the Primary Examination) and Final Fellowship Examination F.C.A.I. of the College of Anaesthetists of Ireland.

The College of Anaesthetists of Ireland gratefully acknowledges the Royal College of Anaesthetists for generously sharing material from their CCT curriculum in anaesthetics.

Syllabus of Examinations

College of Anaesthetists of Ireland

July 2016

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Syllabus of the Final FCAI Examination

Glossary of terms

ALI	Acute Lung Injury
ALS	Advanced Life Support
APACHE	Acute Physiology and Chronic Health Evaluation (Score)
APLS	Advanced Paediatric Life Support
ARDS	Acute Respiratory Distress Syndrome
ASA	American Society of Anesthesiologists
ASD	Atrial septal defect
AV	Aortic Valve
BE	Base excess
BIS	Bispectral index
BP	Blood pressure
BMI	Body mass index
BNF	British national formulary
CFAM	Cerebral function analysis monitor
CFM	Cerebral function monitor
CO_2	Carbon dioxide
COPD	Chronic Obstructive Pulmonary Disease
CPEX	Cardiopulmonary exercise testing
CSE	Combined Spinal Epidural
CSF	Cerebro spinal fluid
CSM	Committee on Safety of Medicines
CT	Computerised tomograms
CVP	Central venous pressure
ECG	Electrocardiogram
ECHO	Cardiac Ultrasound
EEG	Electroencephalogram
EMG	Electromyogram
ENT	Ear, Nose and Throat
EPLS	European Paediatric Life Support
ERPC	Evacuation of Retained Products of Conception
GCS	Glasgow Coma Score

Hb	Haemoglobin
IPPV	Intermittent positive pressure ventilation
IRMER	Ionisation Radiation (Medical Exposure) Regulations
IT	Information technology
IVRA	Intravenous Regional Anaesthesia
LiDCO^{TM}	Lithium indicator dilution cardiac output
MAC	Minimum alveolar concentration
MH	Malignant hyperpyrexia
MRI	Magnetic resonance imaging
MV	Mitral valve
NAI	Non-accidental Injury
NCEPOD	National Confidential Enquiry into Perioperative Deaths
NICE	National Institute for Health and Clinical Excellence
NO	Nitric oxide
NSAID	Non-steroid anti-inflammatory drug
PCA	Patient Controlled Analgesia
PEA	Pulseless Electrical Activity
PFO	Patent foramen ovale
PiCCO	Pulse Contour Cardiac Output
PONV	Postoperative nausea and vomiting
POSSUM	Physiologic and Operative Severity Score
PSI	Pounds per square inch
Ref	Reference
RS	Respiratory system
RSI	Rapid sequence induction
SIADH	Syndrome of Inappropriate Anti-Diuretic Hormone
SpO_2	Saturation of haemoglobin with oxygen
SVP	Saturated vapour pressure
TCI	Target Controlled Infusions
TEE	Transesophageal Echo
TOE	Transoesophageal Echo
VSD	Ventricular septal defect
WCC	White cell count

Syllabus of the Membership Examination M.C.A.I.

The basis of anaesthetic practice:

Preoperative assessment

Objectives*:*

The candidate will be:

- able to perform a structured preoperative anaesthetic assessment of a patient prior to surgery and recognise when further assessment/optimisation is required prior to commencing anaesthesia/surgery
- able to explain options and risks of routine anaesthesia to patients, in a way they understand, and obtain their consent for anaesthesia

A) History Taking

Knowledge of:

Demonstrates	*Description*
CAI_HT_BK_0001	Recognises the importance of different elements of history
CAI_HT_BK_0002	Recognises that patients do not always present history in a structured fashion
CAI_HT_BK_0003	Knows the likely causes and risk factors for conditions relevant to mode of presentation
CAI_HT_BK_0004	Recognises that the patient's agenda and the history should inform examination, investigation and management

B) Clinical Examination

This candidate will be able:

- to perform focused, relevant and accurate clinical examination in patients with increasingly complex issues and in increasingly challenging circumstances
- to relate physical findings to history in order to establish diagnosis[es] and formulate management plan[s]

	Description
CAI_CE_BK_0001	Understands the need for a targeted and relevant clinical examination
CAI_CE_BK_0002	Understands the basis for clinical signs and the relevance of positive and negative physical signs

c) Specific Anaesthetic Evaluation

The candidate will demonstrate:

- the ability to establish a problem list
- the ability to judge whether the patient is fit for and optimally prepared for the proposed intervention
- the ability to plan anaesthesia and postoperative care for common surgical procedures
- the ability to recognise the trainees limitations and reliably determine the level of supervision they will need
- the ability to explain options and risks of routine anaesthesia to patients, in a way they understand, and obtain their consent for anaesthesia

Knowledge	*Description*
CAI_OA_BK_0001	Knows the methods of anaesthesia that are suitable for common operations in the surgical specialties for which they have anaesthetised. Typical experience at this early stage of training will be in: • General surgery • Gynaecology • Urology • Orthopaedic surgery • ENT • Dental
CAI_OA_BK_0002	Describes the ASA and NCEPOD classifications and their implications in preparing for and planning anaesthesia
CAI_OA_BK_0003	Explains the indications for and interpretation of preoperative investigations
CAI_OA_BK_0004	Lists the indications for preoperative fasting and understand appropriate regimens
CAI_OA_BK_0005	Explains the methods commonly used for assessing the airway to predict difficulty with tracheal intubation
CAI_OA_BK_0006	Discusses the indications for RSI
CAI_OA_BK_0007	Gives examples of how common co-existing diseases affect anaesthesia and surgery including but not exclusively: obesity; diabetes; asthma; ischaemic heart disease; hypertension and rheumatoid disease; epilepsy
CAI_OA_BK_0008	Discusses how to manage drug therapy for co-existing disease in the perioperative period including, but not exclusively: obesity; diabetic treatment; steroids; anti-coagulants; cardiovascular medication; epilepsy

Knowledge	*Description*
CAI_OA_BK_0009	Explains the available methods to minimise the risk of thrombo-embolic disease following surgery
CAI_OA_BK_0010	Knows about the complications of anaesthetic drugs [including anaphylaxis, suxamethonium apnoea and malignant hyperpyrexia] and how to predict patients who are at increased risk of these complications
CAI_OA_BK_0011	Identifies the principles of consent for surgery and anaesthesia, including the issue of competence
CAI_OA_BK_0012	Explains the guidance given by the IMC and the AAGBI on consent, in particular: • Understands that consent is a process that may culminate in, but is not limited to, the completion of a consent form • Understands the particular importance of considering the patient's level of understanding and mental state [and also that of the parents, relatives or carers when appropriate] and how this may impair their capacity for consent
CAI_OA_BK_0013	Summarises the factors determining a patient's suitability for treatment as an ambulant or day-stay patient
CAI-OA_BK_0014	Recalls/lists the factors that affect the risk of a patient suffering PONV

Skills	*Description*
CAI_OA_BS_0001	Demonstrates satisfactory proficiency in obtaining a history specifically relevant to the planned anaesthesia and surgery including: • A history of the presenting complaint for surgery • A systematic comprehensive relevant medical history • Information about current and past medication • Drug allergy and intolerance • Information about previous anaesthetics and relevant family history
CAI_OA_BS_0002	Demonstrates satisfactory proficiency in performing a relevant clinical examination including when appropriate: • Cardiovascular system • Respiratory system • Central and peripheral nervous system: GCS, peripheral deficit

	• Musculoskeletal system: patient positioning, neck stability/movement, anatomy for regional blockade • Other: nutrition, anaemia, jaundice • Airway assessment/dentition
CAI_OA_BS_0003	Demonstrates understanding of clinical data including, but not exclusively: • Patient clinical case notes and associated records • Clinical parameters such as: o BP, Pulse, CVP o BMI • Fluid balance • Physiological investigations such as: o ECGs o Echocardiography and stress testing o Pulmonary function tests
CAI_OA_BS_0004	Demonstrates understanding of clinical laboratory data including: • Haematology such as o Routine report of Hb, WBC, haematocrit etc • Biochemistry such as o Arterial blood gases/acid-base balance o Urea and electrolytes o Liver function o Thyroid function
CAI_OA_BS_0005	Identifies normal appearances and significant abnormalities in radiographs including: • Chest X-rays • Trauma films – cervical spine, chest, pelvis, long bones • Head CT and MRI showing clear abnormalities
CAI_OA_BS_0006	Makes appropriate plans for surgery: • Manages co-existing medicines in the perioperative period • Plans an appropriate anaesthetic technique[s] • Secures consent for anaesthesia • Recognises the need for additional work-ups and acts accordingly

	• Discusses issues of concern with relevant members of the team • Reliably predicts the level of supervision they will require
CAI_OA_BS_0007	Presents all information to patients [and carers] in a format they understand, checking understanding and allowing time for reflection on the decision to give consent
CAI_OA_BS_0008	Provides a balanced view of all care options

Premedication

Note: This forms part of the comprehensive pre-assessment of patients.

Objectives: The candidate is expected to:

- Understand the issues of preoperative anxiety and the ways to alleviate it
- Understand that the majority of patients do not require pre-medication
- Understand the use of preoperative medications in connection with anaesthesia and surgery

Core objectives: The candidate:

- Is able to prescribe premedication as and when indicated, especially for the high risk population

Knowledge	*Description*
CAI_PD_BK_0001	Summarises the value of appropriate explanations and reassurance in alleviating the patients anxiety
CAI_PD_BK_0002	Lists basic indications for prescription of pre-medicant drugs
CAI_PD_BK_0003	Explains how to select appropriate sedative or anxiolytic agents
CAI_PD_BK_0004	Discusses the applied pharmacology of these drugs
CAI_PD_BK_0005	Recalls/lists the factors that influence the risk of patients at increased risk of gastric reflux/aspiration and understands strategies to reduce it
CAI_PD_BK_0006	Recalls/describes the applied pharmacology of pro-kinetic and antacids including simple alkalis, H_2 and Proton Pump antagonists
CAI_PD_BK_0007	Identifies local/national guidelines on management of thrombo-embolic risk and how to apply them
CAi_PD_BK_0008	Explains the principles and practice of using prophylactic antibiotics

Competence	*Description*
CAI_PD_BS_0001	Selects and prescribes appropriate agents to reduce the risk of regurgitation and aspiration, in timeframe available
CAI_PD_BS_0002	Explains, in a way the patient understands, the benefits and possible risks of sedative premedication
CAI_PD_BS_0003	Selects and prescribes appropriate anxiolytic/sedative premedication when indicated

Induction of general anaesthesia

Simulators may be used in the assessment of some aspects of this section e.g. failed intubation drill

Objectives: The candidate will be expected to demonstrate:

- the ability to conduct safe induction of anaesthesia in ASA grade 1-2 patients confidently
- the ability to recognise and treat immediate complications of induction, including tracheal tube misplacement and adverse drug reactions
- the ability to manage the effects of common co-morbidities on the induction process

Objectives:

The candidate will be expected to :

- demonstrate correct pre-anaesthetic check of all equipment required ensuring its safe functioning including the anaesthetic machine/ventilator.
- Demonstrate knowledge of safe induction of anaesthesia, using preoperative knowledge of individual patients co-morbidity to influence appropriate induction technique; show awareness of the potential complications of process and how to identify and manage them

Knowledge	*Description*
CAI_IG_BK_0001	In respect of the drugs used for the induction of anaesthesia: • Recalls/summarises the pharmacology and pharmacokinetics, including doses, interactions and significant side effects of: o Induction agents o Muscle relaxants o Analgesics o Inhalational agents including side effects, interactions and doses

	• Identifies about the factors that contribute to drug errors in anaesthesia and the systems to reduce them
CAI_IG_BK_0002	In respect of the equipment in the operating environment: • Describes the basic function of monitors and knows what monitoring is appropriate for induction including consensus minimum monitoring standards and the indications for additional monitoring • Explains the function of the anaesthetic machine including o The basic functions of gas flow o Pre-use checking of the anaesthetic machine o The structural features of the anaesthetic machine that minimise errors o The operation of the anaesthetic ventilator o The function of the anaesthetic vapourisers o The operation of any monitoring equipment that is integral with the anaesthetic machine o Knows how to replenish anaesthetic vapouriser
CAI_IG_BK_0003	In respect of the induction of anaesthesia: • Describes the effect of pre-oxygenation and knows the correct technique for its use • Explains the techniques of intravenous and inhalational induction and understands the advantages and disadvantages of both techniques • Knows about the common intravenous induction agents and their pharmacology • Knows the physiological effects of intravenous induction including the differences between agents • Recalls/explains how to recognise the intra-arterial injection of a harmful substance and its appropriate management • Describes the features of anaphylactic reactions and understands the appropriate management including follow up and patient information • Knows the factors influencing the choice between agents for inhalational induction of anaesthesia • Discusses the additional hazards associated with induction of anaesthesia in unusual places [e.g. Emergency Room] and in special circumstances including but not exclusively: brain injury; full stomach; sepsis; upper airway obstruction • Identifies the special problems of induction associated with cardiac disease, respiratory disease, musculoskeletal disease, obesity and those at risk of regurgitation/pulmonary aspiration.
CAI_IG_BK_0004	Describes the principles of management of the airway including: • Techniques to keep the airway open and the use of facemasks, oral and nasopharyngeal airways and laryngeal mask airways

CAI_IG_BK_0005	In respect of tracheal intubation: • Lists its indications • Lists the available types of tracheal tube and identifies their applications • Explains how to choose the correct size and length of tracheal tube • Explains the advantages/disadvantages of different types of laryngoscopes and blades including, but not exclusively, the Macintosh and McCoy • Outlines how to confirm correct placement of an tracheal tube and knows how to identify the complications of intubation including endobronchial and oesophageal intubation • Discusses the methods available to manage difficult intubation and failed intubation • Explains how to identify patients who are at increased risk of regurgitation and pulmonary aspiration and knows the measures that minimise the risk • Categorises the signs of pulmonary aspiration and the methods for its emergency management
CAI_IG_BK_0006	Explains the importance of maintaining the principles of aseptic practice and minimising the risks of hospital acquired infection

Intra-operative care

Objectives: The candidate will be expected to demonstrate:

- The ability to maintain anaesthesia for surgery
- The ability to use the anaesthesia monitoring systems to guide the progress of the patient and ensure safety
- Understanding the importance of taking account of the effects that co-existing diseases and planned surgery may have on the progress of anaesthesia
- Recognise the importance of working as a member of the theatre team

Core objectives: The candidate is expected to:

- Demonstrate knowledge of safe maintenance of anaesthesia and shows awareness of the potential complications and how to identify and manage them

CAI_ IO_BS_0001	Demonstrate knowledge of response in an organised and appropriate sequence to events that may affect the safety of patients [e.g. hypotension, massive haemorrhage}

Postoperative and recovery room care

Objectives: The candidate will be expected to demonstrate:

- The ability to manage the recovery of patients from general anaesthesia
- Understanding the organisation and requirements of a safe recovery room
- The ability to identify and manage common postoperative complications in patients with a variety of co-morbidities
- The ability to manage postoperative pain and nausea
- The ability to manage postoperative fluid therapy

Core objectives: The candidate will be expected to have knowledge of:

- Safe management of emergence from anaesthesia and extubation
- of common immediate postoperative complications and how to manage them
- Prescription of appropriate postoperative fluid and analgesic regimes and assessment and treatment of PONV

Knowledge	*Description*
CAI_PO_BK_0001	Lists the equipment required in the recovery unit
CAI_PO_BK_0002	Lists the types of monitoring and the appropriate frequency of observations required for patients having undergone different types of surgery
CAI_PO_BK_0003	Describes the care of an unconscious patient in the recovery room, including safe positioning
CAI_PO_BK_0004	In respect of restoring spontaneous respiration and maintaining the airway at the end of surgery: • Explains how to remove the tracheal tube and describes the associated problems and complications • Recalls/describes how to manage laryngospasm at extubation

	• Recalls/lists the reasons why the patient may not breathe adequately at the end of surgery • Recalls/identifies how to distinguish between the possible causes of apnoea • Lists the possible causes of postoperative cyanosis • Understands how to evaluate neuro-muscular block with the nerve stimulator
CAI_PO_BK_0005	With respect to oxygen therapy: • Lists its indications • Knows the techniques for oxygen therapy and the performance characteristics of available devices • Recalls/explains the causes and management of stridor
CAI_PO_BK_0006	Outlines/recalls the principles of appropriate post operative fluid regimes including volumes, types of fluids and monitoring of fluid balance including indications for urethral catheterisation
CAI_PO_BK_0007	In respect of postoperative pain: • Describes how to assess the severity of acute pain • Knows the 'analgesic ladder' • Discusses how emotions contribute to pain • Identifies appropriate post operative analgesic regimes including types of drugs and doses • Explains how to manage 'rescue analgesia' for the patient with severe pain • Lists the complications of analgesic drugs
CAI_PO_BK_0008	In respect of PONV: • Accepts fully how distressing this symptom is • Recalls/lists the factors that predispose to PONV • Recalls/describes the basic pharmacology of anti-emetic drugs • Describes appropriate regimes for PONV
CAI_PO_BK_0009	Recalls/lists the possible causes and management of post operative confusion
CAI_PO_BK_0010	Knows the causes and describes the management of post operative hypotension and hypertension
CAI_PO_BK_0011	Identifies the special precautions necessary for the postoperative management of patients with co-existing diseases including cardiac disease, respiratory disease, metabolic disease, musculoskeletal disease, obesity and those at risk of regurgitation/pulmonary aspiration
CAI_PO_BK_0012	Explains the prevention, diagnosis and management of postoperative pulmonary atelectasis
CAI_PO_BK_0013	Lists the appropriate discharge criteria for day stay patients to go home and for patients leaving the recovery room to go to the ward

CAI_PO_BK_0014	Explains the importance of following up patients in the ward after surgery

Introduction to anaesthesia for emergency surgery

Objectives:

The candidate will be expected to demonstrate the ability to:

- Undertake anaesthesia for ASA 1E and 2E patients requiring emergency surgery for common conditions
- A knowledge of anaesthesia for sick patients and patients with major co-existing diseases.

Core objectives: The candidate should demonstrate knowledge to:

- Deliver safe perioperative anaesthetic care to adult ASA 1E and/or 2E patients requiring uncomplicated emergency surgery [e.g. uncomplicated appendicetomy or manipulation of forearm fracture/uncomplicated open reduction and internal fixation]

knowledge	*Description*
CAI_ES_BK_0001	Discusses the special problems encountered in patients requiring emergency surgery and how these may be managed including: • Knowing that patients may be very frightened and how this should be managed • Recognising that the patient may have severe pain which needs immediate treatment • Understanding that patients presenting for emergency surgery are more likely to have inadequately treated co-existing disease • Understanding how to decide on the severity of illness in the frightened apprehensive emergency patient • Understanding the pathophysiological changes and organ dysfunction associated with acute illness • How to recognise that the patient may be dehydrated or hypovolaemic and understanding the importance of preoperative resuscitation
CAI_ES_BK_0002	In respect of the preparation of acutely ill patients for emergency surgery discusses: • How to resuscitate the patient with respect to hypovolaemia and electrolyte abnormalities • The fact that patients may be inadequately fasted and how this problem is managed

knowledge	*Description*
	• The importance of dealing with acute preoperative pain and how this should be managed
CAI_ES_BK_0003	Describes how to recognise the 'sick' patient [including sepsis], their appropriate management and the increased risks associated with surgery
CAI_ES_BK_0004	Understands the airway management in a patient with acute illness who is at risk of gastric reflux

Management of respiratory and cardiac arrest in adults and children

Objectives:

The candidate will be expected to:

- have gained a thorough understanding of the pathophysiology of respiratory and cardiac arrest and the skills required to resuscitate patients
- Understand the ethics associated with resuscitation

Core objectives*:*

The candidate will be expected to demonstrate knowledge and skills:

- to resuscitate a patient in accordance with the latest Irish Heart Foundation/ American Heart Association(October 2010) guidelines.

Knowledge	*Description*
CAI_RC_BK_0001	Recalls/lists the causes of a respiratory arrest, including but not limited to: • Drugs, toxins • Trauma • Pulmonary infection • Neurological disorders • Muscular disorders
CAI_RC_BK_0002	Identifies the causes of a cardiac arrest, including but not limited to: • Ischaemic heart disease • Valvular heart disease • Drugs • Hereditary cardiac disease • Cardiac conduction abnormalities • Electrolyte abnormalities • Electrocution • Trauma • Thromboembolism

CAI_RC_BK_0003	Demonstrates an understanding of the basic principles of the ECG, and the ability to recognise arrhythmias including but not exclusively: • Ventricular fibrillation • Ventricular tachycardia • Asystole • Rhythms associated with pulseless electrical activity [PEA]
CAI_RC_BK_0004	Discusses the mode of action of drugs used in the management of respiratory and cardiac arrest in adults and children, including but not limited to: • Adrenaline • Atropine • Amiodarone • Lidocaine • Magnesium sulphate • Naloxone
CAI_RC_BK_0005	Identifies the doses of drugs, routes given [including potential difficulty with gaining intravenous access and how this is managed] and frequency, during resuscitation from a respiratory or cardiac arrest
CAI_RC_BK_0006	Explains the physiology underpinning expired air ventilation and external chest compressions
CAI_RC_BK_0007	Explains the need for supplementary oxygen during resuscitation from a respiratory or cardiac arrest in adults and children
CAI_RC_BK_0008	Lists advantages and disadvantages of different techniques for airway management during the resuscitation of adults and children, including but not limited to: • Oro and nasopharyngeal airways • Laryngeal Mask type supraglottic airways including but not limited to: LMA, Proseal, LMA supreme, iGel • Tracheal intubation
CAI_RC_BK_0009	Explains the reasons for avoiding hyperventilation during resuscitation
CAI_RC_BK_0010	Compares the methods by which ventilation can be maintained in a patient suffering a respiratory or cardiac arrest, using: • Mouth to mask • Self-inflating bag

	• Anaesthetic circuit • Mechanical ventilator
CAI_RC_BK_0011	Recalls/explains the mechanism of defibrillation and the factors influencing the success of defibrillation
CAI_RC_BK_0012	Identifies the energies used to defibrillate a patient
CAI_RC_BK_0013	Recalls/discusses the principles of safely and effectively delivering a shock using both manual and automated defibrillator
CAI_RC_BK_0014	Explains the need for continuous chest compressions during resuscitation from cardiac arrest once the trachea is intubated
CAI_RC_BK_0015	Explains the need for minimising interruptions to chest compressions
CAI_RC_BK_0016	Recalls/discusses the reversible causes of cardiac arrest and their treatment, including but not limited to: • Hypoxia • Hypotension • Electrolyte and metabolic disorders • Hypothermia • Tension pneumothorax • Cardiac tamponade • Drugs and toxins • Coronary or pulmonary thrombosis
CAI_RC_BK_0017	Recalls/describes the Adult and Paediatric Advanced Life Support algorithms
CAI_RC_BK_0018	Discusses the specific actions required when managing a cardiac arrest due to: • Poisoning • Electrolyte disorders • Hypo/hyperthermia • Drowning • Anaphylaxis • Asthma • Trauma • Pregnancy [including peri-mortem Caesarean Section] • Electrocution

CAI_RC_BK_0019	Identifies the signs indicating return of a spontaneous circulation
CAI_RC_BK_0020	Recalls/lists the investigations needed after recovery from a respiratory or cardiac arrest and describes the potential difficulties with obtaining arterial blood samples and how this may be overcome in these patients
CAI_RC_BK_0021	Discusses the principles of care required immediately after successful resuscitation from a respiratory or cardiac arrest
CAI_RC_BK_0022	Discusses the importance of respecting the wishes of patients regarding end of life decisions
CAI_RC_BK_0023	Outlines who might benefit from resuscitation attempts and the importance of knowing/accepting when to stop
CAI_RC_BK_0024	Discusses the importance of respecting the wishes of relatives to be present during a resuscitation attempt
CAI_RC_BK_0025	Describes the value of debriefing meetings and the importance of active participation

Control of infection

Objectives: The candidate will be expected to:

- To understand the need for infection control processes
- To understand types of possible infections contractible by patients in the clinical setting
- To understand and apply most appropriate treatment for contracted infection
- To understand the risks of infection and be able to apply mitigation policies and strategies

Core objectives: The candidate will be expected to demonstrate knowledge of:

- The acquisition of good working practices in the use of aseptic techniques

Knowledge	*Description*
CAI_IF_BK_0001	Identifies the universal precautions and good working practices for the control of infection including but not limited to: • Decontaminate hands before treating patients; when soap and water hand wash is appropriate; when alcohol gel decontamination is appropriate • The use of gloves • The use of sterilised equipment • The disposal of used clinical consumables [single use and reusable]
CAI_IF_BK_0002	Lists the types and treatment of infections contracted by patients usually in the ward and ITU, including but not limited to: • MRSA • *C Difficile*
CAI_IF_BK_0003	Recalls/discusses the concept of cross infection including: • Modes of cross infection • Common cross infection agents

CAI_IF_BK_0004	Recalls/explains the dynamics of bacterial and viral strain mutation and the resulting resistance to antibiotic treatment
CAI_IF_BK_0005	Explains the need for antibiotic policies in hospitals
CAI_IF_BK_0006	Recalls/discusses the cause and treatment of common surgical infections including the use of but not limited to: • Antibiotics • Prophylaxis
CAI_IF_BK_0007	Recalls/lists the types of infection transmitted through contaminated blood including but not limited to: • HIV • Hepatitis B and C
CAI_IF_BK_0008	Discusses the need for, and application of, hospital immunisation policies
CAI_IF_BK_0009	Recalls/explains the need for, and methods of, sterilisation

Airway management

Core airway knowledge and skills have also been included in the "Basis of Anaesthetic Practice" section. Those competencies are repeated here in a standalone airway section, designed to reflect the fundamental importance of airway knowledge and skills to the Anaesthetist.

Objectives*:* The candidate is expected to:

- To be able to predict difficulty with an airway at preoperative assessment
- Be able to explain how to maintain an airway and provide definitive airway management as part of emergency resuscitation
- Understand and explain the safe management of the can't intubate can't ventilate scenario

Knowledge	*Description*
CAI_AM_BK_0001	Explains the methods commonly used for assessing the airway to predict difficulty with tracheal intubation [Ref; OA_BK_05]
CAI_AM_BK_0002	Describes the effect of pre-oxygenation and knows the correct technique for its use [Cross Ref;induction of GA]
CAI_AM_BK_0003	Describes the principles of management of the airway including techniques to keep the airway open and the use of facemasks, oral and nasopharyngeal airways and laryngeal mask airways [Cross Ref; induction of GA]
CAI_AM_BK_0004	Explains the technique of inhalational induction and describes the advantages and disadvantages of the technique. [Cross Ref; induction of GA]
CAI_AM_BK_0005	Knows the factors influencing the choice between agents for inhalational induction of anaesthesia [Cross Ref; induction of GA]
CAI_AM_BK_0006	In respect of tracheal intubation: • Lists its indications • Lists the available types of tracheal tube and identifies their applications

Knowledge	*Description*
	• Explains how to choose the correct size and length of tracheal tube • Explains the advantages/disadvantages of different types the laryngoscopes and blades including, but not exclusively, the Macintosh and McCoy • Outlines how to confirm correct placement of a tracheal tube and knows how to identify the complications of intubation including endobronchial and oesophageal intubation • Discusses the methods available to manage difficult intubation and failed intubation • Explains how to identify patients who are at increased risk of regurgitation and pulmonary aspiration and knows the measures that minimise the risk • Understands the airway management in a patient with acute illness who is at risk of gastric reflux • Categorises the signs of pulmonary aspiration and the methods for its emergency management [Cross Ref;induction of GA; emergency surgery]
CAI_AM_BK_0007	In respect of restoring spontaneous respiration and maintaining the airway at the end of surgery: • Explains how to remove the tracheal tube and describes the associated problems and complications • Recalls/describes how to manage laryngospasm at extubation • Recalls/lists the reasons why the patient may not breathe adequately at the end of surgery • Recalls/identifies how to distinguish between the possible causes of apnoea • Lists the possible causes of postoperative cyanosis • Understands how to evaluate neuro-muscular block with the nerve stimulator [Cross Ref; post-operative]
CAI_AM_BK_0008	With respect to oxygen therapy: • Lists its indications • Knows the techniques for oxygen therapy and the performance characteristics of available devices • Describes the correct prescribing of oxygen • Recalls/explains the causes and management of stridor [Cross Ref; post-operative]
CAI_AM_BK_0009	Discusses the indications for RSI [Cross Ref; intra-operative]
CAI_AM_BK_0010	Describes the care of the airway in an unconscious patient in the recovery room, including safe positioning [Cross Ref; post-operative]
CAI_AM_BK_0011	Lists advantages and disadvantages of different techniques for airway management during resuscitation, including but not limited to: • Oro and nasopharyngeal airways • Laryngeal Mask type supraglottic airways including but not limited to: LMA, Proseal, LMA supreme, iGel

Knowledge	*Description*
	• Tracheal intubation [Cross Ref; management of respiratory and cardiac arrest]
CAI_AM_BK_0012	Compares the methods by which ventilation can be maintained in a patient suffering a respiratory or cardiac arrest, using: • Mouth to mask • Self-inflating bag • Anaesthetic breathing system • Mechanical ventilator [Cross Ref; management of respiratory and cardiac arrest]
CAI_AM_BK_0013	Discusses the different types of laryngoscope blades available in routine practice and the indications for their use
CAI_AM_BK_0014	Outlines the advantages/disadvantages and reasons for development of new laryngoscopes [e.g. glidescope]
CAI_AM_BK_0015	Outlines the indications for fibre-optic intubation and how awake intubation may be achieved
CAI_AM_BK_0016	Describes the management of the 'can't intubate, can't ventilate' scenario
CAI_AM_BK_0017	Describes the principles of, and indications for, the use of needle crycothyrotomy and manual jet ventilation

Skills	*Description*
CAI_AM_BS_0001	Demonstrates satisfactory proficiency in performing a relevant clinical examination and assessment of the airway and dentition [Cross Ref; intra-operative]
CAI_AM_BS_0002	Identifies normal appearances and significant abnormalities in radiographs including: • Cervical spine, chest • Head CT and MRI showing clear abnormalities relevant to the airway [Cross Ref; intra-operative]
CAI_AM_BS_0003	Reliably predicts the level of supervision they will require [Cross Ref; intra-operative]

Critical incidents

Many of the critical incidents listed are found elsewhere in the basic level section of the syllabus. Given the importance of the recognition and management of them, they are all included under this one heading for clarity

Objectives: The candidate is expected to:

- Demonstrate knowledge of the principle causes, detection and management of critical incidents that can occur in theatre
- Demonstrate knowledge of how to recognise critical incidents early and mange them with appropriate supervision
- To learn how to follow through a critical incident with reporting, presentation at audit meetings, and discussions with patients
- To recognise the importance of personal non-technical skills and the use of simulation in reducing the potential harm caused by critical incidents

Knowledge	*Description*
Recall/describes the causes, detection and management of the following:	
CAI_CI_BK_0001	Cardiac and/or respiratory arrest
CAI_CI_BK_0002	Unexpected fall in $SpO_2$with or without cyanosis
CAI_CI_BK_0003	Unexpected increase in peak airway pressure
CAI_CI_BK_0004	Progressive fall in minute volume during spontaneous respiration or IPPV
CAI_CI_BK_0005	Fall in end tidal CO_2
CAI_CI_BK_0006	Rise in end tidal CO_2
CAI_CI_BK_0007	Rise in inspired CO_2
CAI_CI_BK_0008	Unexpected hypotension
CAI_CI_BK_0009	Unexpected hypertension
CAI_CI_BK_0010	Sinus tachycardia

Knowledge	*Description*
CAI_CI_BK_0011	Arrhythmias: • ST segment changes • Sudden tachyarrythmias • Sudden bradycardia • Ventricular ectopics • Broad complex tachycardia • Ventricular Fibrillation • Atrial fibrillation • Pulseless electrical activity [PEA]
CAI_CI_BK_0012	Convulsions
Recalls/describes the causes, detection and management of the following specific conditions:	
CAI_CI_BK_0013	Difficult/failed mask ventilation
CAI_CI_BK_0014	Failed intubation
CAI_CI_BK_0015	Can't intubate, can't ventilate
CAI_CI_BK_0016	Regurgitation/Aspiration of stomach contents
CAI_CI_BK_0017	Laryngospasm
CAI_CI_BK_0018	Difficulty with IPPV, sudden or progressive loss of minute volume
CAI_CI_BK_0019	Bronchospasm
CAI_CI_BK_0020	Pneumothorax and tension pneumothorax
CAI_CI_BK_0021	Gas / Fat/ Pulmonary embolus
CAI_CI_BK_0022	Adverse drug reactions
CAI_CI_BK_0023	Anaphylaxis
CAI_CI_BK_0024	Transfusion reactions, transfusion of mis-matched blood or blood products
CAI_CI_BK_0025	Inadvertent intra-arterial injection of irritant fluids
CAI_CI_BK_0026	High spinal block

Knowledge	*Description*
CAI_CI_BK_0027	Local anaesthetic toxicity
CAI_CI_BK_0028	Accidental decannulation of tracheostomy or tracheal tube
CAI_CI_BK_0029	Coning due to increases intracranial pressure
CAI_CI_BK_0030	Malignant hyperpyrexia
Discusses the importance of understanding the need for the following attitudes and behaviours:	
CAI_CI_BK_0031	Awareness of human factors concepts and terminology and the importance of non-technical skills in achieving consistently high performance such as: effective communication, team-working, leadership, decision-making and maintenance of high situation awareness
CAI_CI_BK_0032	Awareness of the importance and the process of critical incident reporting
CAI_CI_BK_0033	Acceptance that it can happens to you; the unexpected can happen to anyone
CAI_CI_BK_0034	To practice response protocols in resuscitation room or in simulation with other healthcare professionals as appropriate
CAI_CI-BK_0035	The need to follow through a critical incident with proper reporting, presentation at morbidity meetings and warning flags as necessary, with appropriate supervision
CAI_CI_BK_0036	The provision of information to the patient and where necessary ensuring they get the appropriate counselling and advice, with appropriate supervision

Day surgery

This unit cross references with many of the other Basic Level units given the high percentage of day care surgical procedures

Objectives: The candidate should demonstrate:

- knowledge, skills and experience of the perioperative anaesthetic care of ASA 1 and 2 patients presenting in a dedicated Day Surgery Unit involving a range surgical specialities [minimum three]
- Understanding and applications of agreed protocols with regard to patient selection and perioperative care of day surgery patients
- Understanding the importance of minimising postoperative complications, such as nausea and pain, in patients who are returning home the same day

Core objectives: The candidate will be expected to:

- Know the criteria for patient selection and the anaesthetic requirements for day surgical patients

Knowledge	*Description*
CAI_DS_BK_0001	Describes the principles of preoperative assessment of patients requiring day surgery including nurse-led assessment
CAI_DS_BK_0002	Explains the role of appropriate preoperative investigations for day surgery patients
CAI_DS_BK_0003	Describes protocols for selection of day surgery patients including medical, surgical and social factors
CAI_DS_BK_0004	Explains the importance of providing appropriate postoperative instructions to patients and relatives following day surgery including, but not confined to, level of care required following discharge, transport arrangements and when to drive
CAI_DS_BK_0005	Describes anaesthetic techniques appropriate for day cases
CAI_DS_BK_0006	Explains the potential causes of unanticipated in-patient admission following day surgery
CAI_DS_BK_0007	Describes the pharmacology & selection of appropriate drugs for day cases [cross ref basic sciences]
CAI_DS_BK_0008	Describes appropriate analgesia for day cases
CAI_DS_BK_0009	Describes strategies to reduce postoperative nausea and vomiting in day case patients
CAI_DS_BK_0010	Explains the management & assessment of recovery of day surgery patients to street fitness

General, urological and gynaecological surgery

This unit includes all aspects of elective and emergency general, urological and gynaecological surgery.

Objectives: The candidate should demonstrate:

- knowledge, skills and experience of the perioperative anaesthetic care of patients requiring elective and emergency general, urological and gynaecological surgery
- understanding of the perioperative management of patients requiring intra-abdominal laparoscopic surgery and the particular issues related to anaesthetic practice, demonstrating the ability to manage such straightforward cases in adults under distant supervision
- ability to recognise and manage the perioperative complications associated with intra-abdominal surgery that are relevant to anaesthesia

Core objectives*: The candidate should demonstrate knowledge/skills to:*

- Deliver safe perioperative anaesthetic care to uncomplicated ASA 1-3 adult patients requiring elective and emergency surgery such as body surface surgery, appendicectomy and non-complex gynaecological surgery

Knowledge	*Description*
CAI_GU_BK_0001	Outlines the principles of preoperative assessment of patients undergoing major and minor surgery, including guidelines on the appropriateness of simple tests [i.e. NICE guidelines]
CAI_GU_BK_0002	Describes the anaesthetic management of straightforward common surgical procedures and their complications, including but not limited to: • Body surface surgery including breast procedures and thyroid surgery • Urological procedures including TURP and its management [including the TURP syndrome] and procedures on the kidney and urological tract • Laparoscopic surgery including but not exclusively: o Diagnostic laparoscopy o Laparoscopic and open cholecystectomy • Intra-abdominal major general surgery procedures including but not exclusively: o Elective colorectal resection

Knowledge	*Description*
	o Elective and emergency surgery for peptic ulcer disease • Endoscopic procedures on the GI and GU tracts including, but not exclusively: o OGD; flexible and rigid o Sigmoidoscopy, Colonoscopy o Cystoscopy • Gynaecology o Elective laparoscopic and open procedures on the uterus o Elective and Emergency procedures in patients in early pregnancy such as ERPC and salpino-oophrectomy for ectopic pregnancy
CAI_GU_BK_0003	Explains the physical and physiological effects of laparoscopic surgery including the effects of positioning [e.g Trendelenberg / reverse Trendelenberg, specifically in the setting of laparoscopic surgery]
CAI_GU_BK_0004	Describes the principles of the anaesthetic management of patients with renal failure for non-transplant surgery, including care of shunts
CAI_GU_BK_0005	Describes the principles of management of non-fasted patients requiring emergency surgery for whatever reason
CAI_GU_BK_0006	Explains transfusion issues in different surgical procedures
CAI_GU_BK_0007	Recalls/describes the management of major haemorrhage
CAI_GU_BK_0008	Recalls/explains the relevance of metabolism and nutrition in the perioperative period
CAI_GU_BK_0009	Explains the specific problems of anaesthesia for non-obstetric surgery in the pregnant patient
CAI_GU_BK_0010	Recalls the factors associated with regurgitation and airway protection during common surgical procedures
CAI_GU_BK_0011	Recalls/describes the anaesthetic implications of abnormal body weight, including morbid obesity
CAI_GU_BK_0012	Describes the NCEPOD classifications and explains the importance of these in delivering surgical care to patients

ENT, maxillo-facial and dental surgery

Objectives: The candidate should demonstrate:

- knowledge and skills of the perioperative anaesthetic care of patients undergoing minor to intermediate ear, nose and throat [ENT], maxilla-facial and dental surgery
- ability to recognise the specific problems encountered with a 'shared airway' and know the principles of how to manage these correctly

Core objectives: The candidate should demonstrate knowledge/skills to:

- Deliver perioperative anaesthetic care to ASA 1-3 adults, and ASA 1 and 2 children over 5, for non-complex ear, adenotonsillar and nasal surgery

Knowledge	*Description*
CAI_EN_BK_0001	Lists specific conditions that may complicate airway management [e.g. anatomical variation; tumour; bleeding]
CAI_EN_BK_0002	Describes how the surgeon operating in the airway, or requiring access via the airway, complicates anaesthesia for this type of surgery
CAI_EN_BK_0003	Recalls/describes the pathophysiology of obstructive sleep apnoea and its relevance to anaesthesia [AM_BK_07]
CAI_EN_BK_0004	Recalls/describes the specialised devices used to maintain the airway during head and neck surgery
CAI_EN_BK_0005	Identifies the indications for the special surgical devices used during surgery including gags, micro-laryngoscopes, oesophagoscopes and laser surgery equipment
CAI_EN_BK_0006	Describes appropriate anaesthetic techniques for common ENT and dental procedures and lists the particular difficulties that face the anaesthetist including but not exclusively: tonsillectomy, septoplasty, myringotomy, middle ear surgery, dental extractions and apicectomies
CAI_EN_BK_0007	Recalls/explains the principles of correct and timely recognition/management of bleeding tonsils
CAI_EN_BK_0008	Explains the principles of the emergency management of the obstructed airway including tracheostomy

CAI_EN_BK_0009	Describes the special risk of transmitting prion diseases by contamination with tonsillar tissue and explains how this risk is minimised in practice

Intensive care medicine

Objectives:

A broad-based outline knowledge of the wide range of problems which are seen in ICM is necessary at Basic level.

The candidate should:

- appreciate the factors involved in the decision to admit to the ICU
- Explain how to identify a sick patient at an early stage
- be able to undertake immediate resuscitation of patients with cardiac arrest and sepsis
- Have an outline understanding of the pathology, clinical features and the management of common problems which present to ICU
- Understand the principles and place of the common monitoring and interventions in ICU
- Be able to follow a management plan for common ICU problems and recognise developing abnormalities.
- Be able to continue the management, with distant supervision, of:
  - a resuscitated patient
  - a stable post-operative patient
  - a patient established on non-invasive ventilation

Knowledge	*Description*
Domain 1: Resuscitation and initial management of the acutely ill patient	
CAI_IC_BK_0101	Adopts a structured and timely approach to the recognition, assessment and stabilisation of the acutely ill patient with disordered physiology
CAI_IC_BK_0102	Manages cardiopulmonary resuscitation
CAI_IC_BK_0103	Manages the patient post resuscitation

Domain 2: Diagnosis, Assessment, Investigation, Monitoring and Data Interpretation	
CAI_IC_BK_0201	Obtains a history and performs an accurate clinical examination
CAI_IC_BK_0202	Undertakes timely and appropriate investigations
CAI_IC_BK_0203	Interpretation of electrocardiography [ECG / EKG] and interprets the results
CAI_IC_BK_0204	Interpretation of microbiological samples and interprets results
CAI_IC_BK_0205	Interpretation of the results from blood gas samples
CAI_IC_BK_0206	Interprets imaging studies
CAI_IC_BK_0207	Monitors and responds to trends in physiological variables
CAI_IC_BK_0208	Integrates clinical findings with laboratory investigations to form a differential diagnosis
Domain 3: Disease Management	
CAI_IC_BK_0301	Describes the management of the critically ill patient with specific acute medical conditions
CAI_IC_BK_0302	Identifies the implications of chronic and co-morbid disease in the acutely ill patient
CAI_IC_BK_0303	Recognises and describes the management of the patient with circulatory failure
CAI_IC_BK_0304	Recognises and describes the management of the patient with, or at risk of, acute renal failure
CAI_IC_BK_0305	Recognises and manages the patient with, or at risk of, acute liver failure
CAI_IC_BK_0306	Recognises and manages the patient with neurological impairment
CAI_IC_BK_0307	Recognises and manages the patient with acute gastrointestinal failure
CAI_IC_BK_0308	Recognises and manages the patient with acute lung injury syndromes [ALI / ARDS]
CAI_IC_BK_0309	Recognises and manages the septic patient

CAI_IC_BK_0310	Recognises and manages the patient following intoxication with drugs or environmental toxins
Domain 4: Therapeutic interventions / Organ system support in single or multiple organ failure	
CAI_IC_BK_0401	Prescribes drugs and therapies safely
CAI_IC_BK_0402	Discusses antimicrobial drug therapy
CAI_IC_BK_0403	Discusses administration of blood and blood products safely
CAI_IC_BK_0404	Demonstrates a knowledge of fluids and vasoactive / Inotropic drugs to support the circulation
CAI_IC_BK_0405	Describes Initiation, management, and weaning of patients from invasive and non-invasive ventilatory support
CAI_IC_BK_0408	Recognises and describes management of electrolyte, glucose and acid-base disturbances
CAI_IC_BK_0409	Demonstrates knowledge of nutritional assessment and support
Domain 5: Practical procedures	
CAI_IC_BK_0501	Demonstrates knowledge of administration of oxygen using a variety of administration devices
Domain 6: Peri-operative care	
CAI_IC_BK_0601	Demonstrates knowledge of the pre- and post-operative care of the high risk surgical patient
Domain 7: Comfort and recovery	
CAI_IC_BK_0703	Describes techniques of sedation and neuromuscular blockade
CAI_IC_BK_0704	Communicates the continuing care requirements of patients at ICU discharge to health care professionals, patients and relatives
Domain 8: End of life care	
CAI_IC_BK_0801	Discusses end of life care with patients and their families / surrogates

Domain 11: Patient safety and health systems management	
CAI_IC_BK_1102	Demonstrates knowledge of local infection control measures
CAI_IC_BK_1103	Identifies environmental hazards and promotes safety for patients and staff
CAI_IC_BK_1104	Identifies and minimises risk of critical incidents and adverse events, including complications of critical illness
CAI_IC_BK_1106	Critically appraises and applies guidelines, protocols and care bundles
CAI_IC_BK_1107	Describes commonly used scoring systems for assessment of severity of illness, case mix and workload
Domain 12: Professionalism	
CAI_IC_BK_1201	Communicates effectively with patients and relatives
CAI_IC_BK_1202	Communicates effectively with members of the health care team
CAI_IC_BK_1206	Respects privacy, dignity, confidentiality and legal constraints on the use of patient data

Non-theatre

At basic level it is anticipated that non-theatre anaesthesia will be confined to the provision of anaesthesia for diagnostic imaging

Objectives: The candidate will be expected to demonstrate knowledge and ability:

- To safely undertake the intra-hospital transfer of the stable critically ill adult patient for diagnostic imaging
- To understand the risks for the patient of having procedures in these sites
- To understand the responsibilities as a user/prescriber of diagnostic imaging services

Core objectives: The candidate will be expected to demonstrate knowledge and ability:

- to maintain anaesthesia for stable critically ill adult patients requiring diagnostic imaging under distant supervision [in conjunction with their transfer as indentified in Transfer Medicine]

Knowledge	*Description*
CAI_DI_BK _0001	Explains risks and benefits to patients, and risks to staff from common radiological investigations and procedures, including the use of contrast media
CAI_DI_BK_0002	Explains current statutory radiological regulations e.g. IRMER 2000 as applied to the referrer, practitioner or operator of diagnostic services
CAI_DI_BK_0003	Explains the general safety precautions and equipment requirements in specific environments e.g. MRI suites
CAI_DI_BK_0004	Recalls/describes the specific anaesthetic implications of imaging techniques including but not limited to: • MRI scanning • CT scanning • Angiography
CAI_DI_BK_0005	Recalls/explains the implications of exposing the pregnant or potentially pregnant patient to ionising

Obstetrics

The use of simulators may assist in the assessment of some aspects of this section e.g. general anaesthesia for Caesarean section

Objectives: The candidate will be expected to demonstrate:

- Knowledge and skills of the treatment of the healthy pregnant woman

Core objectives*:* The candidate will be expected to demonstrate knowledge and skills:

- to provide analgesia and anaesthesia as required for the majority of the women in the delivery suite
- To understand the management of common obstetric emergencies and be capable of performing immediate resuscitation and care of acute obstetric emergencies [e.g. eclampsia; pre-eclampsia; haemorrhage] and recognise when additional help is required

Knowledge	*Description*
CAI_OB_BK_0001	Recalls/describes the anatomy, physiology and pharmacology related to pregnancy and labour [cross ref basic sciences]
CAI_OB_BK_0002	Lists common obstetric indications for anaesthetic intervention on the delivery suite
CAI_OB_BK_0003	Describes the effects of aortocaval compression and how to avoid it
CAI_OB_BK_0004	Recalls/describes how to assess fetal well being in utero
CAI_OB_BK_0005	Discusses the management of pre-eclampsia and eclampsia
CAI_OB_BK_0006	Lists risk factors and describes the management of major obstetric haemorrhage
CAI_OB_BK_0007	Explains local feeding / starvation policies and the reasons behind them
CAI_OB_BK_0008	Explains the thromboprophylaxis requirements in pregnancy
CAI_OB_BK_0009	Describes the grading of urgency of Caesarean section
CAI_OB_BK_0010	Explains why anaesthetic techniques must be modified in the pregnant patient

Knowledge	*Description*
CAI_OB_BK_0011	Lists methods of analgesia during labour and discusses their indications and contraindications
CAI_OB_BK_0012	Describes epidural or CSE analgesia in labour and recalls/discusses the indications, contraindications and complications
CAI_OB_BK_0013	Explains how to provide regional anaesthesia for operative delivery
CAI_OB_OK_0014	Understands the need to call for assistance after several attempts at placement of regional blocks proves unsuccessful
CAI_OB_OK_0015	Describes the immediate management of accidental dural puncture
CAI_OB_BK_0016	Recalls/describes maternal and basic neonatal resuscitation
CAI_OB_BK_0017	Describes how to access local maternity guidelines and the value of having these guidelines

Orthopaedic surgery

This unit includes all aspects of elective and emergency orthopaedic surgery

Objectives: The candidate will be expected to demonstrate:

- Knowledge and skills of the perioperative anaesthetic care of patients requiring orthopaedic surgery including patients with long-bone fractures
- Knowledge of the relevance of diseases of bones and joints to anaesthesia
- Ability to recognise and manage the perioperative complications of orthopaedic surgery relevant to anaesthesia

Core objectives*:* The candidate will be expected to demonstrate knowledge and skills:

- To deliver perioperative anaesthetic care to uncomplicated ASA 1-3 adult patients for straightforward elective and emergency orthopaedic/trauma surgery to both upper and lower limbs, including Open Reduction Internal Fixation [ORIF] surgery [which includes fractured neck of femur], under distant supervision

Knowledge	*Description*
CAI_OR_BK_0001	Recalls/describes the perioperative implications of rheumatological disease, including but not limited to rheumatoid arthritis, osteoarthritis, osteoporosis and ankylosing spondylitis
CAI_OR_BK_0002	Recalls the complications of prolonged immobility, including those due to traction
CAI_OR_BK_0003	Recalls the problems associated with limb tourniquets
CAI_OR_BK_0004	Recalls/explains the potential hazards associated with positioning [supine, lateral, prone, sitting]
CAI_OR_BK_0005	Recalls/explains the problems associated with anaesthesia for surgery in the prone and lateral positions
CAI_OR_BK_0006	Recalls/describes the pathophysiology, diagnosis and management of specific orthopaedic surgical complications that are relevant to anaesthesia including but not exclusively: • Bone cement Implantation Syndrome • Diagnosis and management of fat embolism • Upper and lower limb compartment syndromes

Knowledge	*Description*
CAI_OR_BK_0007	Discusses strategies for blood conservation in major orthopaedic surgery
CAI_OR_BK_0008	Describes the principles of perioperative anaesthetic care for elective and emergency upper and lower limb orthopaedic surgery, including primary arthroplasty
CAI_OR_BK_0009	Discusses the current guidance on early surgical management of hip fractures and the necessary assessment for anaesthesia
CAI_OR_BK_0010	Discusses the timing of surgery, and the need for investigations in urgent [surgical] cases with cardiovascular signs
CAI_OR_BK_0011	Describes the different surgical procedures for managing hip fractures, the anaesthetic requirements for each and the current evidence for the choice of anaesthetic technique
CAI_OR_BK_0012	Discusses the importance of consistent decision making on fitness for surgery in elderly patients

Paediatrics

The use of simulators may assist in the assessment of some aspects of this section e.g. paediatric resuscitation

Objectives: The candidate will be expected to demonstrate:

- knowledge of the principles underlying the practice of anaesthesia for children aged 1 year and older and the specific needs therein
- knowledge of child protection

Core objectives: The candidate will be expected to:

- Demonstrate knowledge and skill s of correct management of the paediatric airway in the following ways down to one year of age.
  - ability to size airway devices correctly [i.e. oral airways and tracheal tubes]
  - ability to insert airway devices correctly
  - ability to ventilate an apnoeic child using a bag and mask +/- an oral airway
  - ability to intubate a child correctly, using the most appropriate size tracheal tube, placed at the correct length
- ability to maintain anaesthesia in a spontaneously breathing patient via a facemask for a short surgical procedure [less than 15 mins]

knowledge	*Description*
CAI_PA_BK_0001	Recalls/explains the relevance of the basic sciences specific to children aged 1 year and above [cross ref basic sciences]
CAI_PA_BK_0002	Describes the preoperative assessment and psychological preparation of children aged 1 year and above [and their parents] for surgery
CAI_PA_BK_0003	Explains the importance of avoiding excessive starvation times
CAI_PA_BK_0004	Describes how anaesthesia can be induced for children aged 1 year and above
CAI_PA_BK_0005	Describes maintenance of anaesthesia for children aged 1 year and above
CAI_PA_BK_0006	Describes how recovery from anaesthesia is managed in children aged 1 year and above
CAI_PA_BK_0007	Explains the management of postoperative pain, nausea and vomiting in children
CAI_PA_BK_0008	Describes the management of acute airway obstruction including croup, epiglottitis and inhaled foreign body

knowledge	*Description*
CAI_PA_BK_0009	Recalls/explains how blood volume is estimated and how correct solutions and volumes are used for replacement of fluid loss. Particular attention must be given to the risks of hyponatraemia if hypotonic solutions are used for fluid resuscitation
CAI_PA_BK_0010	Explains the importance of modification of drug dosages
CAI_PA_BK_0011	Describes how pain-relief is provided for children undergoing surgery including the use of common regional techniques [e.g. Caudal epidural, ilioingiunal block]
CAI_PA_BK_0012	Explains the place of premedication, including topical anaesthesia for venepuncture
CAI_PA_BK_0013	Describes paediatric anaesthetic equipment and the differences from adult practice
CAI_PA_BK_0014	Recalls/explains how to calculate tracheal tube sizes and the reasons for its importance; sizing of face masks and airways [oro- and naso-pharyngeal and LMAs]
CAI_PA_BK_0015	Explains the choice of breathing systems and the appropriate fresh gas flow rates
CAI_PA_BK_0016	Explains the importance of identifying when upper respiratory tract infections are/are not significant and, as a result, when to cancel operations
CAI_PA_BK_0017	Explains how to obtain consent for anaesthesia in children
CAI_PA_BK_0018	Explains the importance of Child Protection regulations (Children First Guidelines, Child Care Act, 1991 Child Care Amendment Act 2007)and what action must be taken when non-accidental injury is suspected

Pain medicine

Objectives: The candidate will be expected to demonstrate knowledge and skills:

- To assess and provide effective management of acute post-operative and acute non post-operative pain
- necessary to provide a basic understanding of the management of chronic pain in adults

Core objectives*:* The candidate will be expected to demonstrate knowledge:

- To assess acute surgical and non surgical pain and demonstrate the ability to treat effectively
- To have an understanding of chronic pain in adults

Knowledge	
Competence	*Description*
CAI_PM_BK_0001	Recalls the anatomy and physiology of pain medicine to include nociceptive, visceral and neuropathic pain [cross ref basic sciences]
CAI_PM_BK_0002	Describes drugs used to manage pain and their pharmacology [including but not limited to opioids, NSAIDs, Coxibs, local anaesthetics and drugs used to manage neuropathic pain]
CAI_PM_BK_0003	Explains the principles of neural blockade for acute pain management
CAI_PM_BK_0004	Describes the methods of assessment of pain
CAI_PM_BK_0005	Explains the relationship between acute and chronic pain
CAI_PM_BK_0006	Describes a basic understanding of chronic pain in adults
CAI_PM_BK_0007	Explains the importance of the biopsychosocial aspects of pain
CAI_PM_BK_0008	Describes the organisation and objectives of an acute pain service
CAI_PM_BK_0009	Explains the limitations of pain medicine

Regional

Objectives: The candidate will be expected to demonstrate knowledge and skills:

- of all generic aspects of block performance
- to obtain consent for regional anaesthesia from patients
- to create a safe and supportive environment in theatre for awake and sedated patients
- of the principles of how to perform a number of regional and local anaesthetic procedures
- specifically to perform spinal and lumbar epidural blockade
- to perform some simple upper and lower limb peripheral nerve blocks *under direct supervision*
- to use a peripheral nerve stimulator or ultrasound to identify peripheral nerves
- of the criteria for safe discharge of patients from recovery following surgery under regional blockade
- To accept the right of patients to decline regional anaesthesia – even when there are clinical advantages

Core objectives: The candidate will be expected to demonstrate knowledge and sills

- of safety at all times during performance of blocks including: importance marking side of surgery and site of regional technique; meticulous attention to sterility; selecting, checking, drawing up, diluting, and the adding of adjuvants, labelling and administration of local anaesthetic agents
- to establish safe and effective spinal and lumbar epidural blockade and manage immediate complications in ASA 1-2 patients
- to establish a simple nerve block safely and effectively

Knowledge	*Description*
CAI_RA_BK_0001	Recalls/describes the anatomy relevant to regional and peripheral blocks identified [Cross ref basic sciences]
CAI_RA_BK_0002	Recalls the relevant physiology and pharmacology [including toxicity of local anaesthetic agents, its symptoms, signs and management, including the use of lipid rescue] [Cross ref basic sciences]
CAI_RA_BK_0003	Recalls the relevant physics and clinical measurement related to the use of nerve stimulators in regional anaesthesia [Cross ref basic sciences; physics and clinical measurement]

Knowledge	*Description*
	Recalls the relevant basic physics and clinical application of ultrasound to regional anaesthesia [Cross ref basic sciences; physics and clinical measurement] in respect of: • The components of an ultrasound machine • The interaction of ultrasound with tissues • Picture optimisation using hand movements, adjustment of depth, gain and focus
CAI_RA-BK_0004	Discusses the advantages/disadvantages, risks/benefits and indications/contra-indications of regional blockade
CAI_RA_BK_0005	Describes how to obtain consent from patients undergoing regional blockade
CAI_RA_BK_0006	Outlines the basic functions of an ultrasound machine [including physics [ref Basic Sciences], picture optimisation and probe selection] and how nerves in the upper limb can be identified using ultrasound
CAI_RA_BK_0007	Describes the principles of performing the following regional and local anaesthetic procedures: • Subarachnoid and Lumbar/caudal epidural blockade • Brachial plexus blocks: axillary, interscalene and supraclavicular • Other more distal upper limb blocks [elbow and wrist] • Lower limb blocks [femoral, sciatic and ankle] • Ilio-inguinal nerve blocks/penile blocks • Ophthalmic blocks [Cross reference to ophthalmic anaesthesia] • Intravenous Regional Anaesthesia [IVRA]
CAI_RA_BK_0008	Demonstrates understanding of the use of continuous epidural infusions and the need to prescribe correctly
CAI_RA_BK_0009	Recalls/discusses the complications of spinal and epidural analgesia and their management including, but not exclusively, accidental total spinal blockade and accidental dural tap and post-dural puncture headache
CAI_RA_BK_0010	Describes techniques and complications of other blocks listed in RA_BK_07
CAI_RA_BK_0011	Shows understanding of the principles of identification of correct anatomy including the use of nerve stimulators and ultrasound [Cross reference Ultrasound]
CAI_RA_BK_0012	Outlines the dangers of accidental intravenous administration of local anaesthetic drugs, signs, symptoms and management, including the role of intra-lipid
CAI_RA_BK_0013	Outlines the management of incomplete or failed regional blockade including, where appropriate, the use of rescue blocks
CAI_RA_BK_0014	Demonstrates understanding of the methods of sedation used in conjunction with regional anaesthesia

Knowledge	*Description*
CAI_RA_BK_0015	Recalls/describes absolute and relative contraindications to regional blockade
CAI_RA_BK_0016	Outlines the possible effects regional blockade will have on the patient, list and the theatre staff and how these may be managed
CAI_RA_BK_0017	Lists the advantages and disadvantages of regional anaesthetic techniques for post-operative analgesia
CAI_RA_BK_0018	Describes the problems and solutions to obtaining adequate post-operative analgesia in the ward or home [if discharged] setting when the regional anaesthetic wears off
CAI_RA_BK_0019	Understands the need to review patients or contact patient following regional anaesthetic techniques to ensure block has worn off and there are no residual complications
CAI_RA_BK_0020	Understand the necessity to document the procedure and any complications e.g. paraesthesia, vascular puncture, pneumothorax and record images / video clip if using ultrasound where appropriate or indicated
CAI_RA_BK_0021	Be aware of the use of information leaflets in the decision making process and in the reporting of problems or complications following discharge

Sedation

The use of sedation in clinical practice, particularly in non-theatre areas, is increasing and anaesthetists are frequently asked to oversee its administration. It is essential that the candidate understands what is meant by conscious sedation ["A *technique in which the use of a drug or drugs produces a state of depression of the central nervous system enabling treatment to be carried out, but during which verbal contact with the patient is maintained throughout the period of sedation"*] and how it is administered safely.

Objectives: The candidate will be expected to demonstrate knowledge of

- a fundamental understanding of what is meant by conscious sedation and the risks associated with deeper levels of sedation
- of the differences between conscious sedation and deeper levels of sedation, with its attendant risks to patient safety
- of the particular dangers associated with the use of multiple sedative drugs especially in the elderly
- of management of the side effects in a timely manner, ensuring patient safety is of paramount consideration at all times
- to safely deliver pharmacological sedation to appropriate patients

Core objectives: The candidate will be expected to demonstrate knowledge and skills to

- Provide safe and effective sedation to ASA 1 and 2 adult patients, aged less than 80 years of age using a maximum of two short acting agents

	Knowledge *Description*
CAI_CS_BK_0001	Can explain: • What is meant by conscious sedation and why understanding the definition is crucial to patient safety • The differences between conscious sedation and deep sedation and general anaesthesia • The fundamental differences in techniques /drugs used /patient safety • That the significant risks to patient safety associated with sedation technique requires meticulous attention to detail, the continuous presence of a suitably trained individual with responsibility for patient safety, safe monitoring and contemporaneous record keeping
CAI_CS_BK_0002	Describes the pharmacology of drugs commonly used to produce sedation
CAI_CS_BK_0003	Explains the need for and means of monitoring the sedated patient including the use of commonly used

	Knowledge *Description*
	sedation scoring systems
CAI_CS_BK_0004	Describes how drugs should be titrated to effect and how the use of multiple drugs with synergistic actions can reduce the therapeutic index and hence the margin of safety
CAI_CS_BK_0005	Describes the importance of recognising the following when multiple drug techniques are employed: • Increased potential for adverse outcomes when two or more sedating/analgesic drugs are administered • The importance of titrating multiple drugs to effect whilst recognising that the possibility of differing times of onset, peak effect and duration, can result in an unpredictable response • Knowledge of each drugs time of onset, peak effect, duration of action and potential for synergism
CAI_CS_BK_0006	Can list which sedative drugs should not be given to the elderly [over 80 years of age], with reasons
CAI_CS_BK_0007	Can explain the minimal monitoring required during pharmacological sedation
CAI_CS_BK_0008	Describes the indications for the use of conscious sedation
CAI_CS_BK_0009	Describes the risks associated with conscious sedation including [but not exclusively] those affecting the respiratory and cardiovascular systems
CAI_CS_BK_0010	Can explain the use of single drug, multiple drug and inhalation techniques
CAI_CS_BK_0011	Describes the particular risks of multiple drug sedation techniques
CAI_CS_BK_0012	Outlines the unpredictable nature of sedation techniques in children [Cross ref paediatrics]
CAI_CS_BK_0013	Explains the need for robust recovery and discharge criteria when conscious sedation is used for out-patient procedures and the importance of ensuring appropriate escort arrangements are in place [Cross ref day surgery]

Transfer Medicine

Objectives: The candidate will be expected to demonstrate knowledge and skills

- To correctly assess the clinical status of patients and decide whether they are in a suitably stable condition to allow **intra-hospital transfer [only]**
- of the associated risks and ensures they can put all possible measures in place to minimise these risks

Core objectives: The candidate will be expected to demonstrate knowledge and skills

- To safely manages the intra-hospital transfer of the critically ill but stable adult patient for the purposes of investigations or further treatment [breathing spontaneously or with artificial ventilation]

Knowledge	*Description*
CAI_TF_BK_0001	Explains the importance of ensuring the patient's clinical condition is optimised and stable prior to transfer
CAI_TF_BK_0002	Explains the risks/benefits of intra-hospital transfer
CAI_TF_BK_0003	Recalls/describes the minimal monitoring requirements for transfer
CAI_TF_BK_0004	Lists the equipment [and back up equipment] that is required for intra-hospital transfer
CAI_TF_BK_0005	Outlines the physical hazards associated with intra-hospital transfer
CAI_TF_BK_0006	Explains the problems caused by complications arising during transfer and the measures necessary to minimise and pre-empt difficulties
CAI_TF_BK_0007	Outlines the basic principles of how the ventilators used for transfer function
CAI_TF_BK_0008	Indicates the lines of responsibility that should be followed during transfer
CAI_TF_BK_0009	Outlines the consent requirements and the need to brief patients in transfer situations
CAI_TF_BK_0010	Outline the issues surrounding the carrying/recording of controlled drugs during transfer
CAI_TF_BK_0011	Describes the importance of keeping records during transfer
CAI_TF_BK_0012	Outlines the problem of infection and contamination risks when moving an infected patient
CAI_TF_BK_0013	Explains how to assess and manage an uncooperative and aggressive patient during transfer
CAI_TF_BK_0014	Understands hospital protocols governing transfer of patients between departments

Knowledge	*Description*
CAI_TF_BK_0015	Outlines the importance of maintaining communication, when appropriate with the patient and members of the transfer team.

Trauma and stabilisation

Objectives: The candidate will be expected to demonstrate knowledge and skills

- Of the basic principles of how to manage patients presenting with trauma
- To recognise immediate life threatening conditions and prioritise their management

Core objectives: The candidate will be expected to demonstrate knowledge and

- Understanding the principles of prioritizing the care of patients with multi-trauma including airway management

Knowledge	*Description*
CAI_MT_BK_0001	Explains the principles of the primary and secondary survey in trauma patients
CAI_MT_BK_0002	Recalls/describes the related anatomy, physiology and pharmacology [cross reference Basic anatomy, physiology and pharmacology sections]
CAI_MT_BK_0003	Recalls/describes the pathophysiological changes occurring in the trauma patient
CAI_MT_BK_0004	Explains the importance of early recognition of and the potential for airway compromise
CAI_MT_BK_0005	Explains the importance of correct airway management in the trauma patient
CAI_MT_BK_0006	Describes how to recognise and correctly manage hypovolaemia and other causes of shock
CAI_MT_BK_0007	Recalls/describes the indications for invasive cardiovascular monitoring, the relevant anatomy, principles of placement, associated complications and principles of their management
CAI_MT_BK_0008	Recalls/discusses the effects of hypothermia, the reasons for its prevention and methods available in trauma patients
CAI_MT_BK_0009	Explains the importance of correct pain relief in the trauma patient and methods used [from Emergency Dept to post-operatively]
CAI_MT_BK_0010	Discusses the options available for intravenous access in trauma patients including the intraosseous route
CAI_MT_BK_0011	Understands the importance of preventing hypothermia and acidosis in the trauma patient
CAI_MT_BK_0012	Describes the correct initial investigations required in the trauma patient

Knowledge	*Description*
CAI_MT_BK_0013	Describes the imaging requirements in the emergency room [Cross Ref; non-theatre]
CAI_MT_BK_0014	Recalls/explains the principles of assessment and management of patients with brain injury [including the use of the Glasgow Coma Scale [GCS]]
CAI_MT_BK_0015	Describes the causes and mechanisms for the prevention of secondary brain injury
CAI_MT_BK_0016	Outlines the particular problems associated with patients presenting with actual or potential cervical spine injuries particularly airway management
CAI_MT_BK_0017	Describes the principles of the perioperative management of the trauma patient
CAI_MT_BK_0018	Describes how to manage intra-hospital transfer of trauma patients [Cross Ref: transfer medicine]

Basic sciences to underpin anaesthetic practice

Objectives: The candidate will be expected to demonstrate:

- knowledge and a good understanding of human anatomy relevant to the safe practice of anaesthesia
- Knowledge and a sound understanding of human physiology, biochemistry and pharmacology, and to be able to apply this to clinical practice
- Knowledge and a good understanding of the basic principles of physics and clinical measurement**;** emphasis is on the function of monitoring equipment, equipment safety, and measurement techniques.

Anatomy

	Description		
Demonstrates knowledge of:			
Respiratory system			
CAI_AN_BK_0001	Mouth, nose, pharynx, larynx, trachea, main bronchi, segmental bronchi, structure of the bronchial tree; age-related changes from the neonate to the adult		
CAI_AN_BK_0002	Airway / respiratory tract blood supply and innervation		
CAI_AN_BK_0003	Pleura [including surface anatomy], mediastinum and its contents		
CAI_AN_BK_0004	Lungs; lobes and microstructure of lungs		
CAI_AN_BK_0005	Diaphragm, other muscles of respiration including innervation		
CAI_AN_BK_0006	The thoracic inlet and 1st rib		
CAI_AN_BK_0007	Interpretation of the normal adult chest x-ray		
Cardiovascular system			
CAI_AN_BK_0008	Heart - chambers, valves, conducting system and pericardium; blood supply and innervation		
CAI_AN_BK_0009	Great vessels, main peripheral arteries and veins		
Nervous system			

Anatomy			
	Description		
Demonstrates knowledge of:			
CAI_AN_BK_0011	Brain and its subdivisions; blood supply		
CAI_AN_BK_0012	Spinal cord, structure of spinal cord, major ascending and descending pathways; blood supply		
CAI_AN_BK_0013	Anatomical organisation of pain and sensory pathways from the periphery to the central nervous system		
CAI_AN_BK_0014	Pain pathways relevant to the stages of obstetric labour and delivery		
CAI_AN_BK_0015	Spinal meninges, subarachnoid and extradural space; contents of extradural space		
CAI_AN_BK_0016	Anatomy of CSF system		
CAI_AN_BK_0017	Spinal nerves; dermatomes; applied knowledge of dermatomes in regional anaesthesia		
CAI_AN_BK_0018	Brachial plexus; nerves of the upper limb		
CAI_AN_BK_0019	Intercostal nerves		
CAI_AN_BK_0020	Nerves of the abdominal wall including innervation of the inguinal region		
CAI_AN_BK_0021	Lumbar and sacral plexuses; nerves of the lower limb		
CAI_AN_BK_0022	Anatomical organisation of the autonomic nervous system. [See also PR_BK_21]		
CAI_AN_BK_0023	Sympathetic innervation, sympathetic chain, ganglia and plexuses		
CAI_AN_BK_0024	Parasympathetic innervation; cranial and sacral outflow		
CAI_AN_BK_0025	Stellate ganglion		
CAI_AN_BK_0026	Cranial nerves		
CAI_AN_ BK_0027	Innervation of the pharynx and larynx		
CAI_AN_BK_0028	Eye and orbit		
Endocrine system			
CAI_AN_BK_0029	Functional anatomy of the hypothalamic/pituitary system		
CAI_AN_BK_0030	Functional anatomy of the adrenal gland		
CAI_AN_BK_0031	Functional anatomy of the thyroid and parathyroid glands		

Anatomy			
	Description		
Demonstrates knowledge of:			
CAI_AN_BK_0032	Anatomical organisation of the endocrine pancreas		
Vertebral column			
CAI_AN_BK_0033	Cervical, thoracic and lumbar vertebrae		
CAI_AN_BK_0034	Sacrum, sacral hiatus		
CAI_AN_BK_0035	Ligaments of vertebral column		
CAI_AN_BK_0036	Surface anatomy of vertebral spaces; length of spinal cord and subarachnoid space; age-related differences from the neonate to the adult		
Surface anatomy			
CAI_AN_BK_0037	Structures in the antecubital fossa		
CAI_AN_BK_0038	Structures in the axilla: landmarks for identifying the brachial plexus in the neck and axilla		
CAI_AN_BK_0039	Large veins of the neck and the anterior triangle of the neck; surface anatomy and ultrasound demonstrated anatomy relevant to insertion of central venous cannulae		
CAI_AN_BK_0040	Large veins of the leg and femoral triangle		
CAI_AN_BK_0041	Arteries of the upper and lower limbs		
CAI_AN_BK_0042	Landmarks for performance of cricoid pressure and surgical airway procedures		
CAI_AN_BK_0043	Landmarks for insertion of intercostal drainage catheters		

Pharmacology	
Demonstrates knowledge of:	***Description***
CAI_PR_BK_0001	Organic chemistry: drugs as organic molecules: interactions between molecules; organic compared with inorganic compounds; bond strength; important atomic constituents: C, N, O, P, S and halides
CAI_PR_BK_0002	Organic chemistry: ionization of molecules: type of groups that ionize: amides, hydroxyl, carboxyl. Permanently charged [quaternary ammonium] drugs.
CAI_PR_BK_0003	Drug chemistry: solubility, partition coefficients and movement of drugs through membranes: Lipid solubility; influence of pKa and pH; partition coefficients. Passive and active transport mechanisms
CAI_PR_BK_0004	Isomers: structural and stereoisomers: classification systems; clinical relevance
CAI_PR_BK_0005	Mechanisms of drug action: physicochemical; pharmacodynamic; pharmacokinetic: drug-receptor interactions; dose-response and log[dose]-response curves; agonists, partial agonists, antagonists. Reversible and irreversible antagonism. Potency and efficacy
CAI_PR_BK_0006	Non-specific drug actions: Physicochemical mechanisms: e.g. adsorption; chelation; neutralization
CAI_PR_BK_0007	Voltage-gated ion channels; membrane-bound transport pumps. Sodium, potassium and calcium channels as targets for drug action
CAI_PR_BK_0008	Receptors as proteins; ion channels; transmembrane transduction and intermediate messenger systems; intracellular/nuclear receptors. Receptor regulation and tachyphylaxis
CAI_PR_BK_0009	Transduction systems as receptors: G-protein coupled receptors [GPCRs] and non-GPCR systems.
CAI_PR_BK_0010	Nuclear receptors: Intracellular hormone receptors. e.g. cytoplasmic receptors for steroids; corticosteroids vs. mineralocorticoid receptors
CAI_PR_BK_0011	Enzymes as drug targets: Michaelis-Menten kinetics. Direct and allosteric mechanisms. e.g. acetylcholinesterase; cyclo-oxygenase; phosphodiesterase
CAI_PR_BK_0012	Anticholinesterases: Classification of drugs that inhibit acetylcholinesterase and plasma cholinesterase including organophosphates
CAI_PR_BK_0013	Predictable side effects of drugs: non-selective actions of drugs; action at multiple receptors; multiple anatomical

Pharmacology	
Demonstrates knowledge of:	***Description***
	locations; predictable enzyme induction-inhibition
CAI_PR_BK_0014	Idiosyncratic side effects of drugs: e.g. blood and bone-marrow dyscrasias; pulmonary fibrosis; anti-platelet effects. Anaphylactic and anaphylactoid reactions: comparison; treatment; identification of responsible drug; risks with polypharmacy
CAI_PR_BK_0015	Tachyphylaxis and tolerance: Examples of drugs demonstrating tachphylaxis; proposed mechanisms. Opioid dependence and tolerance
CAI_PR_BK_0016	Drug interactions: Types of interaction: synergism, additivity, antagonism; isobolograms. Classification of mechanisms of drug interaction
CAI_PR_BK_0017	Pharmacokinetics: general principles: absorption, distribution and redistribution; elimination, excretion. Chemical properties of drugs and their pharmacokinetics: blood-brain-barrier and placental barrier. Protein binding: plasma and tissue. Body compartments; adipose and vessel-poor tissue. Bioavailability; clearance
CAI_PR_BK_0018	Administration and absorption: routes of administration; first-pass metabolism and bioavailability. Selection of appropriate route. Drug delivery systems: e.g. sustained release, enteric coated, transdermal patch and ionophoretic systems
CAI_PR_BK_0019	Oral administration: Time-course for systemic appearance; factors e.g. pKa, lipid solubility, active transport. Bioavailability of drugs given orally and its measurement
CAI_PR_BK_0020	Drug elimination from plasma. Mechanisms: distribution; metabolism; excretion: exhalation; renal; biliary; sweat; breast milk. Factors affecting e.g.: pathological state: renal and hepatic failure; age, including extremes of age; gender; drug interactions. Active and inactive metabolites; pro-drugs. Enzyme induction and inhibition
CAI_PR_BK_0021	Non-enzymatic drug elimination: Hofmann degradation
CAI_PR_BK_0022	Pharmacokinetic modelling: types of models available: one, two and three-compartment models; non-compartmental; physiological. Pharmacokinetic parameters: volume of distribution, half-life and time constant, clearance
CAI_PR_BK_0023	Context-sensitive half-time: comparison of drugs e.g. propofol, fentanyl and remifentanil. Target-controlled infusions [TCI]

Pharmacology	
Demonstrates knowledge of:	***Description***
CAI_PR_BK_0024	TCI in practice: accuracy, applicability, cost. Variations due to patient differences: predictable and unpredictable
CAI_PR_BK_0025	Differences in patient response to therapy: age; gender; pathology; polypharmacy
CAI_PR_BK_0026	Pharmacogenetics: pharmacokinetic variation e.g. pseudocholinesterase; acetylation; CYP450 variants. Poor and fast metabolizers; racial and geographic distribution of common abnormal genes
CAI_PR_BK_0027	Volatile and gaseous anaesthetic agents: Structure of available agents. MAC. Clinical effects: CNS [including ICP], CVS, RS. Unwanted effects of individual agents. MH susceptibility; hepatitis risks. Factors affecting onset and offset time. Oil/gas partition coefficient
CAI_PR_BK_0028	Intravenous anaesthetic agents: Chemical classes. Properties of an ideal induction agent. Adverse effects on CNS [including effects on ICP], CVS, RS; pharmacokinetics including metabolism
CAI_PR_BK_0029	Mechanisms of general anaesthetic action
CAI_PR_BK_0030	Benzodiazepines: classification of action. Clinical actions. Synergism with anaesthetic agents. Antidote in overdose
CAI_PR_BK_0031	Local anaesthetic agents. Additional effects, including anti-arrhythmic effects. Mechanism of action. Clinical factors influencing choice: operative site, patient, available agents. Toxicity syndrome; safe clinical and maximum clinical doses; treatment of overdose
CAI_PR_BK_0032	Analgesics. Simple analgesics, NSAIDs and opioids. Available routes of administration; peri-operative prescribing; chronic compared with acute pain prescribing
CAI_PR_BK_0033	Aspirin and paracetamol. Comparison of structures; indications and contraindications; mechanisms of action. Bioavailability; metabolism; toxicity
CAI_PR_BK_0034	Non-steroidal anti-inflammatory analgesics: Classification. Mechanism of action. Clinical effects and uses; unwanted effects, contraindicaitons
CAI_PR_BK_0035	Opioid analgesics: Receptor classification. Mechanism of action. Inhibitory effects, sites of action on pain pathways. Unwanted effects. Full and partial agonists and partial agonists. Routes of administration
CAI_PR_BK_0036	Muscle relaxants. Classification. Sites of action. Properties of an ideal muscle relaxant. Dantrolene and management of MH

Pharmacology	
Demonstrates knowledge of:	***Description***
CAI_PR_BK_0037	Depolarizing muscle relaxants: Structure, mechanism of action. Organophosphate poisoning. Adverse effects and contraindications
CAI_PR_BK_0038	Non-depolarizing muscle relaxants: Structural classification; sub-classification according to onset-time and duration of action. General comparison of aminosteroids and bisbenzyisoquinoliniums. Comparison of individual agents; metabolism and active metabolites. Unwanted effects.
CAI_PR_BK_0039	Reversal of neuromuscular blockade: Indications for use; mechanisms of action; clinically unwanted effects of reversal of neuromuscular blockade
CAI_PR_BK_0040	Drugs and the autonomic nervous system: anatomy; myelinated and unmyelinated nerves; ganglia and rami communicantes. Neurotransmitters. Sites at which drugs can interfere with autonomic transmission
CAI_PR_BK_0041	Drugs and the sympathetic nervous system: adrenergic receptors and molecular mechanisms of action: Indications for pharmacological use of naturally occurring catecholamines and synthetic analogues. Other classes of drugs active in the sympathetic system: e.g. MAOIs:
CAI_PR_BK_0042	Drugs and the parasympathetic nervous system: nicotinic and muscarinic receptors with subgroups. Mechanism of action. Agonists, antagonists. Comparison of available drugs. Hyoscine and antiemesis
CAI_PR_BK_0043	Cardiovascular system: general: drug effects on the heart [inotropy and chronotropy] and on the circulation: arterial and venous effects; systemic and pulmonary effects
CAI_PR_BK_0044	Inotropes and pressors: Classification; site of action. Synthetic inotropes compared with adrenaline
CAI_PR_BK_0045	Drugs used in ischaemic heart disease: Classification of drugs used. Mechanisms of drug action. Unstable angina
CAI_PR_BK_0046	Antiarrhythmics: Classification. Indications for use, including use in resuscitation
CAI_PR_BK_0047	Hypotensive agents: Classes of drugs to produce acute hypotension in theatre. Therapeutic antihypertensive agents: classification according to mechanism of action. Adverse effects of drugs in each class
CAI_PR_BK_0048	Anticoagulants: oral and parenteral. Sites of action; indications use; monitoring effect. Comparison of heparins: unfractionated and fractionated. Newer anticoagulants
CAI_PR_BK_0049	Antiplatelet agents. Perioperative management of antiplatelet medication

Pharmacology	
Demonstrates knowledge of:	***Description***
CAI_PR_BK_0050	Pro-coagulants: Drugs. Individual factor concentrates; multi-factor preparations including FFP; vitamin K
CAI_PR_BK_0051	Colloids, including blood and blood products: Composition of preparations; safe use and avoidance of errors
CAI_PR_BK_0052	Crystalloid fluids: Composition; suitable fluids for maintenance and replacement of losses. Comparison with colloids; unwanted effects
CAI_PR_BK_0053	Respiratory system: general: Classes of drugs acting on the respiratory tract including bronchodilators; oxygen; surfactant; mucolytics; pulmonary vasodilators. Methods of administration; indications for use; mechanisms of action; adverse effects
CAI_PR_BK_0054	Respiratory system: drugs used in acute severe asthma and chronic asthma; volatile agents. Mechanisms of action
CAI_PR_BK_0055	Gastrointestinal system: general: antisialogogues; drugs reducting gastric acidity; drug effects on the GI tract including gastric and bowel motility
CAI_PR_BK_0056	Antiemetics: Anatomical sites for antiemetic action; central and peripheral inputs to vomiting centre; use of dexamethasone
CAI_PR_BK_0057	Renal system: diuretics: Classification of diuretics. Unwanted effects; indications for use
CAI_PR_BK_0058	CNS: antiepileptic agents: Mechanisms of action; unwanted side effects
CAI_PR_BK_0059	CNS: antidepressants: Classes of drug: anaesthetic relevance
CAI_PR_BK_0060	Therapy for diabetes mellitus: Drugs used in type 1 and type 2 diabetes: Insulins: classification of types available; routes of administration; perioperative management. Unwanted effects and risks and therapy of hypo- or hyperglyaemia
CAI_PR_BK_0061	Hormones: corticosteroids: Indications for use; clinical effects; long-term complications of glucocorticoid use
CAI_PR_BK_0063	Hormones: treatment of thyroid disorders: Synthesis and release of thyroid hormones. Preparations used in hyper- and hypo-thyroidism
CAI_PR_BK_0064	CNS stimulants; classes, mechanisms of action, uses in anaesthesia
CAI_PR_BK_0065	RS stimulants including theophyllines, doxapram

Pharmacology	
Demonstrates knowledge of:	***Description***
CAI_PR_BK_0066	Antimicrobial agents: general classification: Types of antimicrobial agents: antiviral; antibacterial; antifungal; bacteriostatic and bacteriocidal. Mechanism of action. Indications for use of different classes of antibiotics. Bacterial resistance
CAI_PR_BK_0067	Effects of drugs on the eye and vision; includes intra-ocular pressure
CAI_PR_BK_0068	Social drugs including tobacco, alcohol and non-legal drugs: anaesthetic relevance

Physiology and Biochemistry			
Demonstrates knowledge of:	***Description***		
GENERAL			
CAI_PB_BK_0001	Organization of the human body and control of internal environment		
CAI_PB_BK_0002	Changes at birth and variations with age		
CAI_PB_BK_0003	Cells; components and organelles		
CAI_PB_BK_0004	Function of cells; genes and their expression		
CAI_PB_BK_0005	Cell membrane characteristics; cell junctions, receptors		
CAI_PB_BK_0006	Protective mechanisms of the body		
BIOCHEMISTRY			
CAI_PB_BK_0007	Definition of pH. Strong and weak acids.		
CAI_PB_BK_0008	Acid base balance. Includes buffers, Henderson-Hasselbalch equation and anion gap		
CAI_PB_BK_0009	Ions e.g. Na^{+}, K^{+}, Ca^{++}, Mg^{++}, Cl^{-}, HCO_3^{-}		
CAI_PB_BK_0010	Cellular metabolism; aerobic vs anaerobic		
CAI_PB_BK_0011	Enzymes		
BODY FLUIDS AND THE FUNCTIONS AND CONSTITUENTS			
CAI_PB_BK_0012	Capillary dynamics and interstitial fluid; osmosis, filtration and convection		
CAI_PB_BK_0013	Osmolarity: osmolality, partition of fluids across membranes, tonicity		
CAI_PB_BK_0014	Lymphatic system		
CAI_PB_BK_0015	Special fluids especially cerebrospinal fluid: also pleural, pericardial and peritoneal fluids		
CAI_PB_BK_0016	Active cellular transport mechanisms		
HAEMATOLOGY AND IMMUNOLOGY			
CAI_PB_BK_0017	Blood: physical properties, components, functions		

Physiology and Biochemistry	
Demonstrates knowledge of:	***Description***
CAI_PB_BK_0018	Red blood cells: production and turnover, haematinics, haemoglobin and its variants including abnormal haemoglobins eg thalassaemia, HbS
CAI_PB_BK_0019	Anaemia: acute and chronic adaptations – Iron absorption, transportation, metabolism
CAI_PB_BK_0020	Polycythaemia: causes and implications
CAI_PB_BK_0021	Blood groups: ABO, Rhesus, others
CAI_PB_BK_0022	Transfusion reactions; rhesus incompatibility
CAI_PB_BK_0023	Haemostasis and coagulation, fibrinolysis – including abnormalities, congenital and acquired
CAI_PB_BK_0024	Alternative oxygen carrying solutions
CAI_PB_BK_0025	White blood cells: types, origins, characteristics, turnover
CAI_PB_BK_0026	The inflammatory response, systemic inflammatory responses, hypersensitivity reactions
CAI_PB_BK_0027	Immunity and allergy; innate vs acquired, non-specific vs specific, humoral vs cellular
CAI_PB_BK_0028	Immunodeficiency – congenital and acquired
MUSCLE	
CAI_PB_BK_0029	Action potential generation and its transmission
CAI_PB_BK_0030	Neuromuscular junction and transmission, motor end-plate
CAI_PB_BK_0031	Disturbances of neuromuscular transmission
CAI_PB_BK_0032	Myopathies – congenital and acquired
CAI_PB_BK_0033	Muscle contracture – malignant hyperthermia, myoclonus, burns
CAI_PB_BK_0034	Muscle types; skeletal, smooth, cardiac
CAI_PB_BK_0035	Skeletal muscle excitation-contraction coupling
CAI_PB_BK_0036	Smooth muscle contraction: sphincters
CAI_PB_BK_0037	Motor unit concept

Physiology and Biochemistry	
Demonstrates knowledge of:	***Description***
	HEART/CIRCULATION
CAI_PB_BK_0038	Cardiac muscle contraction
CAI_PB_BK_0039	The cardiac cycle: pressure volume relationships, work and power
CAI_PB_BK_0040	Rhythmicity of the heart; cardiac impulse generation
CAI_PB_BK_0041	Regulation of cardiac function; general and cellular
CAI_PB_BK_0042	Control of cardiac output [including Starling relationship]
CAI_PB_BK_0043	Fluid challenge and heart failure, types of shock
CAI_PB_BK_0044	Electrocardiogram and arrhythmias, origin of ECG, effects of temperature, ischaemia, infarction and electrolyte imbalance
CAI_PB_BK_0045	Neurological and humoral control of systemic blood pressures, blood volume and blood flow [at rest and during physiological disturbances e.g. exercise, haemorrhage and Valsalva manoeuvre]
CAI_PB_BK_0046	Peripheral circulation: capillaries, vascular endothelium and arteriolar smooth muscle
CAI_PB_BK_0047	Functions of endothelium
CAI_PB_BK_0048	Characteristics of special circulations including: pulmonary, coronary, cerebral, renal, portal, transitional and fetal
	RENAL TRACT
CAI_PB_BK_0049	Structure and function, renal circulation
CAI_PB_BK_0050	Blood flow and glomerular filtration, plasma clearance and tubulo-glomerular feedback
CAI_PB_BK_0051	Tubular function and urine formation; transport processes
CAI_PB_BK_0052	Assessment of renal function
CAI_PB_BK_0053	Regulation of water and electrolyte [Na^{+}, K^{+}, Ca^{++}, Mg^{++}, $PO4^{--}$,] balance; response to fluid loss /hypovolaemia. Role of urea and creatinine measurement.
CAI_PB_BK_0054	Regulation of acid-base balance
CAI_PB_BK_0055	Micturition

Physiology and Biochemistry	
Demonstrates knowledge of:	***Description***
CAI_PB_BK_0056	Pathophysiology of acute renal failure
RESPIRATION	
CAI_PB_BK_0057	Gaseous exchange: O_2 and CO_2 transport, hypoxia and hyper- and hypocapnia, hyper- and hypobaric pressures
CAI_PB_BK_0058	Function of haemoglobin in oxygen carriage and acid-base equilibrium
CAI_PB_BK_0059	Pulmonary ventilation: volumes, capacities, flows, dead space, compliance, work of breathing
CAI_PB_BK_0060	Effect of IPPV on lungs
CAI_PB_BK_0061	Mechanics of ventilation: ventilation/perfusion abnormalities, regional V/Q, surfactant
CAI_PB_BK_0062	Control of breathing, acute and chronic ventilatory failure, effect of oxygen therapy
CAI_PB_BK_0063	Effects of altitude
CAI_PB_BK_0064	Non-respiratory functions of the lungs
NERVOUS SYSTEM	
CAI_PB_BK_0065	Neuronal structure and function
CAI_PB_BK_0066	Resting membrane potential, action potentials, conduction, synaptic mechanisms, actions of neurotransmitters
CAI_PB_BK_0067	The brain: functional divisions
CAI_PB_BK_0068	Brain stem; organization, interconnections
CAI_PB_BK_0069	Intracranial pressure: cerebrospinal fluid, blood flow
CAI_PB_BK_0070	Maintenance of posture
CAI_PB_BK_0071	Autonomic nervous system; organization, ganglia, adrenergic vs cholinergic
CAI_PB_BK_0072	Neurological reflexes: monosynaptic, polysynaptic, stretch, inhibition
CAI_PB_BK_0073	Motor function: basal ganglia, spinal and peripheral
CAI_PB_BK_0074	Sense: receptors, nociception, proprioception, sight, taste, smell, hearing, balance, touch, temperature
CAI_PB_BK_0075	Pain: afferent nociceptive pathways, dorsal horn, peripheral and central mechanisms, neuromodulatory systems, supraspinal mechanisms, visceral pain, neuropathic pain, influence of therapy on nociceptive mechanisms

Physiology and Biochemistry	
Demonstrates knowledge of:	***Description***
CAI_PB_BK_0076	Spinal cord: anatomy and blood supply, effects of spinal cord section
CAI_PB_BK_0077	Nausea and vomiting
LIVER	
CAI_PB_BK_0078	Functional anatomy and blood supply, immunological functions
CAI_PB_BK_0079	Metabolic and digestive functions
GASTROINTESTINAL	
CAI_PB_BK_0080	Gastric function; secretions, nausea and vomiting
CAI_PB_BK_0081	Gut motility, sphincters and reflex control – neurohumoral integration
CAI_PB_BK_0082	Digestive functions; composition of secretions; digestion of carbohydrates, lipids, proteins, vitamins, minerals
CAI_PB_BK_0083	Immune functions
METABOLISM	
CAI_PB_BK_0084	Energy homeostasis. Energy balance and nutritional status. Body mass/composition: body mass index, body fat estimation. Functional measurements: e.g. handgrip strength, work/exercise capacity. Biochemical
CAI_PB_BK_0085	Principles of nutrition: carbohydrates, fats, proteins, vitamins and minerals. Energy requirements/expenditure and measurement.
CAI_PB_BK_0086	Metabolic pathways, energy production and enzymes; metabolic rate
CAI_PB_BK_0087	Hormonal control of metabolism: regulation of plasma glucose, response to trauma
CAI_PB_BK_0088	Physiological alterations in starvation, obesity [including normal and abnormal BMI ranges], exercise and the
CAI_PB_BK_0089	Body temperature and its regulation, [including differences at extremes of age]
ENDOCRINOLOGY	
CAI_PB_BK_0090	Hormones; types, receptors, heirachy, extracellular signalling
CAI_PB_BK_0091	Mechanisms of hormonal control; feedback mechanisms, effects on membrane and intracellular receptors
CAI_PB_BK_0092	Hypothalamic and pituitary function

Physiology and Biochemistry	
Demonstrates knowledge of:	***Description***
CAI_PB_BK_0093	Adrenocortical hormones
CAI_PB_BK_0094	Adrenal medulla; adrenaline and noradrenaline
CAI_PB_BK_0095	Pancreas; insulin, glucagons and exocrine function
CAI_PB_BK_0096	Thyroid and parathyroid hormones and calcium homeostasis
PREGNANCY	
CAI_PB_BK_0097	Physiological changes associated with pregnancy
CAI_PB_BK_0098	Materno-fetal, fetal and neonatal circulation
CAI_PB_BK_0099	Function of placenta; placental transfer
CAI_PB_BK_0100	Fetus; physiological changes at birth
CAI_PB_BK_0101	Lactation

Physics and Clinical Measurement	
Demonstrates knowledge of:	***Description***
CAI_PC_BK_0001	Mathematical concepts: relationships and graphs
CAI_PC_BK_0002	Exponential functions including wash-in, wash-out, tear-away
CAI_PC_BK_0003	Logarithms
CAI_PC_BK_0004	Area under the curve [integration] and rate of change [differentiation]
CAI_PC_BK_0005	Basic measurement concepts relevant to understanding of monitoring in anaesthesia: • linearity • drift • hysteresis • signal to noise ratio • static and dynamic response
CAI_PC_BK_0006	Electrolyte solutions [also drug doses]: conversion between units e.g. molar, mg/ml, %
CAI_PC_BK_0007	SI Units: fundamental units and derived units
CAI_PC_BK_0008	Other non SI units relevant to anaesthesia: including mmHg, bar, atmospheres, cm H2O, psi
CAI_PC_BK_0009	Simple mechanics: mass, force, work, energy, power
CAI_PC_BK_0010	Heat: including temperature, absolute zero
CAI_PC_BK_0011	Heat transfer and loss: conduction, convection, radiation, evaporation
CAI_PC_BK_0012	Temperature measurement: including Hg, alcohol, infrared, thermistor, thermocouple, Bourdon gauge, liquid crystal. Anatomical sites used for measurement
CAI_PC_BK_0013	Latent heats, triple point of water
CAI_PC_BK_0014	Patient warming systems: principles
CAI_PC_BK_0015	Warming equipment for intravenous fluids: principles
CAI_PC_BK_0016	Laws of thermodynamics; mechanical equivalent of heat
CAI_PC_BK_0017	Humidity, absolute and relative; including measurement
CAI_PC_BK_0018	Colligative properties: osmolarity, osmolality, osmometry, diffusion

Physics and Clinical Measurement	
Demonstrates knowledge of:	***Description***
CAI_PC_BK_0019	Physics of gases. Gas Laws: kinetic theory of gases, Boyles, Henry's, Dalton, Charles, Gay-Lussac
CAI_PC_BK_0020	Critical temperature, critical pressure
CAI_PC_BK_0021	Physics of vapours
CAI_PC_BK_0022	Pressure: absolute and relative pressure; gauge pressure
CAI_PC_BK_0023	Manufacture and storage of gases and vapours, safety
CAI_PC_BK_0024	Cylinders and pipelines, Bourdon gauge
CAI_PC_BK_0025	Suction devices
CAI_PC_BK_0026	Scavenging devices
CAI_PC_BK_0027	Measurement of lung volumes and diffusion
CAI_PC_BK_0028	Density and viscosity of gases
CAI_PC_BK_0029	Laminar and turbulent flow: Hagen-Poiseuille equation, Reynold's number, examples including helium
CAI_PC_BK_0030	Measurement of volume and flow in gases and liquids, including pneumotachograph and other respirometers
CAI_PC_BK_0031	Bernoulli principle
CAI_PC_BK_0032	Venturi effect and entrainment devices
CAI_PC_BK_0033	Vapour pressure: saturated vapour pressure
CAI_PC_BK_0034	Vaporisation: process of vaporisation
CAI_PC_BK_0035	Vaporisers: principles, including plenum and draw-over, temperature compensation, concentration
CAI_PC_BK_0036	Principles of surface tension
CAI_PC_BK_0037	Basic concepts of electricity and magnetism
CAI_PC_BK_0038	Electrical voltage, AC and DC current, resistance, impedance
CAI_PC_BK_0039	Electrical circuits: series and parallel
CAI_PC_BK_0040	Symbols of basic components of electrical circuits
CAI_PC_BK_0041	Capacitance, inductance
CAI_PC_BK_0042	Wheatstone bridge: principles, uses

Physics and Clinical Measurement	
Demonstrates knowledge of:	***Description***
CAI_PC_BK_0043	Electrical hazards: causes and prevention
CAI_PC_BK_0044	Electrocution: including microshock, earth faults, leakage
CAI_PC_BK_0045	Electrical equipment safety: domestic and medical, classification/types of equipment, symbols
CAI_PC_BK_0046	Circuit breakers, fuses
CAI_PC_BK_0047	Transformers, inductance
CAI_PC_BK_0048	Transistors, diodes
CAI_PC_BK_0049	Amplifiers: band width, low pass, high pass, band pass filters
CAI_PC_BK_0050	ECG: principles including electrodes and electrode placement
CAI_PC_BK_0051	Fourier analysis
CAI_PC_BK_0052	Amplification of biological signals: including ECG, EMG, EEG, BIS, CFM, CFAM
CAI_PC_BK_0053	Piezo-electric devices
CAI_PC_BK_0054	Electrical interference: sources, methods of reduction
CAI_PC_BK_0055	Processing, storage, display of physiological measurements
CAI_PC_BK_0056	Transducers and strain gauges
CAI_PC_BK_0057	Lasers: basic principles and safety
CAI_PC_BK_0058	Ultrasound: basic principles of ultrasound
CAI_PC_BK_0059	Demonstrates knowledge of the physics relevant to optical fibres
CAI_PC_BK_0060	Doppler effect, principle and clinical application
CAI_PC_BK_0061	Cardiac pacemakers: principles and classification
CAI_PC_BK_0062	Defibrillators and defibrillation: principles, including thoracic impedance, monophasic, multiphasic, implantable devices
CAI_PC_BK_0063	Diathermy: monopolar, bipolar; safety and uses
CAI_PC_BK_0064	Pressure transducers
CAI_PC_BK_065	Resonance, damping, frequency response

Physics and Clinical Measurement	
Demonstrates knowledge of:	***Description***
CAI_PC_BK_0066	Plenum systems: warming blankets, theatre and anaesthetic room ventilation
CAI_PC_BK_0067	Breathing systems: Maplesons' classification, coaxial systems, circle systems, T-piece; resuscitation breathing devices
CAI_PC_BK_0068	Ventilators: principles, including pressure and flow generators, cycling, minute volume dividers, jet and oscillator ventilators
CAI_PC_BK_0069	Disconnection: monitoring of patient ventilatory disconnection
CAI_PC_BK_0070	CO_2 absorption: chemistry, complications
CAI_PC_BK_0071	Capnography
CAI_PC_BK_0072	Pulse oximetry
CAI_PC_BK_0073	Fires and explosions: risks and prevention
CAI_PC_BK_0074	Measurement of gas pressures
CAI_PC_BK_0075	Blood pressure: direct and indirect measurement
CAI_PC_BK_0076	Pulmonary artery pressure measurement
CAI_PC_BK_0077	Cardiac output: principles of measurement
CAI_PC_BK_0078	Measurement of gas and vapour concentrations: e.g. infra-red, paramagnetic, fuel cell, oxygen electrode, mass spectrometry
CAI_PC_BK_0079	Measurement of pH, PCO_2, PO_2, electrolytes
CAI_PC_BK_0080	Derived blood gas variables, e.g. HCO_3a, HCO_3s, BE. Siggaard-Andersen nomogram
CAI_PC_BK_0081	Measurement of CO_2 production, oxygen consumption, respiratory quotient
CAI_PC_BK_0082	Simple tests of pulmonary function: peak flow rate, spirometry
CAI_PC_BK_0083	Measurement of perfusion: coronary, cerebral, splanchnic, renal
CAI_PC_BK_0084	Assessment of neuromuscular blockade
CAI_PC_BK_0085	Infusion pumps and syringe drivers; including PCA drivers and epidural infusion devices: principles, use, safety, and relevant drug infusion calculations

Physics and Clinical Measurement	
Demonstrates knowledge of:	***Description***
CAI_PC_BK_0086	Environmental monitoring: contamination by anaesthetic gases and vapours
CAI_PC_BK_0087	Minimum monitoring standards
CAI_PC_BK_0088	Understanding the limits of monitoring equipment
CAI_PC_BK_0089	Principles of calibration of monitoring equipment
CAI_PC_BK_0090	Principles of hygiene, including cleaning and sterilisation of equipment

Statistical Methods

Objectives: The candidate will be expected to demonstrate knowledge and

- understanding of the basis of statistical concepts
- understanding of the statistical background to measurement error and statistical uncertainty

Knowledge	
Demonstrates knowledge of:	***Description***
Data Collection	
CAI_SM_BK_0001	Recalls the simple aspects of study design
CAI_SM_BK_0002	Explains the outcomes measures and the uncertainty in their definition
CAI_SM_BK_0003	Explains the basis of meta-analysis and evidence based medicine
Descriptive statistics	
CAI_SM_BK_0004	Recalls the types of data and their representation
CAI_SM_BK_0005	Explains the normal distribution as an example of parametric distribution
CAI_SM_BK_0006	Explains indices of central tendency and variability
Deductive and inferential statistics	
CAI_SM_BK_0007	Recalls simple probability theory and the relationship to confidence values
CAI_SM_BK_0008	Explains the null hypothesis
CAI_SM_BK_0009	Explains the choices for simple statistical tests for different types of data
CAI_SM_BK_0010	Recalls type I and type II errors

Professionalism and Competencies in Medical Practice

This section identifies the specific professionalism (attitudes and behaviours) and common competencies expected throughout a doctors' professional life. Candidates will be expected to demonstrate the appropriate skills and knowledge in the examinations.

Eleven domains have been identified covering professionalism and common competencies. These are as follows:

- Domain 1: Professional attitudes
    a. *Commitment*
    b. *Compassion*
    c. *Honesty and personal integrity*
    d. *Respect for others*
    e. *Community*
    f. *Competence*
- Domain 2: Clinical Practice
- Domain 3: Team working
- Domain 4: Leadership
- Domain 5: Innovation
- Domain 6: Management
- Domain 7: Education
- Domain 8: Safety in Clinical Practice
- Domain 9: Medical ethics and confidentiality
- Domain 10: Relationships with patients
- Domain 11: Legal framework for practice
- Domain 12: Information Technology

Competence	*Description*
	Domain 1: Professional attitudes
	a. Commitment
CAI_PP_D1_0001	Demonstrates honesty and perseverance
CAI_PP_D1_0002	Demonstrates the importance of obtaining adequate information from patients, relatives and others
CAI_PP_D1_0003	Demonstrates the principle of keeping full, comprehensible, accurate and contemporaneous written records
CAI_PP_D1_0004	Demonstrates the principle of maintaining situational awareness at all times
CAI_PP_D1_0005	Demonstrates a rigorous policy of safety first in all clinical work
CAI_PP_D1_0006	Demonstrates the use of measures that minimise the risks of cross infection at all times
CAI_PP_D1_0007	Demonstrates the principle of maintaining a timely clinical dialogue
	b. Compassion
CAI_PP_D1_0009	Demonstrates sensitivity to the emotions of patients and colleagues – particularly in difficult situations
CAI_PP_D1_0010	Demonstrates compassion by effective communication skills by listening, seeking first to reflect and understand before making decisions and taking action
	c. Honesty and personal integrity
CAI_PP_D1_0014	Demonstrates the value of the quality of truthfulness
CAI_PP_D1_0015	Demonstrates honesty in all personal and professional interactions

Competence	*Description*
	d. Respect for others
CAI_PP_D1_0017	Demonstrates sensitivity for what the patient says and their opinions
CAI_PP_D1_0018	Demonstrates sensitivity to patients' concerns and anxieties
CAI_PP_D1_0020	Demonstrates commitment to the principle of providing full information to the patient
CAI_PP_D1_0021	Demonstrates respect and privacy, dignity, confidentiality and legal constraints on the use of patient data
CAI_PP_D1_0022	Demonstrates sensitivity to the need to maintain a calm, non-aggressive demeanour even under pressure
CAI_PP_D1_0023	Demonstrates sensitivity in handling patients with cognitive disturbance and/or communication problems
	e. Community
CAI_PP_D1_0024	Demonstrates respect and value for the contribution of other healthcare professionals and support workers
CAI_PP_D1_0028	Demonstrates acceptance of the importance of good communication with other health professionals
CAI_PP_D1_0029	Demonstrates commitment to the role of supporter and advocate for the patient
CAI_PP_D1_0031	Demonstrates commitment to the importance of always providing necessary information in a clear, timely way
	f. Competence
CAI_PP_D1_0032	Demonstrates commitment to excellence
CAI_PP_D1_0033	Demonstrates commitment to the need to show attention to detail
CAI_PP_D1_0036	Demonstrates the quality of calmness under pressure

	Domain 2: Clinical practice
CAI_PP_D2_0001	Demonstrates commitment to ensure comprehensive pre-operative assessment is performed, taking account of the nature/complexity of both the surgery and the patient
CAI_PP_D2_0002	Demonstrates commitment to: • Maintaining knowledge of current drugs used in clinical practice relevant to their areas of clinical practice • Ensure accurate and safe prescribing occurs at all times
CAI_PP_D2_0006	Demonstrates commitment to providing appropriate advice to others who are less experienced regarding clinical management
	Domain 5: Innovation
CAI_PP_D5_0001	Demonstrates commitment to searching and comprehending medical literature to guide reasoning
CAI_PP_D5_0002	Demonstrates commitment to recognising the importance of research [clinical and laboratory] in the development of clinical practice is aware of current areas of research and understands and explains the methodology and statistics involved
	Domain 8: Safety in clinical practice
CAI_PP_D8_0001	Demonstrates commitment to the supremacy of patient safety issues.
CAI_PP_D8_0002	Demonstrates commitment to: • Understanding the central role human factors plays in developing a culture of safe practice • Collaborating with all members of the multi-disciplinary team to enhance safety
CAI_PP_D8_0003	Demonstrates commitment to strategies to reduce risk

CAI_PP_D8_0006	Demonstrates knowledge of national patient safety initiatives including National Patient Safety Agency [NPSA], NCEPOD reports, NICE guidelines etc
CAI_PP_D8_0008	Demonstrates the knowledge of the importance of acknowledging mistakes and mishaps and: • Talking to patients about untoward events, apologising appropriately, providing clear explanations, acting with integrity and offering the necessary support
	Domain 9: Medical ethics and confidentiality
CAI_PP_D9_0001	Demonstrates knowledge of the principles of medical ethics
	Domain 10: Relationships with patients
CAI_PP_D10_0001	Demonstrates ability to establish an open and honest rapport with patients and their carers, tailoring language to their needs
CAI_PP_D10_0002	Demonstrates ability by encouraging questioning, listening actively and ensuring comprehension by the patient /carers
CAI_PP_D10_0003	Demonstrates ability to obtain informed and valid consent taking account of the patient's understanding of the issues, answering questions, and considering, where necessary, their mental state and how this may impair their capacity for informed consent
CAI_PP_D10_0004	Demonstrates understanding of the principle that sensitive communication of bad news is an essential part of professional practice and how it is delivered irretrievably affects the subsequent relationship with the patient
CAI_PP_D10_0005	Demonstrates knowledge of the principle of an effective apology, which includes explaining comprehensibly to the patient the events leading up to a medical error or serious untoward incident, and sources of support for patients and their relatives

	Domain 11: Legal framework for practice
CAI_PP_D11_0001	Demonstrates commitment to ensuring all decisions and actions are made in the best interests of the patient
CAI_PP_D11_0003	Demonstrates understanding of principles for negligence

Blueprint of the Membership Examination M.C.A.I. mapped against the Syllabus

Unit of Training	MCQ	OSCE	SOE 1	SOE2
Preoperative assessment	√	√	√**	√
Premedication	√	√	√	√
Induction of general anaesthesia	√	√	√	√
Intra-operative care including sedation	√	√	√	√
Postoperative and recovery room care	√	√	√	√
Introduction to anaesthesia for emergency surgery	√	√	√	√
Transfer medicine		√		√
Management of respiratory and cardiac arrest	√	√	√	√
Control of infection	√	√	√	√***
Academic and research	√	√*		
Airway management	√	√		√
Critical incidents	√	√	√	√
Day surgery	√	√	√	√
General, urological and gynaecological surgery	√	√		√
ENT, maxillo-facial and dental surgery	√	√		√
Intensive care medicine	√	√	√	√
Non-theatre	√	√		√
Obstetrics	√	√	√	√
Orthopaedic surgery	√	√		√
Sedation	√	√	√	√
Paediatrics including child protection	√	√	√	√
Pain medicine	√	√	√	√
Regional	√	√	√	√
Trauma and stabilisation	√	√		√
Anatomy	√	√		

Physiology and biochemistry	√	√	√	√***
Pharmacology	√	√	√	√***
Physics and Clinical measurement	√	√		√
Statistical methods	√		√	

OSCE: * Communicates risk information, and risk-benefit trade-offs, in ways appropriate for individual patients.

SOE 1 Physiology: ** All the drugs patients may be on preoperatively.

SOE 2 Pharmacology: *** Partially covered

Blueprint of the Membership Examination M.C.A.I. mapped against the Domains of Good Professional Practice as devised by the Irish Medical Council (2010)

Domain	MCQ	OSCE	SOE 1	SOE 2
Domain 1 – Professionalism		√		
Domain 2 – Clinical skills	√	√		
Domain 3 – Scholarship	√	√	√	√
Domain 4 – Patient Safety and Quality of Patient Care	√	√	√	√
Domain 5 – Communication and Interpersonal Skills		√	√	√
Domain 6 – Relating to patients		√		

Syllabus of the Final Fellowship

The Final FCAI examination may examine content from either the Syllabus of the Final Fellowship or Membership Examinations. This includes the basic sciences. Therefore, any topic mentioned in either Syllabus may be tested in the Final examination as per the attached blueprints.

Anaesthesia for neurosurgery, neuroradiology and neurocritical care

Objectives: The candidate will be expected to demonstrate knowledge and understanding:

- Of the application of basic science to the principles and practice of neuroanaesthesia and neuro-critical care.
- Of the skills of administering general anaesthesia [as identified in the Introductory Curriculum and in the basic level sections entitled 'Trauma Stabilisation' and 'Transfer'] to include a focus on the special difficulties presented by neurosurgery. This will include developing knowledge, skills and experience of the perioperative anaesthetic care of patients undergoing major elective and emergency surgery on the brain and spinal cord and associated bony structures as well as for neuroradiology

Core objectives: The candidate will be expected to demonstrate knowledge and skills to:

- Deliver safe perioperative anaesthetic care to uncomplicated ASA 1-3 adult patients undergoing non-complex elective intracranial and spinal surgery .
- Deliver safe perioperative anaesthetic care to uncomplicated ASA 1-3 adult patients undergoing non-complex emergency surgery [e.g. insertion of V-P shunt/EVD]
- Be an effective team member for resuscitation, stabilisation and transfer of adult patients with brain injury

Knowledge	*Description*
CAI_NA_IK_0001	Recalls/describes the relevance of the anatomy of the skull, skull base, vertebral column and central nervous system to neuroanaesthetic practice [Cross ref applied sciences]
CAI_NA_IK_0002	Recalls/explains the relevance of applied physiology and pathophysiology related to the central nervous system to neuroanaesthetic practice [Cross ref applied sciences]
CAI_NA_IK_0003	Describes techniques for decreasing the intra-cranial pressure
CAI_NA_IK_0004	Explains the indications for using neurophysiological monitoring [including EEG, evoked potentials and ICP measurement] to benefit patients requiring neurosurgery/neuro-critical care
CAI_NA_IK_0005	Recalls how drugs can impact on neurophysiological monitoring
CAI_NA_IK_0006	Recalls/explains the pharmacology of drugs which act on the central nervous system [Cross ref applied basic sciences]
CAI_NA_IK_0007	Explains the complications of positioning for neurosurgical procedures: prone, sitting, lateral, park bench
CAI_NA_IK_0008	Demonstrates understanding of the perioperative anaesthetic management of patients for neurosurgery and neuroradiology. This includes: • Preoperative assessment and optimization of patients with neurological disease • Induction and maintenance and reversal of anaesthesia • Early postoperative care including the specific areas of fluid management and the control of pain
CAI_NA_IK_0009	Demonstrates understanding of anaesthesia for neurosurgical procedures including but not exclusively: • Shunt surgery • Evacuation of intracranial haematoma • Planned supratentorial and posterior fossa surgery [including vascular disease and tumours] • Emergency surgery for traumatic brain injury • Spinal column surgery
CAI_NA_IK_0010	Discusses the principles of anaesthesia for neuroradiology including but not exclusively: • Emergency and elective imaging of the central nervous system [including the principles of stereotactic surgery] • interventional procedures [including coiling of intracranial aneurysms] [Cross reference anaesthesia in the non-theatre environment]
CAI_NA_IK_0011	Explains the anaesthetic implications of pituitary disease including endocrine effects and trans-sphenoidal surgery
CAI_NA_IK_0012	Describes anaesthesia for trigeminal neuralgia including thermocoagulation
CAI_NA_IK_0013	Explains the anaesthetic implications of spinal cord trauma
CAI_NA_IK_0014	Describes how to recognize an unstable cervical spine and explains how it should be managed
CAI_NA_IK_0015	Discusses the indications for postoperative ventilation
CAI_NA_IK_0016	Explains the techniques used for recognition and management of air embolism
CAI_NA_IK_0017	Describes the special risk associated with prion diseases during neurosurgery

CAI_NA_IK_0018	Demonstrates understanding of the principles of anaesthesia for patients with neurological disease [including but not exclusively]: • Guillain-Barre • Myasthenia gravis • Myasthenic syndrome • Dystrophia myotonica • Muscular dystrophy • Paraplegia and long term spinal cord damage
CAI_NA_IK_0019	Discusses the specific risks of venous thromboembolic disease in neurosurgical patients and how these are managed
CAI_NA_IK_0020	Demonstrates understanding of the neurocritical care management of traumatic brain injury [including but not exclusively]: • indications for ventilation • recognition and management of raised ICP • cerebral protection strategies • fluid and electrolyte balance in the head injured patient • systemic effects of traumatic brain injury The principles of management of acute spinal cord injury
CAI_NA_IK_0021	Describes the control of status epilepticus
CAI_NA_IK_0022	Describes the requirements for safe transfer of patients with brain injury
CAI_NA_IK_0023	Explains the issues related to the management of organ donation in neuro-critical care [Cross reference intensive care]

Cardiac/Thoracic

Objectives: The candidate will be expected to demonstrate:

- knowledge and understanding of the underlying principles of anaesthesia for cardiac surgery, both 'on' and 'off' pump, and thoracic surgery
- Understanding and the skills required to provide safe and effective anaesthetic care to patients undergoing elective cardiac and thoracic surgery
- Knowledge and understanding of the pathophysiology and presentation of advanced cardiac disease to better understand the peri-operative management of such patients who undergo coincidental surgery

Core objectives: The candidate will be expected to demonstrate the knowledge and skills

- To deliver safe and effective perioperative anaesthetic care to patients undergoing elective coronary artery surgery and minor thoracic investigative procedures under direct supervision

Knowledge	*Description*
CAI_CT_IK_0001	Describes the principles of the perioperative anaesthetic management of patients for cardiac surgery
CAI_CT_IK_0002	Understands and explains the principles of cardiopulmonary bypass including the use of cardioplegia
CAI_CT_IK_0003	Learns from the perioperative management of patients with cardiac disease knowledge applicable to those requiring non cardiac surgery
CAI_CT_IK_0004	Understands the pathophysiological changes and organ dysfunction associated with cardiac disease, and their implications in the perioperative period
CAI_CT_IK_0005	Correctly assesses the risk of operation in a patient who has cardiac or respiratory disease, using common scoring systems
CAI_CT_IK_0006	Explains the results of the special investigations used during the assessment of patients with cardiac disease including, Xrays, coronary angiography, ECHO, and Scanning techniques including CT, MRI and PET
CAI_CT_IK_0007	Understands and explains the principles of antibiotic prophylaxis in patients with cardiac disease
CAI_CT_IK_0008	Recalls/describes the anaesthetic and surgical problems associated with "off pump" cardiac surgery
CAI_CT_IK_0009	Describes the problems associated with post-cardiac surgery including bleeding and the clinical signs and symptoms of cardiac tamponade, and its management

Knowledge	*Description*
CAI_CT_IK_0010	Evaluates the indications for invasive and non-invasive cardiovascular monitoring, and is able to interpret the common findings
CAI_CT_IK_0011	Describes the methods used to cool and re-warm patients during cardiac surgery, and the complications
CAI_CT_IK_0012	Explains the need for, and methods of, altering blood coagulability during cardiac surgery
CAI_CT_IK_0013	Recalls/describes the indications for cardiac pacing and lists the different modes available
CAI_CT_IK_0014	Describes the principles of action, and the use of, Intra-aortic balloon counter-pulsation and other assist devices
CAI_CT_IK_0015	Recalls/explains the abnormalities found in the adult patient with congenital heart disease [including corrected or partially corrected], and the implications for anaesthesia in these patients
CAI_CT_IK_0016	Recalls/explains the indications for the use of inotropes and vasodilators during cardiac surgery
CAI_CT_IK_0017	Explains the significance of preoperative functional investigations of respiratory and cardio-respiratory performance
CAI_CT_IK_0018	Describes specific risks associated with induction and maintenance of anaesthesia in patients requiring thoracic surgery and precautions to be taken to minimise these risks
CAI_CT_IK_0019	Describes commonly performed thoracic surgical procedures and the relevant anaesthetic problems
CAI_CT_IK_0020	Describes commonly used methods of local and general anaesthesia for bronchoscopy including techniques of ventilation
CAI_CT_IK_0021	Describes the airway management of a patient undergoing one-lung ventilation and anaesthesia including placement of double lumen endobronchial tubes and bronchial blockers [Ref; EN_IK_11]
CAI_CT_IK_0022	Recalls/explains the changes that occur during one lung ventilation and the strategies to manage these changes
CAI_CT_IK_0023	Recalls the causes, symptoms and signs of a pneumothorax and explains the principles of its management
CAI_CT_IK_0024	Describes the common problems associated with the postoperative care of patient who have had thoracic surgery and the methods that can be used to minimise these

Skills	*Description*
CAI_CT_IS_006	Demonstrates an understanding of effective and evidence based use of inotropes and vasodilators

General

Airway Management

Objectives: The candidate will be expected to demonstrate:

- knowledge and skills of safe airway management in more complex cases undergoing major elective and emergency surgery including fibreoptic intubation
- ability to recognise the specific problems encountered with the airway

Core objectives: The candidate will be expected to demonstrate the knowledge and skills

To perform elective fibreoptic intubation, either for an awake or an anaesthetised patient.

Knowledge	*Description*
CAI_AM_IK_0001	Lists the risks associated with awake fibreoptic endotracheal intubation and describe the process of obtaining consent for this procedure
CAI_AM_IK-0002	Discusses the identification and assessment of pathology in or around the airway, including • History and examination • Anaesthetic chart review • Interpretation of investigations such as lateral C-spine X-ray, cross sectional imaging of the upper airway (MRI/CT), flow volume loops • Discussion with surgeons
CAI_AM_IK_0003	Outlines the anaesthetic management of potential threats to the airway, including • external compression • Foreign body, blood clots, masses • Inhalational injury, inflammation • Blunt and penetrating trauma [Cross Ref; ENT]

CAI_AM_IK_0004	Lists the indications for tracheostomy [Cross Ref; ENT]
CAI_AM_IK_0005	Outlines the anaesthetic principles for tracheostomy [Cross Ref ENT]
CAI_AM_IK_0006	Describes the management of the obstructed/misplaced tracheostomy
CAI-AM_IK_0007	Describes the specialised airway techniques used for laser surgery in, or near, the airway [Cross Ref; ENT]
CAI_AM_IK_0008	Describes the causes, pathophysiology and management of obstructive sleep apnoea and the surgical procedures used to treat it [Cross Ref; ENT]
CAI_AM_IK_0009	Outline appropriate follow up of an unexpected difficult intubation
CAI_AM_IK_0010	Discuss the risks and benefits of using various supraglottic airways for IPPV
CAI_AM_IK_0011	Describes the airway management of a patient undergoing one-lung ventilation and anaesthesia, including placement of double lumen endobronchial tubes and bronchial blockers [Cross Ref; cardiothorcics]
CAI_AM_IK_0012	Describes the safe use of equipment and airways devices used for surgery on and below the vocal chords, including bronchoscopes, Venturi devices and fibre-optic scopes [Cross Ref; ENT]
CAI_AM_IK_0013	Describes the principles of jet ventilation [Cross Ref; ENT]
CAI_AM_IK_0014	Recalls the principles underlying the use of helium [Cross Ref; ENT]

Critical incidents

Demonstrate knowledge and skills to manage critical incidents as outlined in the Membership CAI Syllabus as well as more complex incidents.

Day surgery

Objectives: The candidate will be expected to demonstrate knowledge and skills:

- to provide appropriate anaesthetic management for selected ASA 3 patients including insulin-dependent diabetics and patients with a BMI >35
- of the organisational aspects of running a day surgery unit

Core objectives: The candidate will be expected to demonstrate knowledge and skills to:

- Deliver safe perioperative anaesthetic care to ASA 1-3 patients having more extensive or specialized day surgery procedures

Knowledge	*Description*
CAI_DS_IK_0001	Describes the key organisational issues surrounding day surgery including suitability of facilities and staffing
CAI_DS_IK_0002	Provides a clear explanation of current local and national guidelines for provision of day surgical services
CAI_DS_IK_0003	Demonstrates knowledge of audit and other quality assurance activities relevant to day surgery
CAI_DS_IK_0004	Demonstrates knowledge of advances and controversies in anaesthesia for day surgery

General, urological and gynaecological surgery

Objectives: The candidate will be expected to demonstrate:

- knowledge of the anaesthetic management of patients with transplanted organs for non-transplant surgery
- knowledge and skills of the perioperative anaesthetic care of patients requiring major general urological and gynaecological surgery, including the immediate management of major blood loss

Core objectives: The candidate will be expected to demonstrate knowledge and skills to:

- Deliver safe perioperative anaesthetic care to complex ASA 1-3 adult patients requiring elective and emergency intra-abdominal surgery [both laparoscopic and open]
- Manage a list with complex ASA 1-3 adult patients for elective and emergency surgery in all disciplines

Knowledge	*Description*
CAI_GU_IK_0001	Recalls/describes the principles off the peri-operative management of the commoner complex cases including, but not exclusively: • Pancreatic and liver resection • Oesophagectomy [including one lung ventilation] • Resection of neuroendocrine tumours [e.g. carcinoid and phaeochromocytoma] • Splenectomy • Resection of retroperitoneal masses [including management of pleural breach]
CAI_GU_IK_0002	Explains the effects of chemotherapy/radiotherapy, and the implications for anaesthesia
CAI_GU_IK_0003	Recalls/describes the anaesthetic considerations of co-existing diseases including problems such as spinal injury
CAI_GU_IK_0004	Recalls/ describes the ethical considerations of cadaveric and live-related organ donation for the donor [and relatives], recipient and society as a whole
CAI_GU_IK_0005	Describes the issues of anaesthesia for renal transplant surgery
CAI_GU_IK_0006	Explains the anaesthetic management of patients with transplanted organs for non-transplant surgery
CAI_GU_IK_0007	Recalls/explains the anaesthetic complications related to disturbance of fluid balance, oedema, and dehydration

Knowledge	*Description*
CAI_GU_IK_0008	Recalls/describes the anaesthetic implications of bariatric surgery
CAI_GU_IK_0009	Recalls/describes the principles of enhanced recovery programmes
CAI_GU_IK_0010	Recalls / describes the rationale and principles of perioperative haemodynamic management and optimisation
CAI_GU_IK_0011	Recalls / describes the principles of preoperative evaluation of patients at risk of post-operative morbidity, including risk stratification tools, for example scoring systems and measures of functional capacity [including cardiopulmonary exercise testing]
CAI_GU_IK_0012	Discusses the importance of the timing of non-elective surgery and the effect that this may have on the delivery of 'emergency surgery'

ENT, maxillo-facial and dental surgery

Objectives: The candidate will be expected to demonstrate knowledge and skills:

- Of the safe perioperative anaesthetic care of patients undergoing major elective and emergency surgery for ENT, maxilla-facial and dental procedures.
- To be able to recognise the specific problems encountered with the 'shared airway' and their correct management

Core objectives*: The candidate will be expected to demonstrate knowledge and skills to*

- Deliver safe perioperative anaesthetic care to ASA 1-3 adult patients requiring routine and emergency non-complex minor/intermediate ENT and maxillo-facial surgery.

Knowledge	*Description*
CAI_EN_IK_0001	Explains the special requirements of anaesthesia for all common procedures encountered in specialised head and neck surgery
CAI_EN_IK_0002	Recalls/explains the principles of anaesthesia for middle ear surgery, including use of TIVA and hypotensive techniques
CAI_EN_IK_0003	Explains the principles of management of anaesthesia for major head and neck surgery and: • Recalls/describes the pathophysiological changes and co-morbidities associated with head and neck cancer • Identifies the particular requirements for acute maxillo-facial emergencies e.g. fractured mandible, intra-oral abscesses and other pathological causes of upper airway obstruction
CAI_EN_IK_0004	Recalls/describes the causes, pathophysiology and management of obstructive sleep apnoea and the surgical procedures used to treat it [Ref; AM_IK_08]

CAI_EN_IK_0005	Recalls/describes the characteristics of the lasers used for surgery and the circumstances in which they are used
CAI_EN_IK_0006	Recalls the hazards of laser surgery
CAI_EN_IK_0007	Recalls/describes the specialised airway techniques used for laser surgery in, or near, the airway
CAI_EN_IK_0008	Describes the safe use of equipment and airways devices used for surgery on and below the vocal chords, including bronchoscopes, Venturi devices and fibre-optic scopes
CAI_EN_IK_0009	Explains the use of specialised imaging techniques [CT, MRI] in planning anaesthesia and surgery for head and neck surgery
CAI_EN_IK_0010	Lists the problems associated with chair dental procedures including consent, the specific needs of patients with learning disabilities, Child Protection (Children First Guidelines, Child Care Act, 1991 Child Care Amendment Act 2007) (Cross ref Paediatrics)
CAI_EN_IK_0011	Explains the principles of the recognition and appropriate management of acute ENT emergencies, including bleeding tonsils, epiglottis, croup, and inhaled foreign body
CAI_EN_IK_0012	Describes appropriate emergency management of fractures of the face including le Fort fractures and fractures of the mandible
CAI_EN_IK_0013	Describes the emergency management of the obstructed airway including tracheostomy
CAI_EN_IK_0014	Recalls the indications for tracheostomy
CAI_EN_IK_0015	Describes the principles of the care of the tracheostomy
CAI_EN_IK_0016	Recalls/explains the principles of jet ventilation
CAI_EN_IK_0017	Recalls/explains the principles underlying the use of helium

Management of respiratory and cardiac arrest in adults and children

Objectives: The candidate will be expected to demonstrate knowledge and skills

- necessary to safely and effectively manage patients in the peri-arrest period in accordance with the latest Irish Heart Foundation/ American Heart Association(October 2010) guidelines

Knowledge	*Description*
CAI_RC_IK_0001	Recalls/describes the interpretation of arrhythmias seen in the peri-arrest period, including but not limited to: • Narrow complex tachycardias • Broad complex tachycardias • Atrial fibrillation • Paroxysmal SVT • Bradycardia • 1st 2nd and 3rd degree heart block
CAI_RC_IK_0002	Recalls/describes the pharmacology of drugs used to treat common arrhythmias, dosage and frequency, including but not limited to: • Adenosine • Digoxin • Magnesium • Beta-blockers • Amiodarone • Atropine
CAI_RC_IK_0003	Recalls the indications for performing cardioversion and the energies used
CAI_RC_IK_0004	Recalls/outlines the indication for, and principles of, pacing including percussion, external and transvenous

Knowledge	*Description*
CAI_RC_IK_0005	Recalls the indications for use of thrombolysis
CAI_RC_IK_0006	Recalls/discusses the indications and principles of therapeutic hypothermia after cardiac arrest
CAI_RC_IK_0007	Outlines indications and principles of: • Open chest cardiac compressions • Resuscitative thoracotomy [Cross ref cardiothoracic]
CAI_RC_IK_0008	Describes the principles of managing cardiac arrest in the prone position
CAI_RC_IK_0009	Recalls/explains the difference in aetiology of cardiac arrest between adults and children
CAI_RC_IK_0010	Describes how to recognize the sick/deteriorating ill child and what treatment should be initiated to reverse such deterioration and prevent, where possible, respiratory or cardiac arrest
CAI_RC_IK_0011	Recalls the specific conditions likely to deteriorate to respiratory or cardiac arrest in children [e.g. meningococcal sepsis] and describes their initial management
CAI_RC_IK_0012	Recalls/details the indications for, and use of, cuffed and uncuffed tubes in the critically ill child requiring tracheal intubation
CAI_RC_IK_0013	Describes how to: • Recognise supra-glottic airway obstruction and understands the indications/contra-indications of supra-glottic airway devices to bypass such obstruction • Manage complications of tracheostomy in children [e.g. obstruction and displacement]
CAI_RC_IK_0014	Outline the principles of safe inter-hospital transfer of the resuscitated patient

Non-theatre

Core objectives: The candidate will be expected to demonstrate knowledge and skills:

- To deliver safe peri-procedure anaesthesia/sedation to adult patients outside the operating theatre, but within a hospital setting, for painful or non-painful therapeutic procedures

Knowledge	*Description*
CAI_DI_IK_0001	Describes, and critically evaluates, the different techniques of anaesthesia/sedation for adults and children for procedures that may take place outside the operating theatre, but within a hospital setting, either diagnostic or therapeutic for both elective and emergency procedures, including but not exclusively in the following settings: X-Ray, CT scan, Angiography, MRI scan, Radiotherapy, [ECT]
CAI_DI_IK_0002	Explains the indications/contraindications of sedation for patients in the non-theatre environment [Cross Ref sedation]
CAI_DI_IK_0003	Explains the problems of providing safe post- anaesthetic care for patients in the out of theatre environment
CAI_DI_IK_0004	Recalls/discusses the unique safety precautions required in each of the environments, particularly MRI
CAI_DI_IK_0005	Describes the specific physical and physiological effects of ECT
CAI_DI_IK_0006	Explains the rationale behind the choice of anaesthetic technique for ECT
CAI_DI_IK_0007	Discusses the physical and psychological needs of patients who present for ECT
CAI_DI_IK_0008	Discusses the place of the Mental Capacity Act in relation to the provision of ECT
CAI_DI_IK_0009	Describes common interventional procedures and their pathophysiological consequences
CAI_DI_IK_0010	Describes the anaesthetic management of patients for endovascular procedures [Cross Ref vascular]
CAI_DI_IK_0011	Describes the anaesthetic management of patients for neurological procedures [Cross Ref neuro]

Orthopaedic surgery

Objectives: The candidate will be expected to demonstrate:

- Build on the knowledge, understanding and skills gained in Basic Level training
- Knowledge and skills of the perioperative anaesthetic care of patients requiring major spinal and pelvic orthopaedic surgery

Core objectives*: The candidate will be expected to demonstrate knowledge and skills to:*

- Deliver safe perioperative anaesthetic care to complicated ASA 1-3 adult patients for all elective and emergency orthopaedic/trauma surgery as well as those requiring lower limb primary joint replacement surgery

Knowledge	*Description*
CAI_OR_IK_0001	Explains the difference in anaesthetic and surgical complexity between primary and secondary lower limb arthroplasty
CAI_OR_IK_0002	Recalls/describes the principles of perioperative anaesthetic care for elective and emergency spinal surgery including but not exclusively: • Scoliosis surgery including the need for, and implications of, neurophysiological monitoring • Spinal trauma and the associated complications of spinal cord trauma
CAI_OR_IK_0003	Recalls/describes the principles of perioperative anaesthetic care for pelvic bone and joint surgery
CAI_OR_IK_0004	Recalls/discusses blood conservation strategies that are used in orthopaedic surgery

Regional

Core objectives: The candidate will be expected to demonstrate knowledge of and skills to:

Perform each of the following blocks

- Thoracic epidural, combined spinal/epidural
- An upper/lower limb plexus block with peripheral nerve stimulation or ultrasound guidance

Knowledge	*Description*
CAI_RA_IK_0001	Demonstrates understanding of basic sciences as applied to all regional anaesthetic blocks [Cross reference applied basic sciences]
CAI_RA_IK_0002	Recalls/discusses advantages and disadvantages, techniques and complications [including management] of a wide variety of blocks including, but not exclusively, major peripheral blocks of the limbs, some cranial nerve blocks and blocks used to treat chronic pain conditions [Cross ref pain medicine]
CAI_RA_IK_0003	Demonstrates understanding in the choice of local anaesthetic agents, opioids, use of additives and techniques of administration
CAI_RA_IK_0004	Outlines the principles of continuous catheter techniques for peripheral nerve blockade and for postoperative analgesia
CAI_RA_IK_0005	Demonstrates an in-depth understanding of the principles of ultra sound guided nerve blocks including: • The principles of scanning including machine ergonomics, probe selection/handling and the use of acoustic couplant [ultrasound gel] to improve skin contact • The importance of the angle of insonation on visibility of structures [anisotropy] specifically related to nerves and tendons • The normal sonoanatomy of peripheral nerves and surrounding structures • The basic concepts of needling techniques relating to ultrasound guidance (in plane / out of plane) • Understanding and recognition of spread of local anaesthetic under ultrasound guidance, distinction between normal intraneural and intravascular injection

Sedation

Objectives: The candidate will be expected to demonstrate knowledge and skills:

- Builds on the knowledge, understanding and clinical skills in sedation developed in basic level training
- to discuss where and when deeper levels of sedation may be indicated
- to deliver pharmacological sedation to patients of all ages, safely and effectively, whilst recognising their own limitations

Minimum objectives: The candidate will be expected to demonstrate knowledge and skills:

- To recognise the important principal of minimum intervention, where the simplest and safest technique which is likely to be effective is used to achieve the clinical goal
- To provide safe and effective sedation to any adult patient using multiple drugs if required

Competence	*Description*
CAI_CS_IK_0001	Explains what is meant by 'deep sedation' and when its use may be justifiable, identifies the associated risks and how these may be minimised to ensure patient safety is not compromised [Cross Ref sedation]
CAI_CS_IK_0002	Discusses how multiple drug use may enhance sedation techniques, whilst detailing how this increases risks
CAI_CS_IK_0003	Explains why it is essential to titrate multiple drugs [sedatives, analgesics and anaesthetic agents] to effect whilst recognising that the possibility of differing times of onset, peak effect and duration, can result in unpredictable responses
CAI_CS_IK_0004	Discusses the place of infusions compared to bolus doses as well as target-controlled infusions [TCI], and the pharmacological models and pump technology relevant to their use
CAI_CS_IK_0005	Discusses options for 'alternative' route of delivery of drugs used for conscious sedation including intra-nasal and rectal
CAI_CS_IK_0006	Discusses the unpredictable nature of sedation techniques in the 'extremes of life' and strategies for safe delivery [cross ref paeds]

Transfer medicine

Objectives: The candidate will be expected to demonstrate knowledge and skills

- to provide clinical care to patients requiring transfer, including those for **inter**-hospital transfer

Core objectives: The candidate will be expected to demonstrate knowledge and skills

- To deliver safe and efficient transfer of:

Complex patients for intra-hospital including retrieving a newly referred ITU patient from A&E or the wards

An uncomplicated ventilated patient for inter-hospital transfer by land [Less than 4 hours]

Knowledge	*Description*
CAI_TF_IK_0001	Explains the risks/benefits of Interhospital patient transfer
CAI_TF_IK_0002	Explains the concept of primary/secondary/tertiary transfer
CAI_TF_IK_0003	Outlines the hazards associated with Interhospital transfer, including but not limited to physical, psychological and organisational
CAI_TF_IK_0004	Describes the increased risks to critically ill patients of transfer and the reasons for these risks
CAI_TF_IK_0005	Outlines strategies to minimise risk during Interhospital transfer, including but not limited to: o Stabilisation o Pre-emptive intervention o Sedation o Monitoring o Packaging o Choice of mode of transfer
CAI_TF_IK_0006	Explains how critical illness affects the risk of transfer
CAI_TF_IK_0007	Explains how time-critical elements may influence risks to the patient and transfer personnel and how these should be managed to reduce them
CAI_TF_IK_0008	Understands the increased risk of interventions during Interhospital transfer
CAI_TF_IK_0009	Outlines the specific considerations for transfer of patients with specific clinical conditions, including but not

Knowledge	*Description*
	limited to: o head, spinal, thoracic and pelvic injuries o critically ill medical patients o burns o children o pregnant women
CAI_TF_IK_0010	Lists and explains the critical care equipment used during transfer including but not exclusively: • Ventilators • Infusion pumps • Monitoring
CAI_TF_IK_0011	Lists the different modes of ventilation and explains the selection of appropriate parameters in e.g. Asthma/COPD and ARDS
CAI_TF_IK_0012	Outlines the different modes of transport available for inter-hospital transfer, including risks/benefits
CAI_TF_IK_0013	Understand the safety implications of electrical and hydraulic equipment that may be used during patient transfer
CAI_TF_IK_0014	Recalls/describes the physiological effects of transport including the effects of acceleration and deceleration, including Newton's laws of motion
CAI_TF_IK_0015	Understands the effects of high ambient noise on patients and alarm status
CAI_TF_IK_0016	Recalls/discusses the reasons for patients becoming unstable during transfer and strategies for management
CAI_TF_IK_0017	Recalls/describes how to manage patients who develop sudden airway difficulties whilst in transit [both in the intubated and un-intubated patient]
CAI_TF_IK_0018	Outlines the ethical issues related to patient transfer, including the need to brief patients and their relatives
CAI_TF_IK_0019	Awareness of the laws relating to deaths in transit
CAI_TF_IK_0020	Outlines how to find and use the national register of critical care beds
CAI_TF_IK_0021	Outlines the regional protocols for organising transfers between units
CAI_TF_IK_0022	Outlines the importance of maintaining communications between the transfer team and the base/receiving units
CAI_TF_IK_0023	Outlines the roles and responsibilities of all staff accompanying the patient during transfer including the ambulance technicians and paramedics

Knowledge	*Description*
CAI_TF_IK_0024	Describes the personal equipment needed when leading a transfer, especially when a prolonged journey is anticipated
CAI_TF_IK_0025	Discusses the importance of auditing practice and reporting critical incidents that arise during Interhospital transfer and the need for appropriate research

Trauma and stabilisation

Objectives: The candidate will be expected to demonstrate knowledge and skills

- to provide clinical care to patients with multiple injuries
- how to manage massive blood loss in the multiply injured patient with an associated head injury
- of the problems associated with trauma and: severe burns; electrical injuries; drowning/near drowning; hypothermia

Core objectives: The candidate will be expected to demonstrate knowledge and skills to

- Be an effective member of the multi-disciplinary trauma team and takes responsibility for the initial airway management of the multiply injured patient
- Be able to manage acute life-threatening airway problems safely and effectively
- Provide safe perioperative anaesthetic care [from arrival in the Emergency Department through to post-operative discharge to the ward from recovery ***or*** intensive care] for ASA 1-3 patients with multiple injuries with distant supervision, whilst demonstrating understanding of knowing when to seek senior help

Knowledge	*Description*
CAI_MT_IK_0001	Recalls/describes the complex pathophysiological changes that occur in all patients [including children] with multiple injuries
CAI_MT_IK_0002	Describes the perioperative anaesthetic management of patients with multiple injuries including head, facial, neck/spinal, thoracic, abdominal, pelvic and peripheral trauma
CAI_MT_IK_0003	Explains the reasons for, and benefits of, the hospital triage of trauma patients and the scoring systems used
CAI_MT_IK_0004	Describes strategies for minimising secondary brain injury in patients with multiple injures
CAI_MT_IK_0005	Describes the initial assessment, management and resuscitation of patients with: • Severe burns • Electrical injuries • Drowning and near drowning • Hypothermia

Knowledge	*Description*
CAI_MT_IK_0006	Recalls/explains the management of massive blood loss including the use of rapid infusion devices
CAI_MT_IK_0007	Explains the implications, prevention and management of coagulopathy, hypothermia and acidosis in multiply injured patients
CAI_MT_IK_0008	Describes the management of children with multiple injuries, comparing and contrasting with that of adults [cross reference paediatric anaesthesia]
CAI_MT_IK_0009	Describes the specific ethical and ethnic issues associated with managing the multiply injured patient, including issues that relate to brain stem death and organ donation
CAI_MT_IK_0010	Discusses the indications and contraindications of regional anaesthesia and peripheral nerve blocks in multiply injured patients for the provision of analgesia, both initially and perioperatively
CAI_MT_IK_0011	Discusses the principles of clinical management for stabilisation of patients with multiple injuries requiring inter-hospital transfer strategies used, how safe transfer is undertaken, monitoring requirements and the options for modes of transfer [cross ref Transfer]

Knowledge	*Description*
CAI_MT_IS_0004	Demonstrates safe perioperative anaesthetic management of patients with multiple injuries requiring early surgery, including the management of major blood loss and associated coagulopathy, hypothermia and acidosis
CAI_MT_IS_0005	Demonstrates correct preparation of patients for safe transfer including ensuring adequate resuscitation, appropriate accompanying personnel and the use of checklists
CAI_MT_IS_0006	Demonstrates safe inter-hospital transfer of stable trauma patient[s], including those with brain injury, whilst also ensuring the safety of accompanying personnel
CAI_MT_IS_0007	Demonstrates the ability to interpret imaging relevant to the primary survey

Intensive care medicine

Objectives:

The candidate will be expected to demonstrate knowledge and skills:

- To recognise and manage the factors which may lead to deterioration in sick patients
- To undertake post-resuscitation management and be able to manage the initial resuscitation of more complex specialist patients.
- to understand the pathology, clinical features and prognosis of the majority of problems presenting to ICU, and be able to initiate management of them.
- To be able to appropriately request and interpret investigations such as CT, ultrasound, and microbiology.
- To be able to make a critical appraisal of the evidence for treatment and investigations.
- To appreciate that ICUs are complex systems which require management and leadership skills.
- To plan care for the next 24 hours.

Knowledge	*Description*
	Domain 1: Resuscitation and initial management of the acutely ill patient
CAI_IC_IK_0105	Demonstrates knowledge of assessement and initial management of the trauma patient
CAI_IC_IK_0106	Demonstrates knowledge of assessement initial management of the patient with burns
	Domain 2: Diagnosis, Assessment, Investigation, Monitoring and Data Interpretation
	See basic knowledge competences in Membership CAI Syllabus
	Domain 3: Disease Management
CAI_IC_IK_0311	Recognises and demonstrates knowledge of management of life-threatening maternal peripartum complications
	Domain 4: Theraputic interventions/Organ system support in single or multiple organ failure
CAI_IC_IK_0407	Demonstrates knowledge of Initiation, management and weaning patients from renal replacement therapy
	Domain 5: Practical procedures
CAI_IC_IK_0503	Describe difficult and failed airway management according to local protocols
CAI_IC_IK_0512	Demonstrates knowledge of transthoracic cardiac pacing (including transvenous approach)
	Domain 6: Peri-operative care

CAI_IC_IK_0603	Demonstrates knowledge of the management of the patient following craniotomy
CAI_IC_IK_0605	Demonstrates knowledge of the management of pre- and post-operative care of the trauma patient
	Domain 8: End of life care
CAI_IC_IK_0801	Discusses the process of withholding or withdrawing treatment with the multidisciplinary team
CAI_IC_IK_0803	Demonstrates knowledge of the management of palliative care of the critically ill patient
CAI_IC_IK_0804	Describes brain-stem death testing
CAI_IC_IK_0805	Describes the management of the physiological support of the organ donor
	Domain 9: Paediatric Care
CAI_IC_IK_0901	Describes the recognition of the acutely ill child and initial management of paediatric emergencies
CAI_IC_IK_0902	Describes national legislation and guidelines relating to child protection and their relevance to critical care
	Domain 10: Transport
CAI_IC_IK_1001	Discusses transport of the mechanically ventilated critically ill patient outside the ICU
	Domain 12: Professionalism
CAI_IC_IK_1204	Demonstrates knowledge of involvement of patients (or their surrogates if applicable) in decisions about care and treatment

Obstetrics

Core objectives: The candidate will be expected to demonstrate knowledge and skills:

- to provide emergency and non-emergency obstetric anaesthetic care in the majority of patients including those with co-morbidities and obstetric complications
- to perform immediate resuscitation of acute obstetric emergencies

Knowledge	*Description*
CAI_OB_IK_0001	Recalls/describes the influence of common concurrent medical diseases on pregnancy
CAI_OB_IK_0002	Discusses the obstetric and anaesthetic management of a premature delivery
CAI_OB_IK_0003	Discusses the obstetric and anaesthetic management of multiple pregnancy
CAI_OB_IK_0004	Explains the classification of placenta praevia and the associated risk to the patient
CAI_OB_IK_0005	Recalls/describes the recognition and management of amniotic fluid embolus
CAI_OB_IK_0006	Describes the recognition and management of inverted uterus
CAI_OB_IK_0007	Demonstrates understanding of the methods of treating post dural puncture headache
CAI_OB_IK_0008	Discusses common causes of maternal morbidity and mortality, including national reports
CAI_OB_IK_0009	Discusses the particular sensitivity of patient choices in obstetric practice – even when this is not in line with accepted

Paediatrics

Objectives: The candidate will be expected to demonstrate knowledge and skills to:

- of the anaesthetic needs of children and neonates
- of the potential hazards associated with paediatric anaesthesia and have obtained practical skills in the management of such events

Core objectives:

- Deliver safe perioperative anaesthetic care to ASA 1 and 2 children aged 5 years and over for minor elective and emergency surgery (e.g. inguinal hernia repair, orchidopexy, circumcision, superficial plastic surgery, grommets, manipulation of fractures, appendicectomy) with distant supervision

Knowledge	*Description*
CAI_PA_IK_0001	Recalls/explains the relevance of the knowledge of applied basic sciences to all age groups including neonates
CAI_PA_IK_0002	Recalls/explains the implications of paediatric medical and surgical problems including major congenital abnormalities (eg tracheoesophageal fistula, diaphragmatic hernia,) congenital heart disease and syndromes eg Down's for anaesthesia
CAI_PA_IK_0003	Recalls/explains the adverse effects of starvation and hypoglycaemia in neonates and children
CAI_PA_IK_0004	Recallss the specific factors in preoperative assessment and preparation of neonates for surgery
CAI_PA_IK_0005	Describes special anaesthetic techniques for neonates
CAI_PA_IK_0006	Explains the difficulty of thermoregulation in the newborn and the measure required to prevent hypothermia
CAI_PA_IK_0007	Explains the law as relates to children in respect of Consent, Restraint and Research and the concept of 'Gillick competence'
CAI_PA_IK_0008	Describes the anaesthetic management of neonates and infants for minor operations, major elective and emergency surgery

Knowledge	*Description*
CAI_PA_IK_0009	Calculates the analgesic requirements of neonates and infants
CAI_PA_IK_0010	Describes the specific anaesthetic and monitoring equipment required for neonates
CAI_PA_IK_0011	Lists common anaesthetic problems in the neonatal period and explains their perioperative anaesthetic management [e.g. inguinal hernia, intestinal obstruction, pyloric stenosis]
CAI_PA_IK_0012	Describes the special problems of the premature and ex-premature neonate
CAI_PA_IK_0013	Explains the importance of a comprehensive knowledge of Child Protection and how to be responsible for taking appropriate action when non-accidental injury is suspected
	Immediate Care
CAI_PA_IK_0014	Recalls/explains how to recognise the critically ill child with e.g. sepsis, trauma, convulsions, diabetic emergencies and describes their timely management
CAI_PA_IK_0015	Explains the principles of stabilisation and safe transport of critically ill children and babies

Pain medicine

Objectives: The candidate will be expected to demonstrate knowledge and skills:

- To be fully competent in the assessment and management of acute surgical and non surgical and acute on chronic pain in most patient groups and in most circumstances
- To be an effective member of the acute pain team
- of the assessment, management and wider treatment options for chronic and cancer pain in adults
- of the need for multi-professional input and to embrace this in the management of chronic and cancer pain

Core objectives*:* The candidate will be expected to demonstrate knowledge and skills:

- To be competent in the assessment and management of acute surgical and non-surgical pain in most patient groups and circumstances
- To be an effective member of the acute pain team
- To understand the importance of managing acute or chronic pain in a timely manner
- To have knowledge of assessment and management of chronic and cancer pain

Knowledge	*Description*
CAI_PM_IK_0001	Describes the assessment and management of acute pain in all types of surgery
CAI_PM_IK_0002	Describes the assessment and management of acute non surgical pain
CAI_PM_IK_0003	Describes the assessment and management of acute pain in special groups to include children, infants, the older person, the cognitive impaired, those with communication difficulties, the unconscious and critically ill patient
CAI_PM_IK_0004	Describes the basic assessment and management of chronic pain in adults
CAI_PM_IK_0005	Describes the basic assessment and management of cancer pain in adults
CAI_PM_IK_0006	Recalls advanced pharmacology of drugs used to manage pain including neuropathic pain
CAI_PM_IK_0007	Explains the rationale for the use of opioids in the management of chronic non malignant pain
CAI_PM_IK_0008	Describes the requirement for the multidisciplinary management of chronic pain

Ophthalmic

Objectives: The candidate will be expected to demonstrate knowledge and skills:

- of the perioperative anaesthetic care of patients undergoing ophthalmic surgery
- Of the rationale behind the choice of local or general anaesthesia for common ophthalmic procedures

Core objectives: The candidate will be expected to demonstrate knowledge and skills:

- Deliver safe perioperative anaesthetic care to adults and children requiring routine ophthalmic surgery under direct supervision, and emergency anaesthesia for ASA 1 and 2 patients requiring minor/ intermediate ophthalmic surgery under distant supervision
- provide local anaesthesia for eye surgery

Knowledge	*Description*
CAI_OP_IK_0001	Discusses the preoperative assessment of ophthalmic patients with particular reference to associated co-morbidities and how the care of high risk patients requiring ophthalmic surgery may be optimised
CAI_OP_IK_0002	Recognises that a relatively large proportion of patients requiring ophthalmic surgery are elderly and understands their particular needs including, but not exclusively, the effects of physiological changes associated with ageing and altered pharmacological responses
CAI_OP_IK_0003	Recalls/discusses the choice of local or general anaesthetic techniques in relation to the patient and surgery including their advantages, disadvantages and indications with particular reference to some or all of the following: • Cataract surgery • Strabismus surgery • Glaucoma surgery • Vitreoretinal surgery • Oculoplastic surgery
CAI_OP_IK_0004	Recalls/describes the oculocardiac reflex, its treatment and prevention
CAI_OP_IK_0005	Recalls/describes the action of anaesthetic drugs on the eye
CAI_OP_IK_0006	Recalls the physiological mechanisms which control intraocular pressure

CAI_OP_IK_0007	Recalls/discusses the drugs which may alter intraocular pressure
CAI_OP_IK_0008	Knowledge of precautions required for revision surgery in patients who have had a previous injection of intraocular gas
CAI_OP_IK_0009	Recalls/discusses the choice of techniques of anaesthesia for patients with penetrating eye injury
CAI_OP_IK_0010	Describes the operating conditions required for successful outcomes in ophthalmic surgery and how these can be achieved
CAI_OP_IK_0011	Recalls/discuses the special requirements of children undergoing ophthalmic surgery
CAI_OP_IK_0012	Describes the advantages and disadvantages of sedation techniques for ophthalmic procedures
CAI_OP_IK_0013	Outlines the safety precautions required during the use of lasers in ophthalmic surgery
CAI_OP_IK_0014	Recalls relevant applied anatomy required for insertion of local anaesthetic blocks for ophthalmic surgery [Cross reference applied basic sciences]
CAI_OP_IK_0015	Recalls/describes the techniques of local anaesthesia available for ophthalmic surgery including their advantages, disadvantages and indications with particular reference to: • Topical anaesthesia: local anaesthesia drops • Superficial injection anaesthesia: subconjunctival block • Needle blocks: extraconal [peribulbar] and intraconal [retrobulbar] injections • Canular blocks: sub-tenon's anaesthesia
CAI_OP_IK_0016	Recalls/describes the risks associated with needle blocks
CAI_OP_IK_0017	Awareness of the national guidelines regarding local anaesthesia for intraocular surgery
CAI_OP_IK_0018	Awareness of specific risk of wrong-site surgery when operating on paired organs such as the eyes
CAI_OP_IK_0019	Outlines the specific factors in the postoperative care of patients who have had ophthalmic surgery

Plastics/burns

Objectives: The candidates will be expected to demonstrate knowledge and skills

- of the initial resuscitation and management of a patient with severe burns prior to transfer to a specialist centre
- of the specific requirements of anaesthesia for burns and plastic surgery including the principles of safe perioperative anaesthetic care to patients for a wide range of surgical procedures undertaken by plastic surgeons [to include microsurgery and free-flap reconstructive techniques]

Core objectives: The candidate will be expected to demonstrate knowledge and skills to

- deliver safe perioperative anaesthetic care to ASA 1-3 adult patients for minor to intermediate plastic surgery [e.g. tendon repair or split skin grafting]

Knowledge	*Description*
CAI_PL_IK_0001	Can explain the specific features of preoperative assessment of patients for major plastic surgery procedures
CAI_PL_IK_0002	Explains and critically evaluates anaesthetic techniques appropriate for plastic surgical procedures including major reconstructive cases procedures
CAI_PL_IK_0003	Explains the factors affecting tissue blood flow with respect to free-flap surgery
CAI_PL_IK_0004	Describes methods for improving blood flow to the surgical field during plastic surgery
	Burns
CAI_PL_IK_0005	Describes the pathophysiology of burn injury including thermal airway injury and smoke inhalation
CAI_PL_IK_0006	Describes the initial assessment and management of a patient with severe burns, including electrical & chemical burns
CAI_PL_IK_0007	Explains the principles of anaesthetic management of burns patients for surgery including dressing changes, grafting and related procedures

Vascular surgery

Core objectives: The candidate will be expected to demonstrate knowledge and skills

- of the perioperative anaesthetic management of patients undergoing elective and emergency abdominal aortic surgery and newer stenting techniques

Knowledge	*Description*
CAI_VS_IK_0001	Recalls/describes the cardiovascular physiology and pharmacology relevant to perioperative vascular surgery
CAI_VS_IK_0002	Lists the methods of assessment of the patient's functional cardiovascular capacity
CAI_VS_IK_0003	Explains the preoperative management of the patient with atherosclerotic disease
CAI_VS_IK_0004	Describes the perioperative management of the patient for major vascular surgery
CAI_VS_IK_0005	Describes the resuscitation and management of major vascular accidents including the management of ruptured aortic aneurysms
CAI_VS_IK_0006	Explains the management of patients for endovascular radiological procedures [e.g. Stenting] including anaesthesia in isolated locations [Cross reference non-theatre anaesthesia]
CAI_VS_IK_0007	Describes the management of elective carotid artery surgery with general or regional anaesthesia
CAI_VS_IK_0008	Explains the principles and anaesthetic implications of sympathectomy, including thoracoscopic procedures
CAI_VS_IK_0009	Describes the postoperative management and critical care of vascular patients
CAI_VS_IK_0010	Explains the effects of smoking on health
CAI_VS_IK_0011	Recalls/describes the morbidity and mortality associated with vascular surgery
CAI_VS_IK_0012	Recalls/explains the principles of blood conservation and red cell salvage when major haemorrhage is predicted
CAI_VS_IK_0013	Recalls the pathophysiology of aortic cross-clamping and of renal protection strategies

Advanced sciences to underpin anaesthetic practice

Objectives: The candidate will be expected to demonstrate

- Increased depth of knowledge of the basic sciences as outlined in the Part One Syllabus
- Deeper understanding of the clinical application of knowledge of biochemistry, pharmacology, physics and physiology to anaesthetic practice at an intermediate level and to support progress to higher training.
- anatomical knowledge to ensure safe performance of practical procedures throughout the whole range of anaesthetic practice**.**
- Knowledge and understanding of the sources and limitations of individual measurements in clinical assessment and monitoring.
- Knowledge and understanding of the statistical fundamentals upon which most clinical research is based

ANATOMY	*Demonstrate knowledge and understanding of :*
	Description
CAI_AN_IK_0001	Relevant anatomy for understanding of surgical procedures
CAI_AN_IK_0002	Anatomy relevant to acute and chronic pain management, including the whole range of neural blockade techniques outlined in the pain management section of the intermediate syllabus
CAI_AN_IK_0003	Anatomy relevant to the whole range of practical procedures outlined in the intensive care medicine section of the intermediate syllabus
CAI_AN_IK_0004	Anatomy relevant to the regional anaesthetic techniques [central and peripheral blocks, including ophthalmic] as outlined in the regional anaesthesia section of the intermediate syllabus; includes anatomy as visualised using ultrasound imaging during regional anaesthesia
CAI_AN_IK_0005	Anatomy of the airway including anatomical knowledge relevant to the performance of fibre-optic intubation
CAI_AN_IK_0006	Anatomy of the central veins and adjacent structures as visualised using ultrasound imaging
CAI_AN_IK_0007	Anatomy relevant to the avoidance of injury to patients due to posture and positioning during anaesthesia
CAI_AN_IK_0008	Anatomical changes that occur during development from neonate to older child
CAI_AN_IK_0009	Maternal and fetal anatomy relevant to the practice of obstetric anaesthesia
CAI_AN_IK_0010	Anatomy relevant to the practice of neuroanaesthesia including anatomy of the skull, skull base, CSF circulation and cerebral blood flow

	Applied clinical pharmacology
	Demonstrate knowledge and understanding of :
	Description
CAI_PR_IK_0001	Analgesia: principles of analgesia including infusions, patient controlled analgesia; medications for chronic pain including antidepressants, anticonvulsants, antiarrhythmics; routes of administration including oral; sublingual; subcutaneous, IM; IV; inhalational analgesia, patient controlled analgesia, epidural; agents used for regional techniques and local blocks
CAI_PR_IK_0002	Management of acute poisoning: including aspirin; paracetamol; opioids; aminophylline; digoxin; ecstasy and other social drugs; antidepressants; alcohol
CAI_PR_IK_0003	Drug toxicity, causes and avoidance. Management of malignant hyperthermia. Potential risks of drug additives
CAI_PR_IK_0004	Pharmacokinetics. Including target controlled infusions and effects of renal and/or hepatic impairment on drug disposition
CAI_PR_IK_0005	Cardiovascular System: principles and use of inotropes and vasodilators, including pulmonary vasodilators; pharmacological problems in cardiopulmonary bypass, cardioplegia; Management of arrhythmias
CAI_PR_IK_0006	Use of drugs in the management of cardiogenic shock and cardiac failure
CAI_PR_IK_0007	Management of hypertension before anaesthesia, including acute management and phaeochromocytoma. Manipulation of blood pressure to assist surgery
CAI_PR_IK_0008	Antibiotics: principles of action; choice of drug. Antibiotic prophylaxis against surgical infection including subacute bacterial endocarditis. Therapy of bacterial, fungal and viral infections
CAI_PR_IK_0009	Anticoagulant and thrombolytic prophylaxis and therapy, including management of pulmonary embolus
CAI_PR_IK_0010	The Respiratory System: management of severe asthma; use of gases: helium and nitric oxide
CAI_PR_IK_0011	The Gastrointestinal System: acid aspiration prophylaxis; anti-emetics
CAI_PR_IK_0012	CNS: general vs regional anaesthesia in all areas of anaesthesia; action of drugs on the eye; control of convulsions
CAI_PR_IK_0013	The Musculoskeletal System: muscle relaxants and reversal agents; anaesthetic implications of myasthenia gravis and other neuromuscular disorders
CAI_PR_IK_0014	Resuscitation: including management of allergy and anaphylaxis

	Applied clinical pharmacology
	Demonstrate knowledge and understanding of :
	Description
CAI_PR_IK_0015	Principles of parenteral and enteral nutritional formulas in intensive care
CAI_PR_IK_0016	Therapeutics in pathologic states: problems associated with organ transplantation; anaesthetic relevance of drugs used in malignancy; therapy in acute and chronic respiratory diseases
CAI_PR_IK_0017	Problems of drug dependency and addiction
CAI_PR_IK_0018	Environmental effects of anaesthetic agents

	Applied Physiology and Biochemisty
	Demonstrate knowledge and understanding of :
	Description
	Cardiovascular
CAI_PB_IK_0001	Abnormal electrocardiogram and arrhythmias; electrophysiological basis of arrhythmias
CAI_PB_IK_0002	Cardiomyopathy and abnormal ventricular function – congenital and acquired
CAI_PB_IK_0003	Heart failure – systolic vs diastolic, high vs low cardiac output
CAI_PB_IK_0004	Hypovolaemia and shock – neurohumoral adaptions
CAI_PB_IK_0005	Ischaemic heart disease
CAI_PB_IK_0006	Valvular defects – stenotic vs regurgitant
CAI_PB_IK_0007	Hypertension – systemic and pulmonary
CAI_PB_IK_0008	Common congenital heart defects – including PFO, ASD, bicuspid AV, VSD
	Kidney and body fluids
CAI_PB_IK_0009	Disturbances of fluid balance, oedema and dehydration
CAI_PB_IK_0010	Management of acid-base abnormalities
CAI_PB_IK_0011	Renal tubular acidosis
CAI_PB_IK_0012	Assessment of renal function
CAI_PB_IK_0013	Renal failure and its management
CAI_PB_IK_0014	Diuresis – action of diuretics
CAI_PB_IK_0015	Plasma electrolyte disturbances
	Liver
CAI_PB_IK_0016	Hepatic failure
CAI_PB_IK_0017	Jaundice

	Applied Physiology and Biochemisty
	Demonstrate knowledge and understanding of :
	Description
CAI_PB_IK_0018	Porphyria
	Respiration
CAI_PB_IK_0019	Disorders of respiratory mechanics, gas exchange and gas transport
CAI_PB_IK_0020	Disorders of the pulmonary circulation – arterial vs venous
CAI_PB_IK_0021	Respiratory failure and ventilatory support; consequences of positive pressure ventilation
CAI_PB_IK_0022	Effects of changes in ambient pressure
	Nervous System
CAI_PB_IK_0023	Consciousness and sleep
CAI_PB_IK_0024	Depth of anaesthesia – effects of anaesthetics on neurotransmission
CAI_PB_IK_0025	Consequences of spinal cord injury and deafferentation
CAI_PB_IK_0026	Monitoring of spinal cord function under general anaesthesia
CAI_PB_IK_0027	Mechanisms of pain; somatic, visceral, neuropathic
CAI_PB_IK_0028	Control of cerebral circulation, intracranial and intraocular pressures
CAI_PB_IK_0029	Disorders of the autonomic nervous system
	Gastrointestinal Tract
CAI_PB_IK_0030	Nausea and Vomiting
CAI_PB_IK_0031	Oesophageal reflux
CAI_PB_IK_0032	Obstruction of bowel –physiological consquences
CAI_PB_IK_0033	Swallowing disorders

	Applied Physiology and Biochemisty
	Demonstrate knowledge and understanding of :
	Description
CAI_PB_IK_0034	The mucosal barrier
	Metabolism and Body Temperature
CAI_PB_IK_0035	Hormonal and metabolic response to trauma
CAI_PB_IK_0036	Hyperthermia and hypothermia
CAI_PB_IK_0037	Starvation/obesity
	Endocrinology
CAI_PB_IK_0038	Structure and function of the endocrine system; endocrine abnormalities of significance to anaesthesia – e.g Cushing's, Addison's, diabetes mellitus, hypothyroidism, hypopituitariasm, phaeochromocytoma. The stress response.
	OBSTETRICS AND PAEDIATRICS
CAI_PB_IK_0039	Effects of prematurity
CAI_PB_IK_0040	Developmental changes in infancy and childhood, including psychological aspects
CAI_PB_IK_0041	Physiology of normal and abnormal pregnancy, including physiology of labour and childbirth

Demonstrates knowledge of	*Description*
	Nutrition
CAI_NU_IK_0001	Nutritional assessment techniques including laboratory tests
CAI_NU_IK_0002	Clinical consequences of poor nutritional status: including wound healing, infection, cardiovascular stability, thermoregulation, respiratory control
CAI_NU_IK_0003	The role of artificial nutritional support in improving surgical outcome – enteral and parenteral. Nutritional supplements
CAI_NU_IK_0004	Mechanics of providing parenteral and enteral nutrition and different routes; pre and post pyloric
CAI_NU_IK_0005	Complications of parenteral and enteral nutritional support
CAI_NU_IK_0006	Consequences of overfeeding: CO_2 production, uraemia, hypermetabolism, hypertryglyceridaemia, hepatic steatosis
CAI_NU_IK_0007	Changes in intestinal blood flow with injury/sepsis/critical illness
CAI_NU_IK_0008	Choice of artificial nutritional support in trauma/sepsis/critical illness. Principles of enteral and parenteral feeding including trace elements
CAI_NU_IK_0009	Knowledge of the vulnerability of certain groups [very old, very young] to malnutrition and its effects

Demonstrates knowledge of	*Description*
	Physics and Clinical Measurement
Demonstrates knowledge of	*Description*
CAI_PC_IK_0001	Assessment of respiratory function: blood gases, including capillary, venous and mixed venous, flow-volume loops, diffusion capacity
CAI_PC_IK_0002	Assessment of cardiac function, including exercise testing: METS, stair climbing, shuttle test
CAI_PC_IK_0003	Measurement of nerve conduction
CAI_PC_IK_0004	Operative spinal cord monitoring
CAI_PC_IK_0005	Peripheral nerve stimulators: assessment of neuromuscular function. Identification of nerves with needle electrode.
CAI_PC_IK_0006	Interpretation of biochemical data
CAI_PC_IK_0007	Interpretation of haematological data
CAI_PC_IK_0008	Measurement of coagulation of the blood and interpretation of data
CAI_PC_IK_0009	Interpretation and errors of dynamic pressure measurements: systemic, pulmonary, arterial and venous pressures
CAI_PC_IK_0010	Interpretation and errors of dynamic pressure measurements: intracranial, intrathoracic, intra-abdominal and intraocular pressures
CAI_PC_IK_0011	Cardiac output measurement: interpretation and limitations of derived indices: PiCO, LiDCO, bioimpedance, contour analysis
CAI_PC_IK_0012	Trans-oesophageal ECHO (TOE)
CAI_PC_IK_0013	Principles of imaging: principle characteristics of medical imaging devices (including X-rays, CT, MRI, ultrasound), including principles, construction, artefacts, bio-effects, hazards and safety
CAI_PC_IK_0014	Radiation protection

Demonstrates knowledge of	*Description*
CAI_PC_IK_0015	Capnography: interpretation and errors
CAI_PC_IK_0016	Pulse oximetry
CAI_PC_IK_0017	Ventilatory and respiratory gas analysis
CAI_PC_IK_0018	Sleep studies - principles
CAI_PC_IK_0019	Principles of hygiene, including cleaning and sterilisation of equipment, and care of fibre-optic instruments
CAI_PC_IK_0020	Principles of fibre-optic instruments
CAI_PC_IK_0021	Principles of haemofiltration and renal support
CAI_PC_IK_0022	Assessment of the depth of general anaesthesia and avoidance of awareness
CAI_PC_IK_0023	Measurement of evoked potentials in the clinical situation
CAI_PC_IK_0024	Glasgow coma score
CAI_PC_IK_0025	Anaesthetic and surgical outcome scoring systems: including Goldman, Detsky, APACHE, POSSUM etc
CAI_PC_IK_0026	Sedation scoring systems

Knowledge	*Description*
	Statistical basis for clinical trial management
	Data collection and analysis
CAI_SM_IK_0001	Explains the simple aspects of study design defining the outcome measures and the uncertainty of measuring them
CAI_SM_IK_0002	Explains the difference between statistical and clinical significance
CAI_SM_IK_0003	Recalls the limits of clinical trials
CAI_SM_IK_0004	Recalls the basics of systemic review and its pitfalls
	Study design
CAI_SM_IK_0005	Recalls how to define a clinical research question
CAI_SM_IK_0006	Explains the effects of bias
CAI_SM_IK_0007	Recalls the use of controls, placebos, randomisation and binding exclusion criteria
CAI_SM_IK_0008	Explains statistical issues including sample size and ethical issues

	Domain 12: Information technology Advances in Information Management and Technology [IM&T] have changed, and will continue to change, the way education, training and health care is delivered. A doctor must understand and utilise this technology to work effectively.
CAI_IK_IT_0002	Demonstrates knowledge of the importance of security and confidentiality in using information technology systems
CAI_IK_IT_0004	Demonstrates knowledge of the central role that data protection and confidentiality protocols play within healthcare
CAI_IK_IT_0005	Demonstrates knowledge of the ways in which data, information and knowledge come together in the development of guidelines, protocols and care pathways
CAI_IK_IT_0008	Demonstrates knowledge of IT developments within healthcare, as a way of improving communication, patient care and safety
CAI_IK_IT_0009	Demonstrates knowledge of the principle that different media are essential for good communications

Blueprint of the Final FCAI Examination mapped against the Syllabus

Primary Units

Unit of Training	MCQ	SAQ	Clinical Scenario	SOE 1	SOE 2
Preoperative assessment	√	√	√	√	
Premedication	√	√	√	√	
Induction of general anaesthesia	√	√	√	√	
Intra-operative care including sedation	√	√	√		
Postoperative and recovery room care	√	√	√	√	√
Introduction to anaesthesia for emergency surgery					
Transfer medicine	√	√	√	√	√
Management of respiratory and cardiac arrest	√	√	√	√	√
Control of infection	√	√	√	√	√
Academic and research	√	√			√
Airway management	√	√	√	√	√
Critical incidents	√	√	√	√	√
Day surgery	√	√	√	√	
General, urological and gynaecological surgery	√	√	√	√	
ENT, maxillo-facial and dental surgery	√	√	√	√	
Intensive care medicine	√	√	√	√	√
Non-theatre	√	√	√	√	√
Obstetrics	√	√	√	√	√
Orthopaedic surgery	√	√	√	√	
Sedation	√	√	√	√	√
Paediatrics including child protection	√	√	√	√	√
Pain medicine	√	√	√	√	
Regional	√	√	√	√	
Trauma and stabilisation	√	√	√	√	√
Anatomy	√	√			√
Physiology and biochemistry	√	√			√
Pharmacology	√	√			√
Physics and Clinical measurement	√	√			√
Statistical methods	√	√			√

Unit of Training	MCQ	SAQ	Clinical Scenario	SOE 1	SOE 2
Anaesthesia for neurosurgery, neuroradiology and neurocritical care	√	√	√	√	√
Cardiac/Thoracic	√	√	√	√	√
General					
Airway management	√	√	√	√	√
Critical incidents	√	√	√	√	√
Day surgery	√	√	√	√	
General, urological and gynaecological surgery	√	√	√	√	
ENT, maxillo-facial and dental surgery	√	√	√	√	
Management of respiratory and cardiac arrest	√	√	√	√	√
Non-theatre	√	√	√	√	√
Orthopaedic surgery	√	√	√	√	
Regional	√	√	√	√	
Sedation	√		√	√	√
Transfer medicine		√	√	√	√
Trauma and stabilisation	√	√	√	√	√
Intensive care medicine	√	√	√	√	√
Obstetrics	√	√	√	√	√
Paediatric	√	√	√	√	√
Pain medicine	√	√	√	√	
Ophthalmic	√	√	√	√	
Plastics/Burns	√	√	√	√	
Vascular	√	√	√	√	
Advanced sciences to underpin anaesthetic practice					
Anatomy	√	√			√
Applied clinical pharmacology	√	√	√	√	√
Applied physiology and biochemistry	√	√	√	√	√
Nutrition	√	√	√		√
Physics and clinical measurement	√	√			√
Statistical basis for trial management	√	√			√
Information Technology	√	√		√	√

Blueprint of the Final Fellowship Examination F.C.A.I. mapped against the Domains of Good Professional Practice as devised by the Irish Medical Council (2010)

	MCQ	SAQ	CLINICAL SCENARIO	SOE 1	SOE 2
Domain 1 – Professionalism		√	√	√	√
Domain 2 – Clinical skills	√	√	√	√	√
Domain 3 – Scholarship	√	√	√	√	√
Domain 4 – Patient Safety and Quality of Patient Care	√	√	√	√	√
Domain 5 – Communication and Interpersonal Skills			√	√	√
Domain 6 – Relating to patients			√	√	√
Domain 7 – Collaboration and Teamwork			√	√	√