Marklýsing

fyrir kjarnanám í svæfinga- og gjörgæslulækningum

Fyrsta útgáfa

Nóvember 2019

Efnisyfirlit

Inngangur

Marklýsing fyrir sérnám í svæfinga- og gjörgæslulækningum er hér sett fram í fyrsta sinn á Íslandi. Marklýsingu þessari er ætlað að uppfylla skilyrði sem sett eru fram í reglugerð nr 467/2015 um menntun, réttindi og skyldur lækna og tekur þannig til innihalds og fyrirkomulag námsins, lengd þess og einstakra námshluta, gæðakrafna, handleiðslu og hæfismats. Marklýsingin gagnast sérnámslæknum, handleiðurum þeirra og öllum samstarfs- og skipulagsaðilum sem koma að sérnámi lækna í svæfinga- og gjörgæslulækningum á Íslandi.

Marklýsing þessi er byggð á marklýsingu Royal College of Anaesthetists og nær eingöngu til þess hluta sem kallaður er grunnhluti kjarnanáms (e. basic level of core training, sjá Annex B), auk almennra hluta bresku marklýsingarinnar (sjá Curriculum for CCT, Annex A og G) og valinna atriða úr gjörgæsluhluta marklýsingarinnar (sjá Annex F). Kjarnanám í svæfinga- og gjörgæslulækningum er þannig fyrsti hluti sérnáms og er að jafnaði tveggja ára nám. Höfuðáhersla er lögð á fagmennsku og gæði sérnámsins í hvívetna.

Líkt og fram kemur í marklýsingu Royal College of Anaesthetists skal sérnám í svæfinga- og gjörgæslulækningum miða að sértækum útkomum sem byggja á matskerfi og handleiðslu. Marklýsingin er leiðbeinandi regluverk þar sem saman vefast ólíkir þættir sérmenntunar, s.s. verklegar æfingar, fræðilegt nám, ígrundun og námsmat skv. vel skilgreindum námsmarkmiðum. Þess skal getið að Royal College of Anaesthetists hefur veitt góðfúslegt leyfi fyrir notkun marklýsingu sinnar í þessum tilgangi.

Í svæfinga- og gjörgæslulækningum mætast handverk og hugverk. Þess vegna er afar mikilvægt að samþætta verklega og fræðilega hluta námsins og eru því gerð sérstaklega skil í þessari marklýsingu þar sem öryggi sjúklings er ávallt haft að leiðarljósi, sem og samskipti og samstarf við viðeigandi fagaðila sem koma að meðferð sjúklinga.

Það er von að þessi marklýsing stuðli að auknum gæðum sérnámsins ásamt aukinni getu og færni sérnámslækna. Hún hefur verið send til mats- og hæfisnefndar um sérnám í læknisfræði og bíður samþykktar.

Fyrir hönd kennslustjóra í svæfinga- og gjörgæslulækningum,
Gunnar Thorarensen, svæfinga- og gjörgæslulæknir
Kennslustjóri

Royal College of Anaesthetists

Curriculum for a CCT in Anaesthetics

Edition 2 | August 2010 | Version 1.8

Preface

This Curriculum has been written in alignment with Standards for Curricula and Assessment Systems [GMC; 2010].

The term Specialty Registrar [StR] is used in the 'Gold Guide' - A Reference Guide for Postgraduate Specialty Training in the UK. However throughout this curriculum document we use the more common CT/ST nomenclature.

Abbreviations

A list of commonly used abbreviations is provided in annexes B, C, D and E.

Trainee Registration

All trainees are required to register with the College's Training Department as soon as possible upon commencement of CT1, and again after appointment to Specialty Training in ST3. Copies of the Annual Review of Competence Progression [ARCP] and any correspondence related to their individual training are held at the College. A Certificate of Completion of Training [CCT] date is estimated, usually on entry to ST 5. This is amended if the necessary competencies and assessments [including examinations] are not obtained, are deferred or other circumstances prevail [such as sick leave or maternity leave] by the expected date.

College membership provides:

- Access to the College's trainee e-portfolio system
- Access to e-Learning Anaesthesia
- Access to training programme advice from the Chairs of the Training Committee and training administrators
- Subscription to the British Journal of Anaesthesia, British Journal of Anaesthesia Education and the Bulletin

Advice

The first point of contact for information concerning a trainee's training or career planning is this Curriculum, in conjunction with the Careers and Training & Examinations sections of the College website.

The next point of contact is the College Tutor of the department in which the trainee is working. If the College Tutor is unable to give the necessary guidance then the Regional Adviser should be asked for advice. Only if the College Tutor or Regional Adviser cannot help should a trainee contact the College's Training Department for advice because the training department will not be aware of the trainee's personal circumstances.

Approvals

Date	Version	Description	GMC Approval
25 Feb 2010	1	First submission	Conditional Approval
28 Apr 2010	1.1	Update submission – response to conditions	Approved
02 Jul 2010	1.2	Minor change update	Approved
16 Jun 2011	1.3	Major change Advanced pain medicine Minor changes	Approved
26 June 2012	1.4	Update for ICM, PHEM, transferable competencies, addition of PICM, update to assessment blueprint, addition of intermediate vascular skills and minor updates and manuscript changes	Approved
11 September 2013	1.5	Update for Alcohol and drugs syllabus, Improvement Science, Safe and Reliable Systems syllabus and minor updates and manuscript changes	Approved
03 Jul 2014	1.6	Update for ICM, nuanced enhanced recovery and care of the elderly skills, minor updates and manuscript changes	Approved
03 Oct 2014	1.6	Inclusion of Accreditation of Transferable Competences Framework	Approved
06 Jul 2016	1.7	Administrative changes (wording, references) Addition of Perioperative Medicine Update for Military Anaesthesia	Approved for implementation 03 Aug 2016
07 September 2016	1.8	Update for timing of FRCA exam	Approved for implementation August 2016
08 August 2017	1.8	Update to Accreditation of Transferable Competences Framework to reflect Emergency Medicine run through training programme	Approved for implementation 08 August 2017

Table of Contents

Executive Summary

This document identifies the aims and objectives, content, experiences, outcomes and processes of postgraduate specialist training leading to a Certificate of Completion of Training [CCT] in Anaesthetics. It defines the structure and expected methods of learning, teaching, feedback and supervision.

It sets out the knowledge, skills, attitudes and behaviours expected of the trainee. These are identified as specific learning outcomes to guide trainers and trainees. A system of assessments is used to monitor progress through the stages of training.

Method of development

This curriculum was developed from the previous anaesthetic curriculum [CCT in Anaesthetics, Edition 1: dated April 2009] by a process of expert consultation. Principal amongst those consulted were: the associations and groups devoted to the practice of specialised anaesthesia; College Tutors [CT] and Regional Advisers [RA] of the RCoA; anaesthetic and critical care clinical directors; other management representatives; anaesthetic trainees; representatives of patients. The General Medical Council [GMC] guidance on Good Medical Practice [GMP] was used in the development of curriculum items and assessments at all stages of the programme. The wording in this CCT in Anaesthetics document was reviewed and revised in 2015 with the aim to condense the document, remove repetition, update nomenclature and make it more accessible.

Delivery

Anaesthesia is a craft specialty and much of the education and training is acquired through experiential learning and reflective practice with trainers. Training is also delivered through a variety of formats including lectures, tutorials, seminars, e-learning and personal study. The instructional arrangements are coordinated within the Schools of Anaesthesia, with each specialist area overseen by consultants with expertise in that field.

Aim

This programme leads to the award of a CCT in anaesthetics that entitles admission to the GMC Specialist Register. Its aim is to produce well-trained, high quality clinicians with the broad range of clinical leadership and management skills and professional attitudes necessary to meet the diverse needs of the modern National Health Service [NHS] and who can embark upon safe, independent practice as consultant anaesthetists in the United Kingdom [UK].

Organisation of the curriculum

Training is divided into four stages: Core, Intermediate, Higher and Advanced. Within these, Units of Training are organised by surgical sub-specialty or anaesthetic focus. In addition there is a group of general outcomes common to all clinical practice which is listed separately as ‘Professionalism in Medical Practice’ [Annex A]. Learning outcomes are divided into two categories representing knowledge and skills.

Duration of training

The training programme is competency and not time-based. However the indicative length of the stages of training is as follows:

- Core level, *normally* two years [CT 1 and 2]
- Intermediate level, *normally* two years [ST 3 and 4]
- Higher and advanced levels, *normally* three years [ST 5 to 7]

At current levels of clinical experience it is unlikely that the necessary outcomes can be achieved at an adequate level of performance in less than the seven years identified.

Underlying principles

The UK CCT training programme in anaesthetics:

- Is outcome based
- Is planned and managed
- Does not jeopardise safe practice
- Is delivered by appropriately trained and appointed trainers
- Allows time for study
- Includes core professional aspects of medical practice that are essential in the training of all doctors
- Meets the service needs of the NHS
- Is prepared with lay input
- Accommodates the specific career needs of the individual trainee
- Is evaluated
- Is subject to review and revision

Assessment

Assessment in the training programme is multifaceted; the assessment process contains both formative and summative elements. All assessments are reviewed at the Annual Review of Competence Progression (ARCP).
Trainees are required to complete units of training at Basic, Intermediate, Higher and Advanced level. In order to complete a unit of training, trainees should undertake Work Place Based Assessments (WPBA) that contribute to evidence showing the Core Clinical Learning Outcomes have been achieved. WPBA provide *only one* source of evidence that a trainee has achieved these outcomes alongside the logbook, consultant feedback, teaching and course attendance. The purpose of WPBAs is to demonstrate engagement of trainers and trainees in professional educational conversations, and the most important element is feedback.

The tools used are:

- Anaesthetic Clinical Evaluation Exercise [A-CEX]
- Anaesthetic List/Clinic/Ward Management Assessment Tool [ALMAT]
- Acute Care Assessment Tool for Intensive Care Medicine [ICM] [ICAT]
- Direct Observation of Procedural Skills [DOPS]
- Case Based Discussion [CBD]

- Multi-Source Feedback [MSF]

The Fellowship of the Royal College of Anaesthetists [FRCA] examination is a two-part "high-stakes" national assessment. Its major focus is on the knowledge required for practice but the structured oral examination [SOE] and objectively structured clinical examination [OSCE] test decision-making, understanding of procedure and practical elements (including the use of simulation). Possession of the Primary FRCA is a mandatory requirement for entry into the ST3, and the Final FRCA must be passed before progression into the second 6 months of ST5.

For further information on assessment, please see section 7 and the separate Assessment Guidance Document.

Achieving the CCT

Trainees must pass the following milestones in order to be awarded the CCT in Anaesthetics:

- Initial Assessment of Competence [IAC] [within first 6 months];
- Initial Assessment of Competence in Obstetric Anaesthesia [IACO] [within CT1-2];
- Primary FRCA examination [in CT1-2];
- **Core Level Training Certificate (CLTC)** [end of CT2]; when all above and core training units complete
- Apply for ST3 post through a competitive national recruitment process;
- Final FRCA examination [in ST3- first 6 months of ST5];
- **Intermediate Level Training Certificate (ILTC)** [end of ST4-first 6 months of ST5]; when above and intermediate units complete
- Complete Higher and Advanced essential units of training; and
- Advanced special interest units (1 or 2 units only) of training relevant to ultimate area of practice. This can be undertaken in ST6 or ST7 and must be 12 months in duration.

1. Introduction

1.1 Aim

This document identifies the aims and objectives, content, experiences, outcomes and processes of postgraduate specialist training leading to a CCT in Anaesthetics. It defines the structure and expected methods of learning, teaching, feedback and supervision.

The expected knowledge, skills, attitudes and behaviours are described as learning outcomes that are specific enough to be a precise guide for trainers and trainees. A system of assessments is used to monitor the trainee's progress through the stages of training.

1.2 The scope of anaesthetic practice

Anaesthetists form the largest single hospital medical specialty and their skills are used in many aspects of patient care. Whilst the intraoperative care of the surgical patient is the core of specialty work many anaesthetists have a much wider scope of practice including:

- The perioperative medical management of surgical patients
- The resuscitation and stabilisation of patients in the Emergency Department
- Pain relief in labour and peripartum care
- Critical care medicine
- Transport of acutely ill and injured patients
- Pre-hospital emergency care
- Pain medicine including:
- The relief of post-operative pain
- Acute pain medicine and the leadership of acute teams
- Chronic and cancer pain management
- The provision of sedation and anaesthesia for patients undergoing procedures outside the operating theatre.

Anaesthetists are also widely involved in teaching and training medical students, doctors in training, nurses and allied health professionals. In addition they are involved with regional and national bodies and in the leadership and management of hospitals and the wider NHS. Many anaesthetists are involved in research into all areas of anaesthesia, pain, intensive care and perioperative medicine. The CCT programme is thus designed to meet the diverse service needs of the NHS.

During the course of anaesthetic training, trainees will develop particular interests within the specialty and in ST5-7 these will be reflected in their choice of optional units of training at the Higher and Advanced levels. At the end of training most anaesthetists will have gained experience and expertise in some special interest areas of practice along with the general training that is common to all. The design of the curriculum reflects and facilitates this diversity.

1.3 Curriculum design and development

1.3.1 The development process

This Curriculum has been developed from previous anaesthetic versions[1] by a process of expert consultation, led by a working party that reported to the RCoA Training Committee and Council. The development process involved consultation with: College Tutors, Regional Advisers, specialist anaesthesia societies, clinical directors, trainees and patient representatives [Appendix 1]. The GMC guidance on Good Medical Practice (GMP), Standards for Curricula and Assessment systems (2010) and guidance from the NHS Litigation Authority were used in the development of the curriculum items and assessments at all stages of the programme.

The outcomes and assessments have been developed by anaesthetists with experience and specialist knowledge in all areas of anaesthetic, intensive care and pain medicine practice. All review groups included trainee and patient representatives and the complete document has been reviewed and edited following feedback from the Schools of Anaesthesia and Postgraduate Deans.

1.3.2 Acknowledgements

The Royal College of Anaesthetists acknowledges the wide support that it has received from groups and individuals in the development of this Curriculum, as listed in Appendix 1.

1.3.3 RCoA Training Committee

The RCoA Training Committee is responsible for submitting the curriculum to the GMC. It consists of members of College Council, the Bernard Johnson Advisers for Less Than Full-time Training and International Programmes, the Lead Dean for anaesthesia, and representatives from England, Northern Ireland, Scotland and Wales, the Regional Advisers, College Tutors, the RCoA Lay Committee, trainee representatives, the Faculty of ICM, the Faculty of Pain Medicine and the AAGBI. The Committee is always pleased to receive comments on this training programme from both trainers and trainees. These should be addressed to the Chair of the RCoA Training Committee via: training@rcoa.ac.uk.

1.3.4 Ongoing curriculum review

The curriculum is reviewed regularly with an implementation date for any changes being not less than six months after their publication date. All changes to the curriculum are prospectively approved by the GMC before publication. When published, the main document and the annexes will be annotated with the same version number and will be available on the College website. A summary of changes is also published with the new version of the curriculum and available on the website.

Occasionally the Training Committee has to take decisions that may affect the immediate interpretation or application of specific items in this manual. These will be published in a 'Training Programme Update' circular to all RAs and Deputy Regional Advisers [DRAs], College Tutors, Training Programme Directors [TPDs] and Heads of Schools [or deanery/Local Education Training Board (LETB) equivalent], as well as being published on the College website.

[1] The CCT in Anaesthetics, Edition 1, Royal College of Anaesthetists, August 2007

1.4 Structure of the curriculum manual

This document describes the overall structure, delivery, rules and regulations of the anaesthetic CCT training programme. It is accompanied by seven annexes [A-G] as follows:

Annex A: Professionalism in Medical Practice
Annex B: Introduction and Core Level Training
Annex C: Intermediate Level Training
Annex D: Higher Level Training
Annex E: Advanced Level Training
Annex F: Intensive Care Medicine
Annex G: Teaching and training, academic and research (including audit), quality improvement and management for anaesthesia, critical care and pain medicine

The annexes contain the detailed learning outcomes and competences specific to each unit of training. Annex A contains learning outcomes that relate to the general skills of medical practice, which should be embedded throughout the clinical units of training. Likewise the learning outcomes in Annex G are to be achieved throughout the training programme.

2. Principles of the training programme

2.1 Training concepts

2.1.1 "Spiral" learning

The training programme is based on this concept, which ensures that the basic principles learnt and understood are repeated, expanded and further elucidated as time in training progresses; this also applies to the acquisition of skills, attitudes and behaviours. There are essential units of training to which trainees return at each level, as well as specialist areas of practice that are introduced from Intermediate Level onwards. The outcome is such that mastery of the specialty to the level required to commence independent practice is achieved by the end of training.

2.1.2 Broad-based flexible training

The CCT programme is constructed so that all anaesthetists have the same essential skills. In the latter years of training flexibility is introduced so that individual career aspirations can be met by providing dedicated periods of advanced level special interest training. This also allows the specialist needs of the NHS to be met with a short lead-in time of around two years. Since all anaesthetists have a common broad-based training up to intermediate level this allows changing workforce needs to be met with a minimum of retraining.

2.1.3 Experiential Learning [See Appendix 3 – RCoA Clinical Assessment Strategy]

Much of the learning is service-based and, for its effectiveness, depends upon its context within clinical practice. Research has shown that performance improves with practice and that up to 200 iterations of a procedure may be required for the learner to approach the standard of performance demonstrated by a truly expert practitioner. Analysis of learning curves reveals that 70 to 80% of this performance is achieved after 30 iterations. There are many reasons why trainees may not be able to achieve 30 performances of a technique and there is no expectation that all elements of the curriculum will be learned to that level of skill. The RCoA WPBA system does not require performance to this level, except those related to the advanced level units of training chosen by the individual trainee. The need for repetitions in training is an important determinant of the duration of training. The suggested length of placements in the training programme is such that there is reasonable opportunity for trainees to become expert in the key competencies on which the safety of practice depends at CCT.

2.1.4 Role of intensive care medicine in anaesthesia

Training in intensive care medicine [ICM] is an integral part of anaesthesia training. The skills learned in managing critically ill patients in the intensive care environment are transferable and contribute to the skills required in managing patients across the perioperative period. The development of these skills and knowledge directly contribute to patient safety and patient care outcomes.

There are three types of roles anaesthetists may aspire to for intensive care practice. Each defined role includes the level of intensive care qualifications/experience recommended before taking the role.

ICM Role	Recommended ICM Qualifications
Manage the long term care of the critically ill patient and manage the intensive care unit	Dual CCTs in Anaesthetics and ICM [see section 10.2.5]
Provision of out of hours cover in hospitals where there is no separate ICM consultant roster	Minimum of ICM stage 1 [see Curriculum for a CCT in ICM]
Provision of care for an initial period of 12-24 hours to a patient requiring higher level care in a Post Anaesthesia Care Unit [PACU] or until a patient can be transferred to the ICU.	The standard minimum of 9 months of ICM. At least 3 months must be at the anaesthesia Higher level of training.

2.1.5 Common competencies of medical practice required by all doctors

The trainee must also develop the general professional knowledge, skills, attitudes and behaviours required of all doctors. It is the view of the College that they should be developed and followed throughout practice, both during training and post-CCT. Thus, there are no changes to these competencies over the years of training. These competencies are also embedded in the clinical units of training at all levels. Trainees' achievements in each domain should be documented when each unit of training is completed. Thirteen domains have been identified covering professionalism and common competencies (Annex A). These are as follows:

- Domain 1: Professional attitudes and behaviours
- 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
- Domain 13: Alcohol and other drugs

2.1.6 Human factors in clinical practice

The curriculum requires trainees to demonstrate comprehensive knowledge of many aspects of managing safety. Human factors theory focuses on a range of topics associated with human abilities, behaviours and limitations in the context of workplace safety. Knowledge of these factors can be applied to influence the design of systems, tasks and equipment to make allowances for human capability in complex working environments.

Human factors theory can be translated into the non-technical skills [NTS], which complement individual technical skills to facilitate safe and efficient performance of tasks. NTS are cognitive, social and personal skills such as:

- Effective communication
- Team working
- Leadership
- Decision making
- Situation awareness
- Stress management

Good practitioners employ these skills to achieve consistently high performance and they are accepted as intrinsic to safe clinical practice. This curriculum recognises the importance of human factors by incorporating these into training and assessment. The Anaesthetic Non-Technical Skills [ANTS] taxonomy has been developed for assessing this area of practice [http://www.abdn.ac.uk/iprc/ants].

2.1.7 Teaching and Training; Academic and Research; Management

These are considered essential elements of the training programme. Trainees require a clear understanding of the principles of adult learning, academic enquiry and healthcare management and there are clear competencies that develop these subjects throughout the training programme. The opportunity to undertake further training in these disciplines is provided within Advanced training for trainees with a specific interest [Annex G]. More guidance is given on this in section 10.2.8.

2.2 Training environments

The training of anaesthetists will occur in UK posts and programmes approved by the GMC, or in other posts and programmes for which prospective approval has been given. Departments in which training occurs must comply with the regulations and recommendations of the relevant national Departments of Health, GMC, the RCoA, Faculty of Pain Medicine [FPMRCoA] and the Faculty of Intensive Care Medicine [FICM]. From time to time, the RCoA, FPMRCoA, FICM and AAGBI issue guidance on standards of practice, which must be adhered to by departments in which training occurs.[2]

2.3 Trainers

In order to ensure patient safety, consultants and trainees in anaesthesia work more closely together in clinical practice than is the case in most other specialties. Anaesthetists are very risk aware and strict supervision of learners is embedded in their practice. See Section 5 for further details on supervision.

Doctors responsible for training have to comply with the GMC standards for specialty training[3].

2.3.1 Training in the NHS

The GMC is responsible for approving posts and programmes for training. Clinical training is ordinarily delivered in NHS hospitals by consultants, staff and associate specialist [SAS] grades,[4, 5] and by senior

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[2] *Good Practice*, The Royal College of Anaesthetists and the Association of Anaesthetists of Great Britain and Ireland, Third Edition 2006: *Guidelines for the Provision of Anaesthetic Services*, Royal College of Anaesthetists, 2015.

[3] *The Trainee Doctor*. General Medical Council. February 2011. *Promoting excellence.* General Medical Council. January 2016.

trainees. Senior educators/clinicians with responsibility for education and training are joint appointments by the College and Deanery/LETB. Trainers are supported by RAs and CTs appointed with input from the Deanery/LETB and hospital management by the RCoA, FPM or the FICM and by educational supervisors appointed locally.

2.3.2 Trainees as trainers

Trainees should learn to supervise more junior trainees as they progress through their training. Senior trainees should have the opportunity to contribute to the organisation and delivery of formal training under the supervision of the College Tutor or other designated trainers as identified in this curriculum Section 5.

2.3.3 Criteria for appointment as a trainer/assessor

The following criteria should be met for a consultant, locum consultant, staff and associate specialist, and trainee to act as a trainer/ assessor:

- Successful completion of a trainers course [eg train the trainers];
- Understanding of the structure of the training programme and content of the curriculum;
- Aptitude to teach;
- Regular clinical commitment;
- Evidence of recent CPD relevant to current clinical practice;
- Annual assessment or appraisal by a consultant anaesthetist;
- Willingness to complete the necessary training documentation mandated in the curriculum and by the School of Anaesthesia;
- Willingness to provide a post training session debrief including feedback on performance; and
- Ability to detect the failing trainee
- Successfully completed a course on assessment and assessment tools;
- Aptitude for assessment;
- Understanding of the assessment system described in the curriculum; and
- Willingness to assess the trainee and complete the necessary documentation including a post assessment debrief.

It is the Trust / School (who pay the Educational Supervisors) responsibility to ensure that trainers and assessors meet the required criteria. CTs will nominate and supervise suitable Educational Supervisors.

In order to become an approved, recognised trainer, trainers must meet the GMC criteria.[6]

2.4 Delivery of the training programme

A minimum of three supervised sessions per week [averaged over three to six months] is required to ensure sufficient workplace based learning to allow most trainees to progress to CCT within the seven year

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[4] *Post-graduate examinations and SASG anaesthetists*. www.rcoa.ac.uk >Professional Standards>Advisory Appointments Committees.

[5] *Non consultant career grade doctors*. College Bulletin 2001: 9;407

[6] *GMC Recognising and Approving trainers implementation plan August 2012*

indicative length of the programme; this figure is based on many years of experience. It is accepted that there may be variation from week to week depending on local work patterns and the structure of individual school programmes of training.

To ensure patient safety, trainees new to the specialty must, at all times, be directly supervised until they have passed the Initial Assessment of Competence [IAC] (see Section 5). This is also the case for those new to specialist areas of practice. These concentrated periods of supervision are essential to ensure that trainees complete all the required core clinical learning outcomes in a very full programme. Following this, the appropriate level of supervision for the trainee's level and competence should be provided.

It is important to ensure that supervised sessions have relevance to the unit(s) of training (and Level) that individual trainees are undertaking at the time; the concept of a 'balanced programme of training' is essential. It is therefore acceptable, for example, to count two accompanied sessions in ITU, coinciding with daytime service for ITU, if the trainee is on a dedicated ICM block. It is not appropriate if they are providing service cover for ICM for the day whilst undertaking an anaesthetic unit of training, as the supervised sessions should be in this area of practice.

2.5 Out of hours commitments

Out of hours work for trainees largely involves providing services for emergencies and, compared with elective work, makes different demands on the anaesthetist. There are several reasons for trainees to undertake out of hours work. It provides:

- The opportunity to experience and develop clinical decision making, with reduced resources, under distant supervision
- The opportunity to learn when to seek advice and appreciate that close clinical supervision is required when learning new aspects of emergency work
- A reflection of professional anaesthetic practice, as in most hospitals patients are admitted 24 hours a day, seven days a week; there is thus a service commitment

Occasionally there may be a unit of training where out of hours work is not required; this will be the exception. For units of training where out of hours work is required [the majority], *trainees should not normally work more than 7 nights in an 8 week period* to ensure that they can meet the many training outcomes that are gained during normal working hours, in addition to those gained out of hours. The College recognises that there are occasions when additional out of hours work is required due to local circumstances; when this occurs, it should only be for short periods otherwise the trainee will require extended training time to ensure the core clinical learning outcomes are met. Local trainers, in conjunction with their Clinical Directors [CD], must recognise this consequence of excessive out of hours commitments. Finally, it is important to ensure that any new aspects of emergency work are undertaken initially with close clinical supervision.

For trainees unable to undertake out of hours work due to illness or other debilitating circumstances, the College Tutor, RA, TPD and Chair of the Training Committee will determine whether it is possible to obtain all the essential core clinical learning outcomes and whether extra training time is required. This may involve extending the period of training for a specific unit[s] and/or the whole programme. Trainees are advised to discuss the potential consequences of inability to perform out of hours work as soon as practicable, as it may have a major impact on the training programme leading to the award of a CCT.

2.6 Less than full-time [LTFT] trainees

After appointment any trainee, with Deanery/LETB agreed eligibility, can request to train less than full time. The training programme will then be delivered on a *pro rata* basis. Each region has a LTFT adviser who works with the RA and the local Deanery/LETB to ensure that the needs of those trainees are met. General advice on LTFT is contained in the "Gold Guide"[7]. In addition, one of the College Bernard Johnson Advisers provides strategic advice to the RCoA on the needs of part time trainees and can be contacted via training@rcoa.ac.uk.

The European Medical Directive states that:

"Member States may authorise part-time training under conditions laid down by the competent authorities; those authorities shall ensure that the overall duration, level and quality of training is not lower than that of continuous full-time training."[8]

This is interpreted to mean that LTFT trainees should, pro rata, undertake the same out-of-hours work as full-time trainees, including weekend duties. In October 2011, the General Medical Council confirmed the minimum requirement for LTFT should be 50%. [9]

2.7 Schools of Anaesthesia

Schools of Anaesthesia are responsible, on behalf of the Deanery/LETB, for the delivery of a GMC approved programme of postgraduate education in anaesthesia, intensive care and pain medicine. There may be separate Schools for Acute Care Common Stem [ACCS] training. The School should provide educational leadership and governance, ensuring appropriate structures are in place to deliver training to the standards required by the GMC.

All hospitals in the UK that provide training belong to a School. It is important to note that the Schools of Anaesthesia are not a homogenous group and therefore the Curriculum permits flexibility to allow local organisation of training.

There are several different leadership/management roles in a School of Anaesthesia. A particular School may or may not have all of these areas of specific responsibility;

- Head of School [HoS]: appointed by the Deanery/LETB with RCoA input
- Regional Adviser [RA]: appointed by the College with Deanery/LETB input.
- RAs for ICM [RAICM] and Pain Medicine [RAPM] by the Faculty of Intensive Care Medicine or Faculty of Pain Medicine with Deanery/LETB input
- Deputy Regional Advisors [DRAs] to be appointed by the College with Deanery/LETB input
- Training Programme Director [TPD]: Deanery/LETB appointment
  - TPDs appointed for ICM and ACCS

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7 *A Reference Guide for Postgraduate Specialty Training in the UK*. Modernising Medical Careers. Sixth edition February 2016.[Gold Guide]

8 Article 22(a) of Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications

9 GMC Position statement on less than fulltime training, October 2011.

    - Deputy TPDs responsible for a specific part of the anaesthetic training programme e.g. core trainees
- College Tutors: within each Trust; joint appointment by College, Trust and Deanery/LETB
- Faculty Tutors for ICM
- Representation from the Faculty of Pain Medicine
- Less Than Fulltime Training Adviser

The number of hospitals and tertiary specialist centres which together constitute a School of Anaesthesia varies across the UK. Occasionally a Deanery/LETB may divide training by geography e.g. North and South Schools, for administrative and logistical purposes.

Together, hospitals within a School can normally provide all the essential units of training required to achieve a CCT in Anaesthetics. District general hospitals can offer a wide range of experience and training, whilst the more specialist area of anaesthesia for cardiac, thoracic, neuro and paediatric surgery may take place in a tertiary referral centre. Occasionally secondments are required outside the School in order to obtain these specialist areas of training. Single speciality hospitals may complement the overall provision of training within a particular School.

The TPD must organise rotations in such a way that all trainees are exposed to all the essential units of the training programme at an appropriate stage to allow the attainment of competencies and completion of core clinical learning outcomes and progression towards the CCT.

Schools may have their own documentation advising their trainees what is required to progress through the curriculum. Delivery of training is the responsibility of the School. The curriculum, its assessment and the e-portfolio are the responsibility of the RCoA.

Schools are also responsible for ensuring the ARCP occurs and assuring the quality of training. Schools are involved in approving study leave and providing access to relevant educational courses for their own trainees.

More information about individual Schools can be obtained from their local Deanery/LETB or from School websites.

2.8 Speciality Advisory Committees

The majority of Deaneries/LETBs have Speciality Advisory Committees [sometimes known as Training Committees]. The attendance should include the RA and the College Tutor[s] from each hospital, as well as representation from the School and trainee body. Duties include overseeing the training programme, ensuring standards of training are maintained and resolving any local training issues.

2.9 Responsibility for training in the workplace

The responsibility for the organisation, monitoring and efficacy of training and assessment is shared by a variety of authorities:

- **The GMC** is responsible for approving programmes of training
- **The RCoA** is responsible for:
    - Advising the GMC on the competencies/learning outcomes in training

- Advising the Postgraduate Deans on the arrangements for organising and monitoring the in-service training provided by Schools of Anaesthesia and hospitals
- Funding the Bernard Johnson Advisers who provide advice on equality and diversity issues within training programmes
- Evaluating the training of individual trainees and recommending them to the GMC for the award of CCTs

- **The Postgraduate Dean** is responsible:
  - To the GMC for the quality management of the training programme
  - For the overall training arrangements in each Trust. The Clinical Tutor/Director of Medical Education acts as the Dean's officer within the trust and has overall responsibility for the educational environment
  - For ensuring that the ARCP process is organised correctly
- **Schools of Anaesthesia** in conjunction with the **local Specialty Training Committee/Specialty Board** are responsible for:
  - The administrative organisation of trainee placements/rotations in the training programme
  - Monitoring the training programme
  - The administrative organisation of ARCPs
  - Working with CDs to ensure satisfactory local arrangements are in place to ensure in-service training is delivered in accordance with the principles adopted by the Department of Health [in regard to rota compliance], the GMC, the RCoA and the Postgraduate Dean
- **TPDs** organise the rotations to ensure that all units of training are covered
- **RAs** are responsible for representing the policies and views of the College in all relevant matters within their region
- **College Tutors** are responsible, ultimately, for the overall anaesthetic training and assessment arrangements in their hospitals[10], working in conjunction with the individual educational supervisors.
- **Educational Supervisor** is defined by the GMC as a trainer who is appropriately trained to be responsible for the overall supervision and management of a specified trainee's educational progress during a training placement or series of placements. The educational supervisor is responsible for the trainee's educational agreement.[11]
- **Clinical Supervisors** are trainers who are appropriately trained to be responsible for overseeing a specified trainee's clinical work and providing constructive feedback during a training placement; in anaesthetic training, Clinical Supervisors will normally be the lead for specific units of training. Some training schemes appoint an Educational Supervisor for each placement; if this is in a hospital that only delivers one unit of training, the roles of Clinical and Educational Supervisor may be merged[12].
- **Consultant/SAS trainers:** All consultants/SAS anaesthetists who have any contact with trainees [which includes providing senior support and cover for out of hours duties] have a responsibility for providing appropriate training, supervision and assessment. They should comply with the Deanery/LETB requirements.

[10] See also *The Regional Advisers' Handbook*, 1998 and *The College Tutor - Roles and Responsibilities,* 2002

[11] *The trainee doctor*. Endnotes p55. GMC February 2011. *Promoting excellence.* General Medical Council. January 2016.

[12] Loc. cit

2.10 Accommodation for training and trainees

Any hospital with trainees must have appropriate accommodation to support training and education; this may be in the Department of Anaesthesia or elsewhere in the hospital e.g. the Postgraduate Teaching Centre. This accommodation should include:

- A focal point for the anaesthetic staff to meet so that effective service and training can be co-ordinated and optimal opportunities provided for gaining experience and teaching
- Adequate accommodation for trainers and teachers in which to prepare their work
- A private area where confidential activities such as assessment via the e-Portfolio, appraisal, counselling and mentoring can occur
- A reference library where trainees have ready access to bench books [or an electronic equivalent] and where they can access information, including electronic resources, at any time
- Access for trainees to IT equipment such that they can carry out basic tasks on a computer, including the preparation of audio-visual presentations; access to the internet is recognised as an essential adjunct to learning and access to the trainee e-Portfolio
- A suitably equipped teaching area and a private study area
- An appropriate rest area whilst on shifts

2.11 Equipment and safety guidance

Anaesthesia is high risk and measures to help ensure safe practice have been incorporated into the fabric of anaesthesia, which are emphasised to each new generation of anaesthetists. Specific competencies relating to patient safety are included in every section of the anaesthesia learning. There is therefore no specific section of learning devoted to safety.

Trainees should keep abreast of RCoA and AAGBI guidance on safety issues.

- ***Monitoring standards**:* Trainees should not be required to deliver anaesthesia without using monitoring equipment that complies with the recommended minimum monitoring standard current at that time. The most recent standards are those defined in:
  Recommendations for Standards of Monitoring during Anaesthesia and Recovery, 4th Edition *2007, Association of Anaesthetists of Great Britain and Ireland Guidelines for the Provision of Anaesthetic Services (GPAS),* Royal College of Anaesthetists
- ***Skilled Assistance:*** Trainees must have dedicated qualified assistance wherever anaesthesia is administered as defined in: *The Anaesthesia Team 3, 2010,* Association of Anaesthetists of Great Britain and Ireland.

2.11.1 Key protocols

It is recommended that key protocols and guidelines, including amongst others those for management of anaphylaxis, malignant hyperthermia, airway management and resuscitation, should be displayed or be immediately available in all locations where anaesthesia is delivered (AAGBI, Resuscitation Council and RCoA ***GPAS***).

2.11.2 Simulating critical incidents and equipment failure

It is a necessary part of trainees' development that they should gain the confidence to handle critical incidents and equipment failure. Trainees should be made aware that in the event of a mishap it should not be presumed that the equipment is in the same state as when checked before the start of the list. In no circumstances is it acceptable for an anaesthetist to interfere with an anaesthetic machine during a procedure with an anaesthetised patient for the sole purpose of testing the reactions of a trainee. Training for these eventualities is appropriate in simulated situations, without a patient being present, or in verbal discussion.

3. Entry to and progression through training

3.1 Trainee registration

All trainees are required to register with the College's Training Department as soon as possible after appointment to *any* training post. Copies of the ARCP Outcome forms and any correspondence related to their training are held at the College.

3.2 Progression through the CCT programme

3.2.1 Indicative duration

The indicative duration of the anaesthetic CCT training programme is 7 years, structured as follows:

- Core level- two years [CT1 and 2]
- Intermediate level- two years [ST3 and 4]
- Higher and Advanced levels- three years [ST 5 to 7]

Progression through the curriculum is determined by the rate at which trainees achieve the necessary competencies as well as the experience that underpins competence in clinical practice.

3.2.2 Minimum duration

In current practice the indicative and minimum times for completing training are similar. Though this anaesthetic training programme is designed around a schedule of competencies, and is monitored by acquisition of these rather than the time spent in training, it is unlikely that a trainee will be able to complete the programme to a satisfactory standard in less than the seven years.

3.2.3 Academic trainees

Academic and clinical training should be integrated to enable both to be delivered within the seven year CCT in anaesthetics programme. The academic route is challenging for the trainee as they have to achieve the same competences as non- academic trainees as well as meet their academic milestones.

The number of academic trainees as a proportion of the anaesthesia trainees across all levels of training is small and in order to encourage those with an interest in academic anaesthesia, training programme directors need to work with the academic leads to ensure that academic trainees are able to access the required clinical training at an appropriate time with sufficient clinical exposure.

3.2.4 Accreditation of Transferable Competences (ATC)

Many core competences are common across curricula. When moving from one approved training programme to another, a trainee who has gained competences in core, specialty or general practice training should not have to repeat training already achieved. The Academy of Medical Royal Colleges (AoMRC) has developed the 'Accreditation of Transferable Competences Framework' to assist trainees in transferring competences from one training programme to another.

The Anaesthetic training programme may employ ATC so that a doctor who has gained competences should not have to repeat training. ATC will apply to successfully completed training or gained competences that are contained in this Curriculum for a CCT, and will be administered in accordance with the Accreditation of Transferable Competences Framework (ATCF).[13]

This does not change the requirement that satisfactory completion of training for CCT requires a doctor to have completed all elements of the GMC approved curriculum. ATC applies only to those moving between periods of GMC approved training, and is aimed at the early years of training. The time to be recognised within the ATCF is subject to review at the first Annual Review of Competence Progression (ARCP) in the new training programme.

See section 3.9 for the components of other programmes that may be recognised for anaesthesia.

3.3 Entry to core level training

3.3.1 Direct entry

Direct entry to Core Level Training [CT1-2] is by competitive selection under nationally agreed arrangements.

3.3.2 ACCS entry

- ACCS training is a three year programme of training in anaesthesia, acute medicine, emergency medicine and ICM. As such it covers areas of the specialty curricula for the four specialty CCT programmes.
- Entry to ACCS training will be by competitive application under nationally agreed arrangements.
- The duration and content of each ACCS specialty module may vary between Deaneries/LETBs. The three year anaesthetic ACCS training is made up of two years of the 'generic' ACCS training followed by one year of specialty specific training; for anaesthetic ACCS trainees, the specialty specific training will be in anaesthetics.
- The minimum learning outcomes for the anaesthesia section of the 'generic' ACCS are derived from the first six months of training, principally those in the Introduction to Anaesthesia section.
- For anaesthetics, the combined ACCS and one year specialty specific training will enable trainees to complete the Core Level anaesthetic competencies plus augmented learning outcomes derived from acute medicine and emergency medicine training.
- Trainees must successfully complete all the core assessments in the ACCS and anaesthetics programmes to pass the ACCS element of training.
- The trainee must achieve all the Core level requirements by the end of the three years of ACCS [anaesthetics] training to be eligible to apply for ST3 in anaesthetics; all ACCS trainees who are appointed to a ST3 post in anaesthetics will follow the anaesthetics higher speciality training defined in this curriculum leading to a CCT.

[13] Accreditation of Transferrable Competences Framework http://www.aomrc.org.uk/publications/reports-a-guidance

3.4 Entry to intermediate level training

Entry to Intermediate Level training [ST3-4] is by competitive selection under nationally agreed arrangements.

All trainees progressing to ST3 are required to have the *Core Level Training Certificate [CLTC]* before they can *commence* their intermediate level training. See section 9.3 for the requirements for the award of the CLTC.

The following are acceptable alternatives to the CLTC:

- **Trainees from outside the UK:** Trainees wishing to enter ST3 who completed their core level training outside the UK, should refer to the GMC position statement *Approved curricula and the role of UK & overseas exams (http://www.gmc-uk.org/education/27138.asp)*
- **Specialty Doctors [SDs] and Staff and Associate Specialist [SAS] grades:** SDs and SAS grades returning to training without a *CLTC* may be assessed individually by the local RA prior to applying for intermediate level training. If appropriate the RA will issue the *Confirmation of Core Level Equivalence Certificate* in lieu of the *CLTC*; they will also need to be in possession of the Primary FRCA.

3.5 Progression to higher and advanced level training

Before progressing to Higher and Advanced Level training [ST5-7] trainees will normally have an *Intermediate Level Training Certificate [ILTC]*.

Trainees who have not passed the Final FRCA in its entirety by the end of ST4 will be able to move to ST5 providing they have satisfactorily completed all intermediate level units of training. They should be issued with an *Intermediate Level Progress Report* [ILPR - see section 10.2.3]. The ILTC will be issued once the Final FRCA is passed. The ILTC and the ILPR [indicating deferrals] must be signed by the RCoA RA [or deputy] and College Tutor [or another designated consultant].

Specialty Doctors and SAS grades returning to training who do not have an ILTC will be assessed individually by the local RA prior to applying for Higher Level training; if appropriate, the RA will issue the *Confirmation of Intermediate Level Equivalence Certificate* in lieu of the ILTC; possession of the Final FRCA is an essential requirement.

A CCT date is estimated, usually on entry to ST5 upon receipt of the ILTC. This is altered if the necessary competences are not obtained by the expected date or other circumstances prevail [such as sick leave or maternity leave].

3.6 Examinations and the award of a CCT

The RCoA FRCA examinations are embedded in the CCT programme and approved by the GMC. It is a legal requirement that the GMC must approve the curriculum, programmes and the assessment system[14].

[14] Section 34I of the Medical Act 1983

3.7 Progression through higher/advanced training to the recommendation for CCT/CESR[CP]

The College wishes to allow trainees to achieve their career aspirations; however, it is recognised that training opportunities must be balanced against anticipated career NHS vacancies. Trainees should therefore recognise the need to maintain flexibility in their choices at the higher and advanced level. If a specific training placement is over-subscribed the TPD and local SAC will determine how this is managed. Once all the agreed learning outcomes for higher/advanced training are completed and the ARCP Outcome 6 has been received, the College will formally recommend to the GMC the award of a CCT or CESR[CP] as appropriate.

3.7.1 CCT versus CESR[CP]

The CCT and the CESR[CP] are two recognised routes for specialist registration. To be a substantive consultant in the NHS, the legal requirement is that the individual is on the specialist register and does **not** stipulate that the individual must have a CCT[15]. The CCT is awarded to those trainees who have completed a GMC approved CCT training programme in its entirety[16] as opposed to the CESR[CP] which is awarded to a trainee who completed a component of their training outside of the approved programme.

Eligibility for a CCT or CESR[CP] will be confirmed by the Training Department and will be based on a case by case basis.

To be able to exercise the rights of freedom of movement between member states and the freedom to provide a service as an anaesthetist in another EU member state, CCT and CESR[CP] holders must satisfy the following criteria:

- Must be a citizen of a European Union state; or
- Has EU community rights (eg a spouse of an EU national); and
- Primary medical degree from a recognised European Union medical school[17]

Additionally for both CCT and CESR holders:

- If the individual is an EU national or has EU community rights, and has worked for 3 out of the last 5 years as a specialist in the UK then this can be recognised in Europe regardless of where their primary medical qualification was obtained[18] [A certificate is required from the GMC as proof – Article 3(3) compliancy certificate]

For those who do not meet this criterion, the individual will be required to be assessed through the European State's equivalence process.

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15 Section 4(b) of SI1996/0701 The National Health Service (Appointment of Consultants) Regulations 1996

16 Section 34K of the Medical Act 1983

17 Article 24 of Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications

18 Article 23, paragraph 1 of Directive 2005/36/EC

3.8 Re-entering training after a break

Doctors who want to re-enter training after a break and are no longer in possession of a training number are required to apply via the national recruitment programme.

For those who have continued to practise anaesthesia [for instance as SDs or SAS grades] the point of re-entry will depend on the level of previous training and subsequent experience. Advice should be sought from the RCoA Training department (training@rcoa.ac.uk).

3.8.1 Re-orientation/Phased return

Trainees returning to the specialty after a substantial break will require a period of re-orientation through a phased return programme. This will vary with the length of the break and the nature of any medical work the trainee has been engaged in during the interim. The Postgraduate Dean, through the School of Anaesthesia/Local Specialty Training Committee, should ask the appropriate College Tutor to monitor the trainee's induction and progress and make recommendations about the requirements for their future training. Advice may be sought from the RCoA Training Committee.

3.9 Transferable components of other GMC approved programmes to Anaesthesia

Trainees may commence GMC approved training programmes in ACCS [EM], ACCS [General Internal Medicine] [GIM], ACCS [ICM], Core Medical Training [CMT] or Core Surgical Training [CST] but decide to change career direction and apply for anaesthesia. When a trainee changes from the above listed programmes to anaesthesia, some components are deemed to be identical in content and outcome, and therefore transferable to anaesthesia providing the programme component had been successfully completed and appropriately assessed in accordance with the assessment requirements of the previous specialty's training programme. These transferable components will normally be recognised for a CCT but trainees contemplating transferring to anaesthesia should contact the RCoA Training Department for advice. Table 2 defines which components of other programmes will be recognised for anaesthesia.

Ist CCT Programme	Transferring to	Completed component	Expected counted time	Maximum counted time
ACCS [EM] [GIM] [ICM]	ACCS [Anaes]	EM, GIM, ICM	Time taken for each completed components	24 months
ACCS [EM]	Core Anaes	Introduction to Anaesthesia	6 months	6 months
ACCS [EM]	Core Anaes	ICM	3 months	3months
ACCS [GIM]	Core Anaes	Introduction to Anaesthesia	6 months	6 months
ACCS [GIM]	Core Anaes	ICM	3 months	3 months
ACCS [Anaes]	Core Anaes	Introduction to Anaesthesia	6 months	9 months
EM Run-through	Core Anaes	Introduction to Anaesthesia	6 months	6 months
EM Run-	Core Anaes	ICM	3 months	3months

through				
EM Run-through	ACCS [Anaes]	EM, GIM, ICM	Time taken for each completed components	24 months
CMT	ACCS Anaes	Medicine	6 months	6 months
CMT	ACCS Anaes	ICM	3 months	6 months
CMT	Core Anaes	ICM	3 months	3 months
CST	Core Anaes	ICM	3 months	3 months
CST	ACCS [Anaes]	ICM	3 months	6 months

Table 1 Transferable programme components to core anaesthesia and ACCS anaesthesia

In addition, trainees in GMC approved single ICM training programmes may have undertaken one of three Core programmes; ACCS, Anaesthesia training, and CMT. Those trainees who do not come from the Anaesthesia training route may subsequently wish to undertake Dual training in ICM and Anaesthetics. The anaesthetic competences obtained within the single ICM training programme can be recognised towards the core Anaesthetic training programme to enable a trainee to apply to also undertake Dual training in ICM and Anaesthetics. Single programme ICM trainees who then go on to also be appointed to an anaesthesia programme, can count the anaesthetic competences achieved during Stage 1 of the ICM post towards the Intermediate anaesthetic training, rather than revisiting these competences once appointed to a ST3 Anaesthetics post. This is because the anaesthetic competences obtained during Stage 1 of an ICM training post will be of a general nature.
Trainees contemplating this are strongly advised to contact the RCoA Training Department for advice.

3.10 Principles for approving previous training and experience

In a competency based training programme previous training and experience obtained outside a standard training programme may be accepted by the Deanery/LETB [subject to confirmation by the College] when an applicant is appointed to a GMC approved training programme at ST3. The duration of previous training and experience that can be accepted will be defined by the national person specification relevant to the year of entry. Trainees appointed to the anaesthetics programme above CT1 will normally only be eligible for the CESR[CP]. Special provisions exist for EU trainees who have undertaken anaesthesia training in another EU country and eligibility for a CCT. The College will confirm whether the trainee is on the CCT or CESR[CP] route when they register with the College in accordance with GMC rules (http://www.gmc-uk.org/education/27138.asp).

3.10.1 Types of posts where approval of training in the UK and EU might be sought

- ***Locum Appointments for Training [LAT]*:**
  - A LAT post can count towards a CCT if it covers a clearly identifiable portion of the approved training programme specified in this curriculum, has been correctly delivered and assessed *and* it is properly documented.
  - If a doctor is appointed to a UK anaesthesia training programme through open competition, the documented competencies achieved during a LAT[s] may be taken into account by the TPD and ratified by the RCoA when determining the trainee's remaining training programme.

- The GMC does not have limits on the maximum time spent in LATs except that they can only count towards a CCT if the doctor subsequently enters an approved training programme. Deaneries/LETBs should keep a careful record of these appointments on the trainee's file. A doctor *cannot* obtain a CCT with only LAT appointments; they can, however, use LATs towards their Certificate of Eligibility for Specialist Registration [CESR] application.
- Trainees must submit the form – Application for recognition of LAT/FTSTA for a CCT/CESR[CP] – to the Training department. This form is available in the Careers and Training section on the College website.

- ***Locum Appointments for Service [LAS]*:** cannot count towards CCT training but may count as experience towards a CESR.
- ***Training in another European Union [EU] state:*** Prospectively approved and documented training in another EU state may be accepted on the same basis as UK approved training, subject to certain conditions. Advice on this can be obtained from the College, at training@rcoa.ac.uk, and the GMC website www.gmc-uk.org.

3.10.2 Unapproved training and experience

Experience gained outside GMC-approved training posts may be accepted by a deanery/LETB as proof of competencies when an applicant is appointed to a GMC approved training programme at ST3. Any training gained in non-GMC approved posts cannot count towards a CCT but may count towards a CESR[CP]. The College will advise on the recognition of non-GMC approved training, however the final decision rests with the GMC. The duration of previous training and experience that can be accepted for specific points of entry in the training programme will be defined by the national person specification relevant to the year of entry.

3.10.3 Recognition of higher and advanced level training

This can only be obtained with prospective approval; the rules for the prospective recognition of higher and advanced level training in unapproved posts in the UK or abroad, i.e. Out of Programme Training [OOPT], are described in Section 12.

3.11 Military service

Military trainees are normally attached to Schools of Anaesthesia and are trained alongside civilian trainees, following the same Curriculum. All military medical education is commissioned by the Defence Postgraduate Dean on behalf of the Defence Medical Services.

Due to the nature of military service, military trainees may be deployed away from their training rotations as required by the Ministry of Defence. It is recognised that there are training opportunities while deployed on operations; these learning outcomes have been formalised in the military unit of training, which may form part of Higher Level general duties training.

The military unit of training can only account for three months of the total indicative twelve months higher level general duties. Only one deployment will count and any additional time deployed beyond three months will extend the calculated CCT date. Deployment time will not count towards the allowable twelve months overseas out of programme training [OOPT] in ST5-7. Trainees should discuss overseas OOPT opportunities with the Tri-services RA before applying for such a placement. For OOPT see section 12.

There may be additional opportunities for training while on deployment. The Training Committee will examine requests for training recognition; however such requests must first be approved by the Tri-services Deanery. This is to ensure that the proposed training meets the requirements of the Curriculum and benefits all defence anaesthesia trainees.

4. Simulation technology for learning in anaesthesia

4.1 *Context*

Provision of simulation resources has increased across the UK. Simulation is used to augment clinical experience and allow the safe acquisition of skills. It should be used not only for assessment purposes, but also for practice or rehearsal of scenarios prior to actual patient care. Areas of the curriculum where clinical exposure may be lacking e.g. anaphylaxis or malignant hyperpyrexia, may be addressed using simulation.

4.2 *Application in Training*

Simulation can be delivered by many different methods. Effective simulation can:

- Train and ingrain new skills: learning routines and steps that together comprise a complex skill.
- Reinforce drills: teach and test the learner's response to specific critical incidents
- Develop professional behaviour and the non-technical skills necessary for expert anaesthetic practice

4.3 *Implementation*

We encourage those departments with access to simulation resources to integrate and further develop simulation programmes in their training. Numerous courses are available to provide simulation facilitation training and the RCoA encourages the development of these skills by trainers.

Schools of Anaesthesia are encouraged to establish links with simulation centres to ascertain the best approach for local integration and application of simulation-based education within CCT training programmes.

4.4 *Application in Assessment*

Simulation is used as a validated assessment tool in the OSCE section of the Primary FRCA Examination for assessing a candidate's response to specific critical incidents and to assess key communication skills. Similarly in the workplace simulation should be used to support the initial assessment of competence in techniques such as rapid sequence induction [RSI] and the failed intubation drill, as well as teaching and assessing competence in obstetric anaesthesia and analgesia prior to commencing duties in the Maternity Unit.

5. Clinical supervision

5.1 Clinical supervision

Every trainee must, at all times, be responsible to a nominated consultant, whether undertaking routine lists without direct consultant supervision, or emergency duties. The consultant must be available to advise and assist the trainee as appropriate. Sometimes this will require the consultant's immediate presence but on many occasions less direct involvement will be needed. Supervision is a professional function of consultants and they must be able to decide what is appropriate for each circumstance in consultation with the trainee. The safety of an individual hospital's supervision arrangements is the concern of the local department; it is necessary for them to agree local standards and protocols that take account of their particular circumstances. This section details the definitions of the different levels of supervision that local departments must consider; and have been developed from a consideration of the professional responsibilities of medical practitioners to patient safety.

5.1.1 Educational supervision

Every trainee must have a nominated educational supervisor to oversee their individual learning. The College recommends that an educational supervisor is responsible for a maximum of four trainees.

5.2 Clinical supervision: the obligation to patients

Every patient requiring anaesthesia, pain management, or perioperative medical or intensive care must be cared for under the direction of an appropriate named consultant. When appropriate, trainees or Specialty Doctors[19] may, provided they have the appropriate competencies provide direct care, without direct consultant supervision. To ensure the safety of patients, a trainee must be responsible to, and subject to clinical supervision by a designated consultant *at all times*. This includes those occasions when the trainee, as part of their training, is deemed competent to make decisions without immediate reference to a more senior clinician.

Trainees must be encouraged to seek advice and/or assistance as early as possible whenever they are concerned about patient management; both in and out of hours. At all stages of training, a supervisor must respond with appropriate support to a request for assistance from a trainee. *Patient safety must never be compromised*.

Every doctor should be prepared to oversee the work of less experienced colleagues and must make sure that medical students and doctors in training are properly supervised.[20] Thus, there is an expectation that more senior trainees will provide appropriate levels of supervision to their more junior colleagues at times.

5.3 Grades of clinical supervision

Clinical supervision of daytime and out of hours duties for trainees falls into two categories: *direct* and *indirect*:

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[19] Specialty Doctor includes Staff and Associate Specialist [SAS] grade.

[20] *Good medical practice*, GMC 22 April 2013, paragraph 40: *Teaching and training, supporting and assessing*

Direct supervision: This means the trainee is working directly with a supervisor who is actually with the trainee *or can be present within seconds*. This proximity maintains patient safety but, when appropriate, allows a trainee to work with a degree of independence that allows them to develop confidence.

Indirect supervision: Indirect supervision falls into three categories: *local, distant and remote sites:*

- *Local supervision:* The supervisor *is usually within the theatre suite e.g. the 'starred consultant' system*, is immediately available for advice and is able to be with the trainee within minutes of being called. The actual permitted time and/or 'distance separation' of the supervisor from the trainee should be determined locally to maintain acceptable levels of patient safety; this will depend on the combination of the trainee's grade, the nature of the clinical work and the layout of the hospital.

- *Distant supervision:* This means the supervisor is available rapidly for advice but is off the hospital site and/or separated from the trainee by over 10 minutes. The maximum time or 'distance separation' permitted will be determined by local clinical governance arrangements. Support for trainees during distant supervision is one of the factors that must be considered by the Deanery/LETB and the GMC when determining the grade and number of trainees who can be trained at any given hospital. Distant supervision requires that:

  - The trainee and supervisor agree that it is appropriate for the trainee
  - The trainee knows the limitations within which he/she can work
  - The trainee is capable of managing the possible complications of any procedure he/she might reasonably be expected to undertake until help arrives

- ***Supervision in remote sites:*** The RCoA defines a remote site as any location where general or regional anaesthesia is administered away from the main theatre suite and/or anaesthetic department and in which it cannot be guaranteed that the help of another anaesthetist will be available. This may be either within or away from the base hospital. Supervision in a remote site is a special example of distant supervision. Trainees should only be permitted to work in remote sites under distant supervision if:

  - The trainee is judged by the Clinical Director in conjunction with the College Tutor/Educational Supervisor to possess the knowledge, skills, professional judgement and experience which is required to undertake such duties
  - A consultant is available to provide advice for the trainee throughout the period that the trainee is anaesthetising in a remote site
  - Skilled assistance for the trainee anaesthetist is available in the remote site at all times
  - The anaesthetic equipment and monitoring complies with the current recommended guidelines and standards appropriate to the work being performed in the remote site
  - The trainee has the confidence to work at the proposed level of supervision

5.4 Clinical supervision by Specialty Doctors

When clinical supervision of a trainee is being provided by a Specialty Doctor, the trainee must always have access to an identified Consultant.

5.5 Clinical supervision of one trainee by another

Clinical supervision of one trainee by another occurs out of necessity and is also an essential part of their training; senior trainees must gain the knowledge, skills and professional judgement to do this safely and effectively. So, a junior trainee may refer to a more senior trainee as their first line of advice and assistance ***however both must be subject to consultant supervision.***

There will be some occasions during highly specialised training when it will be inappropriate for senior trainees to act as supervisors because they themselves may require direct supervision from a consultant.

5.6 Clinical teaching and supervision

The placement of a trainee with a consultant is always a teaching opportunity. The time spent by trainees with consultants allows both teaching and assessment of the trainee, and both aspects form part of clinical teaching. There will be times when direct supervision may be a prime requirement for patient safety and equally, there will need to be times when supervision is more 'hands-off' to allow trainees to develop their skills running clinical sessions themselves.

Areas for assessment should be identified prior to starting a list, and the trainee should ask the trainer in advance to perform an assessment .The trainer should observe the performance of the trainee, and give immediate verbal feedback as well as suggestions for future development, further reading etc. Trainers should comment on clinical and non-clinical aspects of performance, such as professionalism and team-working

6. Trainees requiring additional support

For most trainees the ARCP will confirm that they are on course to complete training without difficulty. For those not progressing as expected, additional help and support must be given to enable them to fulfil the requirements of the programme. The College strongly encourages all supervised training sessions to be assessed formatively so that trainees who are experiencing difficulties come to the attention of trainers early. This should give the trainee time to try and overcome the deficiencies identified, and allow trainers to target training and support. If the problems identified are related to attitudes and behaviours, the use of non-technical skills assessment and targeted training may be required [see also human factors Section 2.1.6].

Any difficulties should feed into the appraisal process, via the educational supervisor's structured training report and MSF and consultant feedback. If local trainers are unable to remedy the situation, the ARCP panel must be made aware via the educational supervisor's structured report so that directed learning objectives can then be set. Help might involve a combination of extra supervision, counselling or focused training. Those involved in the review should take account of any relevant external factors which may have affected progress in training. Trainees should be aware that the outcome of meetings with their clinical and educational supervisors will, with their knowledge, help inform the assessment process and therefore the ARCP panel; such discussions should be recorded.

Where progress is not judged satisfactory at the ARCP there are courses of action that may follow; more information can be found in the 'Gold Guide'.

6.1 Guidelines for trainees who have not passed the FRCA examinations

6.1.1 Primary FRCA Examination

The Primary FRCA Examination assesses the knowledge and understanding required for progression from Core to Intermediate level training. Trainees who have not passed the Primary FRCA examination cannot progress to Intermediate level training. The number of examination attempts is limited [see the examinations webpage], and the following action is advised when managing trainees who have not passed the Primary FRCA by the end of CT2:

- Providing there are no outstanding concerns in the other GMP domains the ARCP panel may recommend an ARCP "Outcome 3" allowing extra time. Any additional time is at the discretion of the Postgraduate Dean and subject to the conditions defined in the Gold Guide.
- Reasons for the examination failure should be explored carefully with the trainee who should receive appropriate help, support and guidance to pass the examination. This could include guidance sessions organised by the RCoA.[21] If there is a health issue underlying the examination failure, advice from an Occupational Health Physician should be sought regarding both training and the timing of future examination attempts.
- Failure to pass the assessment of knowledge at the end of an extension in training time will normally result in withdrawal from the training programme and loss of the training number.[22]
- If the trainee subsequently passes the Primary FRCA Examination after losing their training number, the trainee may be eligible to apply for ST3 posts in open competition provided they have their trainers written support [see respective National Recruitment Person Specification and 'Support for Reapplication to a Specialty Training Programme' form].
- If, in addition to having failed the Primary FRCA examination, there are outstanding concerns about the trainee's performance in other GMP domains, it is for the Dean to decide if the trainee should be

[21] Royal College of Anaesthetists, *Primary and Final FRCA Examination Regulations*, Regulation 33

allowed to continue training in anaesthesia, following advice from the trainee's TPD, RA and other appropriate trainers.

6.1.2 Final FRCA Examination

The Final FRCA Examination assesses the knowledge and understanding required for progression from Intermediate to Higher level training. Trainees who have not passed the Final FRCA Examination by the end of the first 6 months of ST5 cannot progress to the remainder of Higher level training. The number of examination attempts is limited [see the examinations webpage], and the following action is advised when managing trainees who have not passed the Final FRCA by the middle of ST5:

- Providing there are no outstanding concerns in the other GMP domains the ARCP panel may recommend an ARCP "Outcome 3" allowing extra time. Any additional time is at the discretion of the Postgraduate Dean and subject to the conditions defined in the Gold Guide.
- Reasons for the examination failure should be explored carefully with the trainee who should receive appropriate help, support and guidance to pass the examination. This could include guidance sessions organised by the RCoA.[23] If there is a health issue underlying the examination failure, advice from an Occupational Health Physician should be sought regarding both training and the timing of future examination attempts.
- Failure to pass the assessment of knowledge at the end of an extension in training time will normally result in withdrawal from the training programme and loss of the training number. If the trainee subsequently passes the Final FRCA examination after having lost their training number, they may be eligible to apply in open competition to return to a training programme [see respective National Recruitment Person Specification and 'Support for Reapplication to a Specialty Training Programme' form].

If, in addition to having failed the Final FRCA examination, there are outstanding concerns about the trainee's performance in other GMP domains, it is for the Dean to decide if the trainee should be allowed to continue training in anaesthesia, following advice from the trainee's TPD, RA and other appropriate trainers.

[23] Royal College of Anaesthetists, *Primary and Final FRCA Examination Regulations*, Regulation 33

7. Assessment

7.1 Evidence for the Annual Review of Competence Progression [ARCP]

Award of the CCT depends on having completed a GMC approved programme of training and having demonstrated key knowledge and capabilities in the course of assessments. Trainee progress through the curriculum is reviewed at the ARCP process and this determines the learner's further progress.

It is the responsibility of the trainee both to understand what evidence will demonstrate appropriate progress and to accumulate and tabulate this evidence. Inability to collect and organise the evidence is itself taken to be a significant failing which is likely to be reflected in other aspects of professional life. To this end, it is emphasised that it is the trainee's responsibility to ensure that the assessments are completed within in each unit of training.

The ARCP is organised and operated by Postgraduate Deans. Its general principles are laid down by the GMC and are described in the 'Gold Guide'. The RCoA is responsible for advising on the specific evidence that is required in its specialty training programme.

The Trainee will work with their educational supervisor to develop evidence of satisfactory progression through their agreed learning. A summary of this evidence will then be presented by the educational supervisor to the ARCP in the Educational Supervisors Structured Report (ESSR).

7.2 RCoA Fellowship examinations

7.2.1 Tests of knowledge for the award of a CCT

The tests of knowledge are important milestones for progression in the training programme which coincides with the progression from core to intermediate level; and from intermediate to higher level. The examination is cited as one of the methods of assessment for each competency in the professionalism of medical practice and core and intermediate level units of training. The blueprint of each unit of training and component of the RCoA Primary examination is in Annex B. The blueprint of each unit of training and component of the RCoA Final examination is in Annex C. Trainees should be aware that the questions for each component of the Primary examination may be drawn from any of the competencies (skills and knowledge) from the core units of training, basic sciences and professionalism of medical practice (Annex A). Questions for the Final examination may be drawn from those areas cited for the Primary examination and the competencies (skills and knowledge) from the intermediate units of training, advanced sciences and Professionalism of medical practice (Annex A).

The RCoA Fellowship examination is a GMC approved assessment for the award of a CCT.

7.2.2 RCoA Fellowship

The RCoA Fellowship is awarded to those individuals who have successfully completed the RCoA Final examination. The awarding of the Fellowship is independent of the training programme and is a College decision. While the Fellowship examinations are embedded in the CCT in Anaesthetics curriculum for the award of a CCT, the Fellowship examination is open to other individuals who meet the eligibility

requirements defined in the RCoA Examination Regulations[24]. The Examination regulations also define those qualifications, which the College accept as exempting qualifications from the Primary examination[25].

7.2.3 Faculty of Pain Medicine [FPM] Fellowship

The FPM fellowship is awarded to those individuals who have successfully completed the FPM Fellowship examination and meet the requirements set by the FPM. Successful completion of the examination is not a requirement for the award of a CCT in Anaesthetics and is optional for pain medicine trainees.

All pain medicine competencies annotated with an E [core, intermediate, higher and advanced] may be examined in the FPM fellowship examination and can count towards the assessment of individual clinical competencies. The exam does not replace the FPM defined number of workplace based assessments. [See section 8.3.3]

More information on the FPM examination can be obtained by contacting the FPM.

7.3 Workplace-Based Assessments [WPBA]

7.3.1 Choosing Appropriate Assessment Tools

The curriculum was reviewed and the cognitive learning outcomes that lend themselves to conventional testing by written and oral examination were marked for formal examination. Those cognitive, psychomotor and behavioural learning outcomes that remained have been allocated to appropriate instruments for WPBA. As an outcome-based curriculum identifies very large numbers of items, a strategy of sampling assessments has been selected in order to make the assessment task manageable and to minimise the disruption of normal work and the possibility of increased risk to patients.

An assessment tool has been identified for every competency in the curriculum. Where possible more than one methodology is identified so that it is possible to triangulate performance. It is intended that a sample of these assessments will be undertaken by each learner. It is also possible that some aspects of or a module outcome could be assessed using other methods, for example, satisfactory completion of an Advanced Life Support course as evidence of completion of a Core Clinical Learning Outcome from the resuscitation module.

The choice of which outcomes to assess is defined by each School of Anaesthesia and the formative assessments themselves are left to the learner and their educational and clinical supervisors. This will depend on the opportunities that the clinical work presents and the learner's needs.

Schools of Anaesthesia are to ensure that the curriculum is adequately sampled through either the use of WPBA and/or other formalised accredited training courses[26] to provide the necessary evidence, which along with the professional judgement of trainers, demonstrates whether a trainee has met the

[24] The Royal College of Anaesthetists, *Primary and Final FRCA Examination Regulations.* Sections 5,6 and 7.
[25] Para 19, Primary and Final FRCA Examination Regulations
[26] An accredited course is a nationally recognised course or a College accredited course which includes an assessment of the required skills and knowledge attained by completing the course. e.g. ATLS, ALS

standard required by the Completion of Unit of Training form or the attainment levels defined for intensive care medicine.

7.3.2 The Available Assessment Methodologies

Units of Training can be signed off as complete when supervisors are satisfied that the learning outcomes have been achieved. Supervisors should draw upon a range of evidence including the logbook of cases completed, workplace-based assessments and consultant feedback to inform their decision. The logbook review should consider the mix of cases, level of supervision and balance of elective and emergency cases, if relevant, for the unit. Any other evidence provided by the trainee, such as course attendance certificates can be reviewed at this time. All hospitals must identify appropriate designated trainers to sign off each unit of training. Each trainer should be familiar with the Core Clinical Learning Outcomes for the unit of training and be able to provide guidance for trainees who have not yet achieved the learning outcomes. It is possible for a trainee to have all WPBAs signed off but not successfully complete the unit because of, for example, professional attitudes or inappropriate non-technical skills i.e. characteristics which will be captured by consultant feedback.

A pragmatic approach to the choice of assessment methods has been adopted. These are the A-CEX, DOPS and CBD. These methodologies have a practical utility attested to by experience in their use and at least some objective evidence that correctly applied they have validity and reliability. The ALMAT and ICM-ACAT tools have been added to allow the observation/assessment of a whole anaesthetic case or list/clinic/ward work.

7.3.3 How many workplace-based tests

The purpose of the anaesthetic WPBAs is to provide evidence towards achievement of the Core Clinical Learning Outcomes for each Unit of Training. It is not to tick off each individual competence. The number of observations of work required is a minimum of one for each assessment type as identified in the respective level of training blueprint but the final number of each will ultimately depend on the individual trainee's performance and advice from the trainer responsible for overseeing the specific Unit of Training in the hospital concerned.

As noted in section 5.6 [Clinical teaching and supervision] the placement of a trainee with a consultant is always a clinical teaching opportunity and this includes assessment. Any such teaching opportunity should be accompanied by feedback from trainer to trainee [this includes senior trainee to junior trainee, when the opportunity arises] and during such feedback it would often be possible to complete an assessment such as a DOPs or A-CEX.

Taking account of the above there is concern about recommending the number of assessments required; A-CEX, ALMATs, CBDs and DOPs should all be used to inform individual completion of units of training; these must sample widely and in sufficient numbers. Despite concern about recommending a minimum, trainees should successfully complete a minimum of one of each assessment type identified in the WPBA blueprint for each unit of training in annexes B, C, D and E or as advised by the trainer responsible for overseeing the specific Unit of Training in the hospital concerned. *The exception is advanced pain medicine; the minimum numbers of assessments are 4 A-CEX, 4 CBD, 6 DOPS, 1 MSF and 2 case studies.* One assessment may be linked as evidence to more than one unit of training [except for advanced pain medicine], for example, an A-CEX for regional anaesthesia may also be linked as evidence

to sedation and orthopaedics. When deciding to use a WPBA for more than one unit, the assessor must ensure that the assessment appropriately covers aspects of the syllabi for the units of training intended to be assessed.

The number of assessments for intensive care medicine has been set by the Faculty of Intensive Care Medicine. The assessment requirements are detailed in section 2 of Annex F.

When a trainee's performance gives cause for concern, more assessments will be needed. It is the responsibility of the trainee to provide at their annual review what they consider to be evidence of performance and progress. They will need evidence for each unit of training or section of the curriculum they have undertaken. It is the educational supervisor's responsibility to help the trainee to understand what that evidence will be appropriate in their specific circumstances.

Once again it must be stressed that there is no single, valid, reliable test of competence and the ARCP will review all the evidence, triangulating performance measured by different instruments, before drawing conclusions about a trainee's progress.

The MSF unlike the other workplace based assessments provides feedback on professional attitude and behaviours from a wide range of individuals who have worked with the trainee in the current training year. Other WPBA are a snap shot in time covering a clinical episode where the MSF is used to measure a trainee's performance across a broader period of time.

Trainees are required to have at least one MSF completed for each training year. The MSF completed during the ICM and pain medicine rotations satisfies this requirement. However, if concerns have been raised either verbally by staff or as comments on the other WPBAs, then it is appropriate to conduct further MSFs as required. There must be at least 15 assessors and a minimum of 8 responses for each MSF. If the minimum number is not received, the MSF must be redone. Before the MSF is sent out to recipients via the e-Portfolio, the trainee must provide their educational supervisor with a list of names they propose to complete the MSF. The educational supervisor approves the list to ensure that the sample provides an adequate cross section of medical and non-medical staff. The MSF response window will be open for one month.

Consultant feedback, and feedback from other approved anaesthetist trainers, is also an important source of evidence when assessing trainees' performance. This means of assessment is valuable in identifying trainees who are performing above and below the standard expected for their level. Consultant feedback differs from MSF as it concerns a trainee's progress in a specific unit of training only. MSF seeks feedback from the multidisciplinary team, including consultants, on overall professional behaviour.

7.4 Values and behaviours of practice

It is difficult to assess 'professional attitudes and behaviours'; they cannot be directly observed but are demonstrated by actions. The taxonomy used for these is the CANMEDS classification that was developed by the Royal College of Physicians and Surgeons of Canada [http://www.royalcollege.ca/portal/page/portal/rc/canmeds/framework]. Additional information has been incorporated from the GMC guidance 'Good Medical Practice' and from Anaesthetic Non-Technical Skills [ANTS] [http://www.abdn.ac.uk/iprc/ants_w]. The values and behaviours of practice may be evident as skills or knowledge, and may be assessed directly using the assessment system. Many,

however, do not manifest themselves except in the performance of another competence; the WPBAs have been developed to allow identification of these traits.

7.5 The Annual Review of Competence Progression [ARCP]

A wide variety of information is available as evidence for the annual review. It is deemed to be the learner's responsibility to present their reviewers with evidence of progress. Sources of information are:

- Evidence of performance in professional examinations – if applicable;
- A reflective diary of learning experiences;
- Evidence of completion of units of training appropriate to stage of training, including
    - WPBAs: DOPS, A-CEX, CBD and ALMAT* [Minimum of one WPBA for each assessment type per unit of training where indicated in the assessment blueprints in the annexes or the School of Anaesthesia minimum if defined or *the minimum specified for advanced pain medicine*, whichever is greater;
    - A log of clinical work undertaken;
    - Consultant feedback forms
- For intensive care medicine, WPBAs: DOPS, ICAT, I-CEX and CBD [numbers specified by the FICM and defined in Annex F];Completion of Unit of Training Form [CUT];
- A record of agreed targets and outcomes from interviews with their educational supervisor;
- A multi-source feedback if appropriate;
- Specific evidence of performance in areas such as research and education; and
- Optionally: a record of a School of Anaesthesia appraisal interview

It is accepted that there is no good evidence of the validity and reliability of any of these evidences. The process of reviewing them is not arithmetic. The educational supervisor must seek to use these evidences to answer four questions:

Table 2 Questions for ARCP panels

Criterion	Domains in GMP	Evidence
1) Has the learner undertaken a clinical workload appropriate in content and volume to the acquisition of the core clinical learning outcomes?	1,2,3	Logbook; CUT forms; Appraisal
2) Has the learner met the general educational objectives of the curriculum and personal and specific objectives agreed with their educational supervisor or as a previous remedial programme?	1,2,3	Log-book; Educational supervision reports; Appraisal
3) Do the learners supervisors believe that they have performed satisfactorily in their clinical work, as judged by their reports and the workplace-based assessments?	1,2,3,4	Log-book, WPBAs; educational supervision; CUT forms
4) Is their evidence that the learner performs satisfactorily as a member of a clinical team including teamwork and a focus on safe practice?	2,3,4	Multi-source feedback; CUT forms; Appraisal

Table 3 Domains of Good Medical Practice	
Domain	**Descriptor**
1	Knowledge, Skills and Performance
2	Safety and Quality
3	Communication, Partnership and Teamwork
4	Maintaining Trust

7.6 The Workplace-Based Assessments

Training programmes in anaesthetics use workplace-based assessment as part of the assessment process for each unit of training. The workplace-based assessments are conducted using the workplace assessment tools, which consists of:

- Direct Observation of Procedural Skills (DOPS);
- Anaesthesia Clinical Evaluation Exercise (A-CEX);
- Multi-Source Feedback (MSF);
- Anaesthesia List Management Assessment Tool (ALMAT); and
- Case Based Discussion (CBD)

The DOPS, A-CEX and ALMAT are used during clinical sessions, and the assessments are based on the observed performance of the trainee's skills, attitudes and behaviours, and knowledge. The CBD is used away from the clinical environment – it allows the assessor to question the trainee about a clinical episode to assess the trainee's knowledge and rationale for their actions or what they would do if presented with the clinical scenario.

7.6.1 Simulation based assessment

Simulation has an important role in teaching, particularly in rehearsing uncommon events and team training as well as a medium for demonstrating procedures and routines. The use of simulation as a means of assessment for elements of the IAC and IACOA [for example failed intubation and epidural insertion] is strongly recommended.

7.6.2 Logbook and Portfolio

Trainees are required to keep a record of the cases that they undertake. The level of detail of these records is described elsewhere. The RCoA has defined the categories of experience but has not stipulated the number of cases that must be undertaken. This is because it is more important to demonstrate competence than to achieve a target of experience. Self evidently a learner cannot become competent without undertaking cases and their performance must be considered in the context of their experience. In the event that assessments indicate underperformance in an area of practice the first response is to check from the logbook that the learner has had sufficient exposure to it. Incompetence in the face of what is usually sufficient exposure is a cause for concern.

The portfolio of learning is more than a logbook. It must include reflections on learning and a record of other teaching and of discussions with the educational supervisor.

7.6.3 Evidence of participation and attendance at training events

Until recently evidence of attendance at a learning session was taken to be the standard for accumulation of credits in continuing medical education. Attendance does not assure that learning has occurred but it does signify compliance with an appropriate learning plan. There are a number of aspects of training that lie on the periphery of practice such as Research Methods, Management, Evidence Based Practice, Teaching and Assessment. At present there is little focussed assessment in these areas and significant practical difficulties lie in the way of introducing summative assessment. The RCoA has at present adopted the middle ground in these areas and requires that evidence of participation in learning is presented to the ARCP. These include attendance at specific courses, evidence of presentation at local audit/quality improvement and research meetings and records, and feedback from teaching the trainee has delivered; *guidance is available in the training section of the College website.*

7.6.4 An Independent Appraisal

Evidence to the ARCP must include an appraisal. In many Schools of Anaesthesia this will be with the educational supervisor and will be part of the documentation relating to episodes of supervision. Some Schools conduct independent appraisal of the ARCP evidence in advance of that meeting and include this formal appraisal in the evidence for the review. This practice provides a more independent review of their training which will also include the adequacy of their educational supervision, as poor planning by the supervisor may contribute to poor outcomes by the trainee. It also provides the trainee with the opportunity to explain and expand upon the evidence they present in their portfolio.

7.7 Failure of FRCA examinations

The process to appeal against a failure of a College FRCA part examination is defined in the *Primary and Final Examinations: Representations, Reviews and Appeals Regulations,* available on the College website in the Examinations section [www.rcoa.ac.uk].

7.8 Assessors

7.8.1 Workplace assessors

Workplace assessments in the anaesthetics programme are conducted by consultants, speciality doctors and trainees. In accordance with GMC standard 5.9 for postgraduate training[27], trainees must only be assessed by someone with appropriate expertise in the area to be assessed.

Taking into account GMC standard 5.9, it is appropriate that senior trainees be given the opportunity as part of their training [to achieve the competencies in annex G] to assess junior trainees. It is the responsibility of the Clinical Supervisor to determine whether it is appropriate for the trainee to conduct the assessment on a junior trainee. The only exception is assessments for the IAC and IACOA, where the assessments must conducted by either a consultant or specialty doctor. It is also appropriate that some assessments may be delegated to non-medical staff members who have the required expertise, for example a scrub nurse assessing a trainee scrubbing for theatre. When a non-medical staff member

[27] *The trainee doctor*, page 22. *Promoting excellence,* General Medical Council. January 2016.

performs an assessment, the actual workplace based assessment must be approved by a consultant or specialty doctor and the assessment result based on the recommendations from the non-medical staff member. When a non-medical staff member performs the assessment, their name should be included in the comments area of the workplace based assessment tool.

7.8.2 FRCA Examiners

Examiners for the Primary and Final FRCA examinations are appointed by the College. The process and criteria for the appointment of examiners is defined on the College website (www.rcoa.ac.uk).

All examiners undergo a training programme to ensure consistency of assessment in the oral examinations for both the Primary and Final; they undergo appraisal and monitoring throughout the examinations process for quality assurance purposes.

8. Training Documentation

8.1 RCoA recommendations for portfolios and logbooks

8.1.1 Portfolios

All trainees are required to maintain a Portfolio of training activity. By the end of training their Portfolios should meet the requirements for NHS appraisal and GMC revalidation for consultants.

The Portfolio is a means of recording the information and collecting the documentation required for appraisals and assessments during training. Keeping the Portfolio up to date will demonstrate the acquisition of the appropriate knowledge, skills, attitudes, and therefore competence.

8.1.1.1 e-Portfolio

Trainees registered with the RCoA have access to the e-Portfolio system. The e-Portfolio allows the storage of training documents and manages workplace based assessments referenced to the curriculum units of training. Trainees should register with the College as soon as they have accepted an offer for a training placement by completing the core or higher specialty training registration forms available on the College website, where more information on the e-Portfolio is also available.

8.1.2 Logbooks, diaries and other records

Trainees must record the details of anaesthetics they have given in a suitable logbook.

A Logbook Summary in the format shown in Appendix 4 or a report downloaded from the RCoA's electronic logbook should be present within the trainee's e-Portfolio for each ARCP.

8.1.2.1 ICM

Anaesthetic trainees attached to critical care should maintain a record of their mandatory ICM competence acquisition by completing an ICM Training Progression Grid. This Grid should then be uploaded to the personal library in the e-Portfolio system as evidence for sign-off of the ICM unit of training. Any trainee with a specific interest in this field should adopt the Faculty of Intensive Care Medicine's record of training at an early stage. [See Annex F]

8.1.2.2 Pain medicine

Anaesthetic trainees undertaking pain medicine training should maintain a diary of sessions spent in these activities [including acute pain rounds]. Trainees should maintain a logbook of acute and chronic pain cases seen, with a record of procedures [see the FPM website]. Any trainee with a specific interest in this field should keep more detailed records from an early stage.

8.2 Data Protection

The Data Protection Act 1998 governs the collection, retention, and transmission of information held about living individuals and the rights of those individuals to see information concerning them. The Act

also requires the use of appropriate security measures for the protection of personal data. Special treatment is required for the processing of 'sensitive data' [e.g. religion, race, health etc]. All doctors must be aware of the implications of this legislation for their work. Trainees should further be mindful of logbooks which are backed up in the Cloud.

8.2.1 Use of patient ID in logbooks

Patients must not be individually identifiable from the patient ID used. The GMC Confidentiality Guidance defines anonymised data as 'Data from which the patient cannot be identified by the recipient of the information. The name, address and full postcode must be removed together with any other information which, in conjunction with other data held by or disclosed to the recipient, could identify the patient.'[28] The RCoA recommends that trainees only record the age [not date of birth], sex and ASA grade of patients and that no other unique numbers are retained.

8.3 Documentation of training

It is essential that trainees and Schools of Anaesthesia maintain proper training records for a number of reasons: to ensure that individual trainees receive an appropriately balanced programme of training; to inform the ARCP; to support the revalidation process and to assist the external quality control and assessment of training by the GMC, the Postgraduate Deans and the College.

8.3.1 The trainee's responsibilities

- At the commencement of the training programme the trainee must register with the College to enable an e-Portfolio account to be created. [See section 8.1.1.1 for e-Portfolio] This account must be contemporaneously maintained throughout training.
- It is the trainees' responsibility to ensure that their 'Workplace Assessments' for individual units of training are completed *by reminding those responsible at the appropriate time*. If however a trainee experiences unreasonable difficulty in obtaining the necessary assessment they should communicate this to the College Tutor or, exceptionally, to the Regional Adviser.

8.3.2 The School's responsibilities

- Details of assessments and records of appraisals must be kept by the School of Anaesthesia.
- Schools of Anaesthesia should ensure that trainee and trainer information on the e-Portfolio is current and accurate.

[28] http://www.gmc-uk.org/guidance/ethical_guidance/confidentiality.asp

9. THE DELIVERY OF CORE LEVEL TRAINING [Annex B]

9.1 *The principles of core level training*

Core level training (CT1-2) is expected to last for two years; this should normally consist of twenty-one months anaesthesia and three months ICM [see also Section 3.2.2 ACCS]. Core Level is divided into two distinct parts and commences with the Introduction to Anaesthesia:

- Introduction to Anaesthesia (normally completed within three to six months)
- The remainder of Core Level Training, which includes three months ICM, is normally delivered in the remaining time

9.1.1 *Introduction to Anaesthesia*

This provides a comprehensive introduction to the principles and practices of the delivery of safe and effective anaesthetic care to patients for trainees new to the specialty. The units of training are listed in Annex B.

To successfully complete Introduction to Anaesthesia, trainees must complete the relevant units of training **and** obtain the Initial Assessment of Competence (IAC). The latter is a summative assessment and must be completed in its entirety, exactly as written, by trainees before trainers consider whether it is acceptable for them to progress to undertake aspects of clinical anaesthetic practice without direct supervision. It is important that trainees and trainers recognise that possession of the IAC does not imply that a trainee may deliver direct anaesthetic care to patients without continuing appropriate supervision but is the first milestone in the training programme.

The content of the "Introduction to Anaesthesia" is fundamentally important; therefore trainees ***must*** have achieved all the minimum core clinical learning outcomes ***and*** obtained the IAC before progressing to the remainder of Core level training [see Annex B]. In practice this will take between three and six months for most trainees.

9.1.1.1 *Assessments in Introduction to Anaesthesia*

The 'Introduction to Anaesthesia' is the first component of training and should be completed within the first 6 months. In order for it to be 'signed-off', there should be a CUT form for each of the units in this section confirming that the trainee has achieved ***all*** the minimum clinical learning outcomes detailed, demonstrated by a broad range of competences and assessments. By doing this, the 'signing off' of the IAC should be a formality.

9.1.2 *Core Level Training*

This will normally last eighteen to twenty-one months and provides a comprehensive introduction to elective and emergency anaesthesia including perioperative care [with the exception of some special interest areas] and enhanced recovery.

The detailed learning outcomes and competences for these units of training are contained in Annex B.

9.2 Organisation of core level training

9.2.1 Clinical units of training

The College does not define the order in which units of training are completed and it is expected that a number of units of training will run concurrently. The majority of these units of training will not be delivered in dedicated blocks, as this is difficult to provide in most UK hospitals. The intensive care medicine unit must be completed in a dedicated three month block, and trainees may benefit from some of the other units of training being delivered in dedicated blocks, obstetric anaesthesia being the obvious example.

The *Initial Assessment of Competence in Obstetric Anaesthesia [IACOA]* must be obtained by all trainees before being considered safe to work in an obstetric unit without direct supervision. Achieving the IACOA does not signal the completion of the core level obstetrics unit of training. The obstetric unit of training should consist of a minimum of 20 directly supervised obstetric anaesthesia sessions to attain the core clinical learning outcomes. At least 50% of these sessions should be supervised by a consultant obstetric anaesthetist.

Each clinical unit of training includes a list of core clinical learning outcomes. These identify the level of performance required to complete the unit successfully.

Schools of Anaesthesia/hospitals must ensure that their programmes of training allow *all* the core clinical learning outcomes to be achieved within the identified time; these are identified in detail in Annex B.

Professionalism and Common Competencies of Medical Practice
In addition to the clinical units of training, trainees must show commitment to many other aspects of professional practice as detailed in Annex A. The majority of these should be demonstrated in the course of clinical practice and satisfactory performance in each domain should be documented as units of training are completed. In addition, there are clearly defined competencies to be attained in the areas of teaching and training, quality improvement, academia and research and management [Annex G]; departments' educational programmes should allow trainees to develop these competencies. It is also essential that trainees have access to teaching of the basic sciences that underpin safe practice of anaesthesia in order to embed understanding of this knowledge and its application to clinical practice.

9.2.2 Assessments

See Section 7 for information on assessment in the training programme.

9.2.3 ACCS

Trainees who come to anaesthesia via the ACCS programme will already have acquired various competencies identified in the anaesthetics/ICM curriculum. These should be taken into account when assessing progress in core level anaesthetic training and in the completion of the Core Level Training Certificate [see section 3.2.2].

9.2.4 Pain medicine training

Pain medicine is a compulsory part of core level anaesthetic training. It commences in Introduction to Anaesthesia; competencies acquired are then developed in core level training, preferably in a dedicated 'block'.

9.2.5 Intensive care medicine training

Intensive care training [ICM] is mandatory for all trainees at Core level and is completed as a three month block in Core Anaesthesia. The ICM competencies to be achieved are detailed in Annex F. Some trainees [including ACCS trainees] may complete six months of ICM training but must only be assessed against the core level competencies even though they may pick up some intermediate level competencies in the second three months.

9.2.5.1 Dual CCTs in Anaesthetics and ICM

Trainees may apply competitively for a dual CCT post in Anaesthetics and ICM. Anaesthesia trainees wishing to follow a dual CCT programme should contact their local RA in ICM or see the Faculty of Intensive Care Medicine website for more information on the ICM CCT.

Trainees who follow the dual CCTs route will obtain a proportion of their anaesthesia competencies during their ICM training and vice versa. These transferable competencies are documented in the Dual CCTs guidance produced by the RCoA and the FICM, and is available on the RCoA and FICM websites [also see section 3.9].

9.3 Progression to intermediate level training

To complete core level training successfully, the trainee must achieve all the specified core clinical learning outcomes and pass the Primary FRCA. The emphasis is on competence, not time. Experience is also an important aspect of competence development and in signing the *Core Level Training Certificate,* trainers must be satisfied that the trainee has obtained the required level of competence in anaesthesia and ICM, and not that they have just completed two years of training. If the College Tutor feels unable to sign the *Core Level Training Certificate* within the 'normal' two years, the trainee must spend more time in training.

At the end of Core level training, to be able to progress to Intermediate level training the trainee must have:

- Completed all the Core units of training as evidenced by the 'Completion of Unit of Training for each
- Obtained the IAC and IACOA;
- Demonstrated acceptable professionalism;
- Passed the RCoA Primary FRCA
- Having achieved all the above, been issued with the *Core Level Training Certificate.*

10. THE DELIVERY OF INTERMEDIATE LEVEL TRAINING [Annex C]

10.1 The principles of intermediate level training

This section describes the delivery of Intermediate Level training in the ST3-4, which is based on the principle of 'spiral learning' [see section 2.2.1]. Having gained knowledge of the principles underlying anaesthetic practice at Core Level, trainees are now introduced to more complex areas of practice.

This period of training will normally last twenty-four months. There are seven 'essential units' and three 'optional units'. Each unit of training within the general duties group is a standalone unit and should be assessed accordingly.

The detailed learning outcomes and competences for these units of training are contained in Annex C.

10.2 Organisation of intermediate level training

10.2.1 Clinical units of training

The College recognises that some Schools of Anaesthesia may have difficulty in providing training in some special interest areas; nevertheless, every trainee must complete all core clinical learning outcomes for all the essential units and therefore suitable arrangements must be made by the School. Whilst it is accepted that not all trainees will gain clinical experience in the optional units, they must nevertheless acquire the relevant knowledge, so these topics should be included in teaching programmes or trainee self-directed learning.
With the exception of the general duties unit of training, it is recommended that trainees spend between four and twelve weeks in each unit of training; the exact time depends upon local arrangements and the constraints of the indicative two year time period.

All Schools should ensure that trainees are exposed to all the essential intermediate units of training during ST3-4. As for Core Level training, it is important that Schools ensure that their programmes of training are organised in a way that ensures *all* the learning outcomes are achieved within the identified time; these, along with all the competencies, are identified in detail in Annex C.

10.2.2 Dedicated blocks of training

The only stipulation for this is in ICM training; intermediate training in ICM must be in a three-month block [see section 10.2.5]. Trainees would also benefit from dedicated blocks of training in the more complex aspects of practice. The College recommends that Intermediate level training in cardiothoracic, neuro, paediatric anaesthesia and pain medicine is delivered in dedicated blocks of at least four weeks up to a maximum of three months. Trainees must undertake a minimum of twenty sessions to ensure all the core clinical learning outcomes for all non-ICM units are achieved.

10.2.3 Flexibility for ST4 and ST5

The College supports the concept of 'spiral learning', however it is recognised that due to geographical considerations and availability of some specialties within some Schools of Anaesthesia that spiral learning cannot be implemented across all units of training.

For those schools who are unable to implement spiral learning across all units of training, some flexibility is possible for ST4 and ST5. It is expected however, where possible, intermediate training will be delivered entirely within the indicative two year period for the intermediate level. For those Schools requesting flexibility in delivering ST4 and ST 5 training, the following rules apply:

- At least 6 months Higher training must be completed by the end of ST5
- All Intermediate essential units must be completed by the end of ST5
- The ILTC is only issued when all essential intermediate level units of training are completed and the Final FRCA is passed. For trainees who will not complete their intermediate essential units until ST5, the Intermediate Level Progress Report must be sent to the College at the end of ST4 and the ILTC completed when all essential intermediate units of training are completed.
- Trainees will still be required to pass the Final FRCA examination as a requirement to progress to ST5.

In exceptional circumstances, Schools may apply to the Chair of the Training Committee for **prospective** approval to defer a maximum of two intermediate essential units of training to ST5 for an individual trainee - in such cases the trainee must have passed the Final FRCA by the end of ST4. The Programme Director and Regional Adviser must apply in writing to the Chair of the Training Committee explaining why the trainee cannot complete the units of training within the intermediate phase of training and why they should be permitted to progress to ST5 with approval to defer. If approved, the Intermediate Level Progress Report must be sent to the College at the end of ST4 and the ILTC completed when all the essential intermediate units are completed. Deferred units must still be completed within the first six months of ST5.

10.2.4 Pain medicine training

Pain medicine is a compulsory part of intermediate level anaesthetic training; this should ideally be undertaken in a dedicated 'block'.

10.2.5 Intensive care medicine training

Intermediate level intensive care training is mandatory for all trainees and is completed as a single 3 month block in ST3 or 4. Trainees who intend to complete additional ICM experience and competencies to complement advanced level training in specialty areas of anaesthetic practice, and are not following the dual CCTs programme, may complete their Higher level three month block of ICM in ST 3 or 4 (see section 10.2.5.1 below for more information).

Trainees following the single CCT in either anaesthetics or ICM may apply competitively for appointment to the dual CCTs programme before the end of ST5. ICM trainees applying for entry to the anaesthetics programme at ST3 must meet the anaesthesia experience requirements as defined in the national person specifications for entry to ST3 anaesthesia. Eligibility for the CCT in anaesthetics will depend on

where and when the anaesthesia training/experience was obtained. [See section 3.7.1 for CCT versus CESR[CP].

10.2.5.1 ICM flexibility for non-Dual CCT trainees

Trainees are expected to complete 3 months ICM in ST3/4 and another 3 months in ST 5/6. For trainees undertaking additional ICM experience to complement advanced training in specialty areas of anaesthetic practice, schools may allow the 3 months ICM usually completed in ST5/6 to be completed in ST3/4. In such circumstances, the following rules apply:

- The School of Anaesthesia may decide whether this flexibility is available within the programme;
- Prospective approval to complete the 6 months Intermediate and Higher ICM in ST3/4 must be obtained from the Regional Adviser for Anaesthesia;
- Any trainee who decides not to complete additional ICM after completing the 6 month Intermediate and Higher ICM block in ST3/4 must undertake another 3 month attachment in ICM in ST5/6/7 to complete their spiral learning.

10.2.6 Service commitment to ICM and obstetrics

In many hospitals anaesthetic trainees provide out of hours cover to intensive care units and obstetrics. Whilst these provide valuable training and experience, it must not be to the detriment of anaesthetic training; trainees must receive a balanced programme of training over their five higher specialty training years. It is up to individual Schools, normally via their STCs, to ensure the College recommendations for training are met.

***Service commitment to ICM**:* the College recommends that trainees must spend no more than a total of 6 months when all time spent in ICM duties is considered in their indicative two years of intermediate level training undertaking day time ICM duties [this is to include their three month dedicated block], to ensure they achieve their other anaesthetic competencies.

***Service commitment to obstetrics**:* the College recommends that no more than a third of service commitments in their indicative two years are dedicated to obstetric anaesthetic services.

The College expects trainees to develop their skills in emergency anaesthesia in all disciplines, as detailed in the core clinical outcomes of the essential units of training in Annex C. Trainees' exposure to emergency anaesthesia should not be compromised as a consequence of service commitments to ICM and obstetric anaesthesia. 'Sign off' confirming adequate exposure to emergency anaesthesia related to that particular area of the curriculum is necessary on the Completion of Unit of Training form.

10.2.7 Professionalism and common competences of medical practice

In addition to the clinical units of training, trainees must continue to demonstrate commitment to professionalism [Annex A]. As for Core Level training, these competencies should be assessed in the course of clinical practice and are identified within the clinical units of training [see section 7].

10.2.8 Teaching and Training; Academic and Research; Quality Improvement and Management (Annex G)

As in Core Level training, important competencies are identified in these more generic aspects of practice; it is expected that they will be achieved in the course of a trainee's day to day clinical practice and preparation for the Final FRCA examination. Departments of Anaesthesia should have a comprehensive educational programme that allows trainees to develop the competencies identified in the Education and Academic and Research section. It is also essential that trainees have access to teaching of applied basic sciences that underpin safe practice of anaesthesia.

10.2.9 Assessments

See Section 7 for information on assessment in the training programme.

10.3 Progression to higher/advanced level training

To complete intermediate level training successfully, the trainee must achieve all the specified core clinical learning outcomes and pass the Final FRCA. The emphasis when confirming satisfactory completion of intermediate level training is on competence, not time. When signing the *Intermediate Level Training Certificate* trainers, in conjunction with educational supervisors, must be satisfied that the trainee has obtained the required intermediate level core clinical learning outcomes in anaesthesia and ICM and not that they have just completed two years of training. If the College Tutor feels unable to sign the *Intermediate Level Training Certificate* within the 'normal' two years, the trainee must spend more time in training [see section 10.2.3].

In order to progress from intermediate to the second 6 months of higher/advanced level training the trainee must have:

- Completed all the essential intermediate units of training as evidenced by the 'Completion of Unit of Training ' for each
- Demonstrated appropriate professionalism and common competencies;
- Passed the RCoA Final FRCA;
- Been issued with the *Intermediate Level Training Certificate*

11. THE DELIVERY OF HIGHER/ADVANCED LEVEL TRAINING [Annex D/E]

The intention of the RCoA is to allow trainees, as far as possible, to achieve their career aspirations. However it is recognised that training opportunities must balance anticipated career vacancies. For this reason trainees should maintain flexibility in their choices. Higher training permits this, whilst also allowing the trainee to develop a special interest area which will be carried on in the advanced year of practice.

11.1 The principles of Higher/Advanced level training

This section describes the delivery of Higher and Advanced Level training in ST5-7, which is based on the principle of 'spiral learning' [see section 2.2.1]. The delivery of Higher and Advanced training varies according to the ability of School programmes to deliver the essential Higher units of training to all its trainees, whilst also accommodating individual trainees' advanced unit[s] requirement to fit their chosen special interest area. It is therefore feasible for a trainee to complete an advanced unit of training for a period of six to twelve months in ST6 before completing all the essential higher units of training at ST7. If specific advanced units of training are over-subscribed, it will be left to the TPD, in conjunction with the School Training Committee to determine how the opportunities will be allocated in a transparent and fair way.

The aim of higher and advanced training is to allow the trainees to become expert and therefore more independent in all areas of clinical practice, by requiring less consultant guidance and supervision. By the end of advanced training this process will be complete for the areas of anaesthetic practice in which trainees aspire to work.

The curriculum is such that no trainee will be competent to practice independently in all special interest areas of anaesthetics, intensive care and pain medicine at the end of seven years of training. Nevertheless, each trainee's individual programme of training must be able to provide the necessary mix of essential and optional units of training to suit the aspirations of both the trainee [leading to their CCT in Anaesthetics] and the NHS without compromising patient safety.

This period of training normally lasts thirty-six months. Trainees are expected to complete an indicative twelve months higher level general duties, during which they must complete at least nine of the units listed in the essential block including the mandatory units of 'airway management', 'perioperative medicine' and 'management of respiratory and cardiac arrest,' as they are generic to all anaesthetic practice. The other units should be relevant to the trainee's special interest area and this may include time from an optional higher unit of training as identified in Annex D. It is therefore essential that trainees consider what special interest area of practice they intend to pursue early, as this should inform their choice of units completed within higher general duties.

The duration of general duties training may be reduced to an indicative 6 months with prospective approval of the Chair of the Training Committee. Trainees who complete the reduced period of 6 months must complete five of the 13 units listed, of which three must be the mandatory units. The remaining indicative six months would consist of activities such as research, academic, management, education or specialising in

a specific general duties specialty, for example vascular surgery. It is important that trainees still complete a balanced programme if they complete only six month of higher level general duties.

All the optional higher units except pain medicine contribute to the general duties requirements. Anaesthesia in developing countries can count for a maximum of 6 of the 12 months for general duties; military anaesthesia and remote and rural each can count for a maximum of 3 months. Only one of these options can be counted towards the general duties requirements.

In addition to general duties, there are four other essential clinical higher units [ICM, cardiac, neuro and paediatrics]. ICM must be a dedicated 3 month block and each of the remaining essential units and the optional higher unit of pain medicine should be in blocks of at least four weeks consisting of a minimum of twenty sessions. The exact time will depend upon individual School programmes, speed of competence acquisition and trainee aspirations. The combined total duration for each essential unit, except general duties, across the intermediate and higher levels should not exceed six months.

The detailed learning outcomes and competences for these units of training are contained in Annex D and E.

11.2 Organisation of higher/advanced level training

11.2.1 Clinical units of training

The College recognises that some Schools of Anaesthesia may have difficulty in providing training in some special interest areas; however every trainee must complete all core clinical learning outcomes for all the 'essential units'. For ICM, trainees must achieve the attainment levels as defined in Annex F.
At the higher level of training the emphasis increasingly moves to the trainee working with local or distant supervision as their clinical acumen and skills mature. Clearly, within the time available, not all special interests can be covered but it is expected that trainees in ST 6 and 7 will demonstrate competence in a wide area of practice.

11.2.2 Advanced level training

Advanced level training is designed to provide special interest area training for independent consultant practice to meet the demands of the NHS. Advanced training is limited to a maximum of an indicative twelve months either in one area of interest or two special interest areas each lasting an indicative six months. In their advanced unit[s] of training, trainees are encouraged to experience a wide range of clinical experiences across their chosen special interest area and this should include the option of working in more than one hospital within and outside of the School, including out of programme opportunities. Trainees who intend to obtain a post in a non-specialist hospital, without a commitment to ICM, should complete six months to a year of advanced general duties incorporating the appropriate units of training to suit their aspirations for independent consultant practice – for some, a combination of units from the general duties list plus six months advanced obstetrics training might be a suitable combination. As in other hospital-based specialties, there are a very small number of 'super-specialist' consultant anaesthetist posts each year [e.g. paediatric cardiac anaesthesia]; pre-CCT training for such posts has to be arranged on an individual trainee basis in conjunction with the Chair of the Training Committee to ensure it complies with the requirements of a training programme leading to a CCT [See section 12 for further details].

11.2.3 Pain medicine training

Pain Medicine clinicians do not have the expertise for the diagnosis of all the painful conditions that can, or should, be referred to the Pain Medicine Service. Their skills and training are best placed in the broader field of symptomatic pain management. It is recognised that some examination and diagnostic skills are core to training in Pain Medicine, such as examination of the musculoskeletal and peripheral neurological systems and the making of common musculoskeletal diagnoses, but it is not expected that the Pain Medicine trainee would develop diagnostic skills in all conditions referred to the Pain Service.

The Higher and Advanced Pain Medicine trainee must acquire an understanding of their own limitations in this respect and recognise the importance of referral back to primary, or onward to secondary, care. The acquisition of this judgement and its medico-legal implications are an important part of training.

It is recognised that diagnostic and examination skills may develop further after training, or as expertise and interest evolve in a subspecialty area of Pain Medicine e.g. pelvic pain, visceral pain or headache.

11.2.3.1 Pain medicine skill maintenance

Trainees who do not intend to pursue a special interest in pain medicine at the higher and advanced level are encouraged to complement their anaesthetic practice by maintaining their acute pain skills by participating in acute pain ward rounds in ST5-7 .

11.2.3.2 Higher level training

This is an optional higher unit of training and allows the trainee to examine and develop career aspirations in pain medicine. It is essential for all trainees who wish to progress to Advanced pain medicine training. In addition, the College and the FPM recommend that trainees considering a future consultant post with an interest in acute pain medicine undertake Higher level pain training as a minimum.

11.2.3.3 Advanced level training

Advanced pain medicine training should be delivered in a designated multi-disciplinary specialist centre offering a comprehensive range of management options, under the supervision of the RAPM and LPMESs. Trainees will normally spend twelve months in this dedicated advanced unit of training in addition to the time spent in core, intermediate and higher training. From advanced pain medicine training the trainee is expected to gain mastery in safe and effective pain medicine, the wider aspects of the management and progression of a pain medicine patient caseload, and the skills of audit/quality improvement, teaching and supervision, research and business management. Advanced pain medicine training is considered the minimum required for those aiming for a consultant appointment with sessions in pain medicine. In addition, the FPM recommend that all those who are appointed as Lead for Acute Pain Services should have completed this advanced unit of training in pain medicine. Subspecialty areas of pain medicine are described in the advanced pain medicine curriculum (Annex E). Advice should be taken from the RAPM as to where these training opportunities are available and the scheduling of such subspecialty training. Whilst it is recognised that a non-pain medicine out of hours commitment is often undertaken during the period of advanced pain medicine training, it should not occur more than 7 nights in an 8 week period to

ensure that it does not detract from training; it is the responsibility of local supervisors to ensure that if it does interfere, time in training will have to be extended to ensure the competencies are achieved. It is unlikely that trainees who spend time outside of the Pain Medicine environment engaged in general anaesthetic duties will be able to successfully obtain all of the competences required to complete Advanced Pain Training. Therefore, the expectation is that trainees will need to spend the whole of their daytime working hours engaged in pain medicine related duties. This would not prevent pain trainees being used on occasion to provide general anaesthetic cover for unforeseen emergency cases.

Successful completion of training and assessment and achievement of the FPM's 'Standard for Fellowship of the Faculty of Pain Medicine [FFPMRCA]' will contribute towards the attainment of the FFPMRCA, which also requires success in the prescribed examination of the FPM of the RCoA.

11.2.4 Intensive care medicine training

Trainees are required to complete 3 months of adult general ICM training in ST5/6. This training may be completed in ST 3/4 in accordance with the rules defined in section 11.2.5.1. A small number of trainees may wish to achieve additional experience and competences other than the mandatory blocks of ICM training in the Core, Intermediate and Higher level anaesthetic training program, to complement advanced level training in specialty areas of anaesthetic practice. Such trainees would not be following the Dual CCTs or Joint CCT programme.

The learning needs in this situation are likely to vary and so trainees in conjunction with their trainers should refer to the advanced level ICM curriculum on the FICM website and identify the competences that they plan to achieve within the period of additional ICM training. Prospective approval should then be sought by application to the RCoA Training Department. The duration of additional ICM training would not normally be expected to exceed six months, and the trainee must have completed the mandatory Higher level block of ICM training prior to undertaking additional experience [see Annex F].

11.2.5 Paediatric intensive care medicine

Trainees with an interest in Paediatric ICM [PICM] can complete three months at the higher level in lieu of the final three months adult general intensive care or three months of their 12 months general duties requirement with prospective approval of the Chair of the Training Committee. When seeking prospective approval, the Regional Adviser and the Programme Director must detail in writing the reasons why a trainee should be permitted to complete the last three months in PICM at the expense of adult general ICM or three months of general duties. Trainees who complete three months of PICM as part of their general duties must still complete eight of the thirteen options. It is important that trainees receive a balanced anaesthesia programme.

Advanced training in PICM is aimed at two different career streams. For those trainees who wish to follow a generalist career but with an interest in paediatric anaesthesia, trainees may complement their 6 month advanced paediatric anaesthesia for DGH practise with a maximum of 6 months of advanced PICM. It is also possible for a trainee to complete a standalone maximum of 6 months of PICM combined with other advanced units to make up the required 12 months of advanced training. The exceptions are

advanced neuro anaesthesia, paediatric anaesthesia for tertiary practise and cardiothoracic anaesthesia, which are 12 months in duration.

For trainees who intend to pursue a career as a paediatric anaesthetist in a tertiary centre, it may be possible to complete a maximum of 3 months of PICM as part of paediatric anaesthesia training. The limitation of 3 months is governed by the minimum of 9 months required for paediatric anaesthesia training.

It may be possible for PICM training completed during the anaesthesia training programme to be credited towards recognition from the Intercollegiate Committee for Training in Paediatric Intensive Care Medicine [ICTPICM]. For more information on the recognition of PICM accreditation, contact ICTPICM at ictpicm@rcoa.ac.uk

11.2.6 Service commitment to ICM and obstetrics

It is recognised that senior trainees contribute to the service provision to intensive care and obstetrics. Whilst this provides experience for the generalist anaesthetist, it must not be to the detriment of anaesthetic training.

Service commitment to ICM**:* the College recommends that, for trainees who do not wish to have a commitment to ICM post-CCT, no more than one third of their service commitment [including their three month dedicated block of higher training] in these final three years of training should be ***exclusively to ICM; this is to allow sufficient time for in-theatre training to gain the essential anaesthetic competencies required for independent consultant practice. The College view is that anaesthetists should normally be responsible for the care of the acutely ill patient requiring surgery from admission through to critical care post-operatively; as a consequence, it is important that trainees develop an in-depth knowledge, understanding and clinical experience of managing such patients from admission.

***Service commitment to obstetrics**:* the College recommends that, for trainees who do not wish to have a commitment to obstetrics post-CCT, no more than a third of their service commitments in their indicative three years of higher/advanced training is exclusively to obstetric anaesthetic services.

The College expects trainees to develop their skills in emergency anaesthesia in all disciplines, as detailed in the core clinical outcomes of the essential units of training in Annex D. Trainees' exposure to emergency anaesthesia should not be compromised as a consequence of service commitments to ICM and obstetric anaesthesia, and will need to be confirmed in the Completion of Unit form for each unit of training.

11.2.7 Pre-hospital Emergency Medicine (PHEM)

Trainees may undertake sub-specialty accreditation in PHEM. Entry into this programme is via a competitive national application process during ST3 or 4 for programme commencement in ST5/6. Trainees must have six months basic emergency medicine training to be eligible to apply. Those trainees who have not completed ACCS will need to complete a six month OOPE in emergency medicine prior to applying, although this does not confirm acceptance onto the PHEM programme. The College also recommends that trainees should have completed the higher neuroanaesthesia, paediatric anaesthesia and ICM units of training before commencing PHEM training.

PHEM is a 12 month whole time equivalent [WTE] programme preferably delivered in two six month WTE blocks for anaesthetic trainees. The actual proportion of a training period reserved for PHEM and anaesthesia training will depend on the programme delivered by the deanery/LETB in consultation with the Intercollegiate Board for Training in Pre-hospital Emergency Medicine [IBTPHEM]. Competencies achieved in the PHEM programme can be counted against the required competencies for 'transfer medicine' at the higher and advanced levels. It may be possible for trainees to complete the PHEM component of training within the indicative 8 years programme for ACCS trainees or 7.5 years for core anaesthesia trainees.

For more details on PHEM, see www.ibtphem.org.uk.

11.2.8 Professionalism and Common Competencies

By this stage the trainee is expected to focus on the aspects of professionalism required to undertake independent clinical practice. Thus, evidence of medical leadership, a clear understanding of management responsibilities, the ability to teach, train, supervise and show an enquiring mind are all necessary. These aspects of professionalism have been present throughout training, however at the advanced level, specific generic descriptors have been written to identify the competencies that must be demonstrated in all these areas to allow final 'sign off' at the end of training. Six generic domains have been identified as follows:

- Domain 1 – Clinical Practice
- Domain 2 – Team working
- Domain 3 – Leadership
- Domain 4 – Innovation
- Domain 5 – Management
- Domain 6 – Education

Each domain has a series of detailed descriptors identifying the competencies expected by this point in training. They have then been summarised in learning outcomes identified in each of the individual advanced units.

11.3 Recommendation to the GMC for the award of a CCT or CESR[CP]

The College monitors the progress of all trainees within the training programme. The purpose of this monitoring is to ensure that trainees receive a balanced programme and that on completion of the GMC approved programme, a recommendation for the award of a CCT or CESR[CP] can be made to the GMC. At the end of their higher/advanced level training, to be able to be recommended for the CCT or CESR[CP], a trainee must have:

- Satisfactorily completed all the 'essential' units of higher training ***and*** the advanced unit(s) chosen to suit their particular career aims as evidenced by the 'Completion of Unit of Training' for each.
- Demonstrated the ability to teach, supervise and assess trainees; and
- Demonstrated the ability to design, complete and evaluate audits/quality improvement projects related to their chosen special interest area[s] of practice.

Estimated completion dates are calculated when the trainee commences ST5. The calculated completion date is based on the current known circumstances of the trainee, and is amended throughout the last indicative three years in accordance with any factors influencing trainee progression. All prospective completion dates are approved by the Chair of the Training Committee and/or Deputy.

When a trainee is within six months of their completion date, trainees should complete the College form [Notification of completion of training[29]] and send it to the Training Department at the College. Once the form and the ARCP Outcome 6 has been received, the College will formally recommend to the GMC the award of a CCT or CESR[CP]. The trainee will also receive a letter from the Training Department, advising them of the recommendation for the CCT/CESR[CP]and the trainee will receive an email from the GMC inviting them to complete the online application.

The trainee has 12 months from the expected end of training date to submit their application. If an application is submitted more than 6 months after the trainee was eligible, the GMC may ask for additional evidence to be provided in support of their application. After 12 months from the expected end of training date the trainee will have to apply for a Certificate of Eligibility for Specialist Registration (CESR) to gain entry onto the specialist register[30].

11.4 Requests to complete training as a locum consultant

Time spent in a Locum Consultant appointment does not count toward the CCT/CESR[CP]: only time spent in a GMC approved training programme counts toward the CCT/CESR[CP]. It is recognised, however, that some trainees towards the end of their training benefit from being allowed to 'act up' in a consultant capacity.

If the period of acting up as a consultant is deemed by the Deanery/LETB/College to be a normal part of the anaesthetic CCT training programme and is intended to count towards the trainee's CCT/CESR[CP] then GMC approval is not needed because this is already an approved element of the training programme. Acting up should usually only be allowed within the trainee's own programme with the agreement of the local Training Committee, the Programme Director and the Clinical Director of the hospital concerned. The trainee will retain their NTN and continue to be supervised by and be responsible to the local Training Committee. It is essential that at all times the trainee has immediate access to consultant advice and understands that he or she is still in training until completion of the CCT/CESR[CP].

Such a post can only occur within the last three months of training with the proviso that the trainee must have satisfactorily completed all other aspects of the training programme. Trainees wishing to take up this option should apply directly to the Training Department at the College with the support of their Programme Director.

If, however, the period of acting up as a consultant is not deemed to be a normal part of the anaesthetic CCT training programme and the trainee still wishes this to count towards their CCT/CESR[CP], then prospective approval must be sought from the GMC in the same way as other out of programme training [see Section 12].

[29] http://www.rcoa.ac.uk/
[30] http://www.gmc-uk.org

11.5 Leaving the training grade

Employment in the training grade will not end for "a period of six months after the date of completion of training, or six months after the date on which the trainee is notified formally by the Postgraduate Dean, taking advice from the Royal College of Anaesthetists, that his/her training is complete and that he/she is eligible for the award of a CCT/CESR[CP], whichever date is the later."

11.6 Applying for a consultant post

Interviews for consultant posts can take place up to six months before a trainee's expected CCT/CESR[CP] date. Trainees should take this into account when planning off-rotation training overseas [section 12]. The expected CCT/CESR[CP] date is interpreted by the DH to mean the date calculated by the College's Training Department for the completion of training.

12. Out of programme

For the award of a CCT, trainees must complete the GMC approved anaesthetics programme in its entirety[31]. There are opportunities for trainees to undertake approved periods of time outside of the approved programme as experience, research or training. When contemplating undertaking a period out of programme, trainees should discuss the options and consequences with their Educational Supervisor, College Tutor and TPD.

12.1 Out of Programme Clinical Experience [OOPE]

OOPE is defined by the GMC as:

"'Out of programme clinical experience' that does not count towards the award of a CCT or CESR[CP]."

OOPE may be obtained in clinical or research posts in the UK or overseas that have not received *prospective* approval from the GMC. Although College approval is not required for this out of programme experience, it is essential that trainees inform the Training Department of the dates of all OOPE so that prospective completion dates can be revised.

12.2 Out of Programme Experience for Training [OOPT]

OOPT is clinical training, taken out of programme that will count towards the CCT or CESR[CP] provided the following conditions and requirements are met:

- On commencing OOPT the trainee must be in a GMC approved training programme having completed the core and intermediate levels of training *in their entirety.* This does not preclude setting up and planning OOPT during intermediate level training;
- Only one year in total during ST5-7 can be taken as OOPT;
- The OOPT programme must map to competencies identified in the Higher/Advanced CCT programme;
- The OOPT post must be prospectively approved by the GMC with support from the Postgraduate Dean and College *[Several months should be allowed for the approvals process];*
- OOPT may be in appropriate higher or advanced level clinical posts in the UK or overseas;
- The last 6 months of the CCT training programme normally should be in the UK; and
- The trainee on his/her return must complete a report on the time spent on OOPT and submit it, together with an assessment report from the local supervisor, to the Deanery/LETB and the Chair of the RCoA Training Committee.

12.3 Out of Programme Experience for Research [OOPR]

OOPR is research taken out of programme. The same rules apply as for OOPT.

In-programme research is part of the rotation in some Schools. Up to one year of research can be counted towards the CCT/CESR [CP] whether it is taken in or out of programme. Provided there is a clinical element

[31] Section 34K of the Medical Act 1983

to the programme [this includes out of hours duties within the hospital where the trainee is based for their research time], the full year may be counted towards the CCT programme. If there is no clinical element to the research programme, a maximum of six months only will count towards the CCT/CESR[CP].

Only one year in total during ST5-7 can be taken as either OOPR or OOPT.

12.4 In and Out of Programme Experience for Education and Management

As for research, in and out of programme experience/training can be taken to undertake training in education or management. Up to one year of either can be counted towards the CCT/CESR[CP] whether it is taken in or out of programme. Provided there is a clinical element to the programme [this includes out of hours duties within the hospital where the trainee is based for their education or management time], the full year may be counted towards the CCT programme. If there is no clinical element to the programme, a maximum of six months only will count towards the CCT/CESR[CP].

12.5 Applying for OOPT and OOPR

It is recommended that Schools of Anaesthesia have guidelines that inform trainees commencing their *intermediate* level training on the requirements for, the notice of and the documentation required for the organisation of OOPT and OOPR. It should be made clear to trainees that any proposed period of OOPT or OOPR must be arranged at the earliest opportunity. Gaps created within the rotation will need to be filled and if the OOPT is to be spent overseas, the acquisition of visas and the necessary licensing documentation for clinical work may be lengthy and difficult.

It is the responsibility of the trainee to provide all necessary information in their applications to the Deanery/LETB. In requesting College support, an application form and checklist can be downloaded from the training pages of the College website.

12.6 Secondment between Schools and Deaneries/LETBs

Secondment of a trainee to an approved training or research post in another School or Deanery/LETB e.g. to obtain training not available in the "home" School or Deanery/LETB is not regarded as OOPT; the secondment is an integral part of that individual's training programme.

12.7 Anaesthesia in developing countries

The College supports trainees taking time out of programme to widen their clinical skills and knowledge. To support trainees undertaking OOPT in a developing country, a unit of training [Annex D – anaesthesia in developing countries] has been developed to enable trainees to count up to an indicative six months towards the general duties requirement. Trainees who complete this unit must complete 12 months of general duties overall.

The advantages of this unit of training include:

- Increased implementation of Government policy encouraging work in developing countries,
- A more productive experience for the trainee
- Prevention of ill-prepared and inexperienced doctors going to unsuitable posts

- Decreased risk to vulnerable patients
- Improved links between the RCoA and overseas Fellows

12.7.1 Requirements for consideration

For an OOPT in a developing country to count towards the CCT/CESR[CP], the following requirements should be met:

- The trainee must have completed, wherever possible, higher units of training in ICM, general surgery, urology and gynaecology, obstetrics and paediatrics [and, ideally, trauma]. This would equate with at least ST6;
- The trainee should have attended a course on Anaesthesia in Developing Countries;
- Prior to working in the hospital of choice the trainee must have made contact with the hospital to be visited, and have a clear idea of what can be achieved there. S/he will have made a 'risk assessment' of the environment;
- The trainee will have a clear pre-placement introduction and familiarisation with the clinical and social context in which they will be working. Where necessary an appropriate induction programme will need to be undertaken [this is the case with some international agencies/NGOs];
- For a hospital to be deemed suitable for training the following criteria must be fulfilled:
    - An Educational Supervisor must be identified to supervise the trainee in the developing country [ESDC] to be visited and the trainee must have had a successful selection interview, supported by references from other trainers;
    - The ESDC must have undertaken a 'Training the Trainers' type course The ESDC may not be familiar with the more recent developments in UK training, so there should also a ES in the UK [recommended by the RCoA] who both trainee and ESDC in the developing country can liaise with via emails, telephone and video-links;
    - The trainee must have met with the ESDC abroad. Ideally this should be face to face but if necessary could be done by telephone;
    - The ESDC and ES in the UK must be satisfied that the period of time will fulfil the requirements of the curriculum;
    - The ESDC should devise a training plan, which should contain detailed proposals in the following fields:
        - Clinical experience;
        - Audit/Quality improvement project;
        - Teaching;
        - Research; and
        - Management and logistics; and
    - As with any OOPT, a designated local appraiser must be identified.

12.7.2 Requirements on return to the UK

On return to the UK, the trainee will provide the RCoA with:

- A written report of the experience including a description of how the objectives were achieved;
- A report from the ESDC;
- An appraisal report;
- A log book maintained to the same standard as that required during training in the UK;
- A record of the assessments of skills as required by the GMC;

- Evidence of teaching delivered;
- Results of audit/quality improvement project and research.

As with OOPT, this evidence will be inspected by the RCoA Training Department and the GMC before and after the trainee's visit, and if at a satisfactory standard, up to six months of the time will be counted towards the CCT.

13. Quality Improvement

Participation in audit is an essential part of anaesthesia training, which enables trainees to reflect on and review their practice and improve the delivery of anaesthetic services.

There is increasing recognition given to the value of using audit to drive meaningful change. Involving doctors in meaningful quality improvement projects develops their leadership and organisational skills and improves the quality of NHS care. The competencies involved with quality improvement projects can address the Medical Leadership Competency Framework (MLCF)[32], which describes the leadership competences that doctors need to become more actively involved in the planning, delivery and transformation of health services.

The publication, in 2012, of the "Raising the Standard: a compendium of audit recipes The Royal College of Anaesthetists *for continuous quality improvement in anaesthesia"*[33], spear-heads a transition from audit into quality improvement. This edition of the 'recipe book' intends to facilitate and strengthen the link between audit and improvement, by providing anaesthetists with an introduction to the science of improvement and demonstrating some basic tools which can be used to drive positive patient centred change. A number of doctors throughout the UK are conversant with improvement methodology, often from participation in one of the national or regional patient safety programmes.

The methodology of improvement has been incorporated in the curriculum as a way of supporting and adding value to audit, and to formally recognise improvement activity. The module of training is entitled "Improvement Science, Safe and Reliable Systems" and can be found in Annex G.

The RCoA expects trainees to participate in a quality improvement project, and by formally recognising this in the CCT Curriculum and by evaluating a trainee's endeavours in the realms of improvement, it will enable credit to be given. This training augments existing audit mechanisms in using data to drive meaningful change, and can be assessed through local processes as per the latest edition of the 'recipe book'. This volume provides a useful starting point to stimulate trainees' interest across many subspecialty areas.

[32] http://www.fmlm.ac.uk/resources/medical-leadership-competency-framework-3rd-edition
[33] http://www.rcoa.ac.uk/ARB2012

14. Equality and diversity

Equality of opportunity is fundamental to the selection, training and assessment of anaesthetists.- Patients, trainees and trainers and all others with whom interactions occur in the practice of anaesthesia have a right to be treated with fairness and transparency in all circumstances. Promoting equality and valuing diversity are central to the anaesthesia curriculum. Discrimination, harassment or victimisation of any of these groups of people may be related to: ability, age, bodily appearance and decoration, class, creed, caste, culture, gender, health status, relationship status, mental health, offending background, place of origin, political beliefs, race, and responsibility for dependants, religion or sexual orientation.

The importance of Equality and Diversity in the NHS has been addressed by the Department of Health in England in 'The Vital Connection'[34], in Scotland in 'Our National Health: A Plan for Action, A Plan for Change'[35] and in Wales by the establishment of the NHS Wales Equality Unit. These themes must therefore be considered an integral part of the NHS commitment to patients and employees alike. The theme was developed in the particular instance of the medical workforce in 'Sharing the Challenge, Sharing the Benefits – Equality and Diversity in the Medical Workforce'[36]. Furthermore, Equality and Diversity are enshrined in legislation enacted in both the United Kingdom and the European Union. Prominent among the relevant items of legislation are:

- Disability Discrimination Act 2005;
- Disability Discrimination [Public Authorities][Statutory Duties][Amendment] Regulations 2008;
- Employment Act 2002;
- Employment Relations Act 1999;
- Employment Rights Act 1996;
- Equality Act 2006 [excepts 25,26,33,43,Part 2, s81 and Part 4];
- Equality Act 2010;
- European Union Employment Directive and European Union Race and Ethnic Origin Directive;
- Flexible Working [Eligibility, Complaints and Remedies] Regulations 2002;
- Human Rights Act 1998;
- Indirect Discrimination and Burden of Proof Regulations 2001;
- Maternity and Paternity Leave Regulations 1999;
- Maternity and Parental Leave [Amendment] Regulations 2001;
- Maternity and Parental Leave etc and the Paternity and Adoption Leave [Amendment] Regulations 2006;
- Maternity and Parental Leave etc and the Paternity and Adoption Leave [Amendment] Regulations 2008;
- Part Time Workers Regulations 2000;
- Race Relations [Amendment] Act 2000;
- The Race Relations Act 1976 [Amendment] Regulations 2003;
- Race Relations Act 1976 [General Statutory Duty] Order 2006;
- Race Relations Act 1976 (Amendment) Regulations 2008;
- Shared Parental Leave Regulations 2014

[34] The Vital Connection: An Equalities Framework for the NHS: DH, April 2000

[35] Our National Health: A Plan for Action, A Plan for Change: Scottish Executive, undated

[36] Sharing the Challenge, Sharing the Benefits – Equality and Diversity in the Medical Workforce: DH Workforce Directorate June 2004.

- Special Educational Needs and Disability Act 2001; and
- Work and Families Act 2006

It is therefore considered essential that all persons involved in the management and delivery of training are themselves trained and well versed and current in the tenets of Equality and Diversity.

As part of their professional development trainees will be expected to receive appropriate training in equality and diversity to the standards specified by the GMC[37] and to apply those principles to every aspect of all their relationships. The delivery of this training is the responsibility of the Postgraduate Dean. A record of completion of this training must be held in the trainee's portfolio.

[37] *The Trainee Doctor* dated February 2011. *Promoting excellence.* General Medical Council. January 2016.

Appendix 1 – Curriculum Development Working Group Membership

Curriculum development working group

Dr A Tomlinson	Chair and Curriculum Lead
Dr D Greaves	Assessment Lead
Mr C Williamson	Senior Administrator for Curriculum re-write
Dr I Barker	
Dr A Batchelor	
Dr L Brennan	
Dr K Grady	
Dr C Gwinnutt	
Dr J James	
Dr D Justins	
Dr C Leng	
Dr R Milaszkiewicz	
Dr R Moonesinghe	
Dr P Nightingale	
Dr D Thomas	
Dr A Thornberry	
Dr C Vallis	
Mr R Young	RCoA Patient Liaison Group
Mr D Bowman	Former RCoA Director of Training and Examinations

Major contributors to the development of the Units of Training

Dr H Adams	Dr I Brocklehurst	Dr C Evans	Dr C Gwinnutt	Dr R Milaszkiewicz	Dr I Shaw	Dr C Vallis
Dr J Arrowsmith	Dr A Cadamy	Dr D Fell	Dr N Harper	Dr R Moonesinghe	Professor R Sneyd	Dr J-P van Besouw
Dr C Bailey	Dr I Campbell	Dr K Ferguson	Dr S Hill	Dr B Nicholls	Dr I Sockalingham	Dr P Venn
Dr I Barker	Dr G Cooper OBE	Dr S Fletcher	Dr J James	Dr D Nolan	Dr M Taylor	Dr K Wark
Dr A Batchelor	Dr I Curran	Dr I Geraghty	Dr I Kestin	Dr L Penderleith	Dr D Thomas	Mr C Williamson
Dr M Bellamey	Dr L Dinner	Dr K Grady	Dr C Leng	Prof D Rowbotham	Dr C Till	Dr P Wilson
Dr M Blaney	Professor C Dodds	Dr D Greaves	Prof R Mahajan	Dr R Sashidharan	Dr A Tomlinson	
Dr L Brennan	Dr T Dorman	Dr J Greiff	Dr A Malins	Dr A Severn	Dr K Torlot	

Contributors to the Curriculum Review 2015

Curriculum Review Group

Dr N Penfold	Chair
Dr l Brennan	
Dr J Fazackerley	
Dr A Devlin	
Dr C Evans	
Dr I Geraghty	
Dr C Hibbert	
Dr J James	
Dr P Kumar	
Dr A Kuttler	
Dr JP Lomas	
Dr K Ramachandran	
Dr I Whitehead	
Mr R Bryant	Former RCoA Director of Training and Examinations
Miss C Moran	RCoA Training Manager
Miss M Burke	RCoA Specialty Training Supervisor

Workplace based Assessment Working Party

Dr J Fazackerley	Chair
Dr G Briggs	
Dr J Chestnut	
Dr A Devlin	
Dr T Dorman	
Dr S Fletcher	
Dr A Kuttler	
Dr JP Lomas	
Dr D Lowry	
Dr J McGhie	
Dr G Pugh	
Dr I Whitehead	
Miss C Moran	RCoA Training Manager
Miss M Burke	RCoA Specialty Training Supervisor
Mr C Scorer	RCoA Co-ordinator for Working Group
Mr S Ullah	RCoA Co-ordinator

Appendix 2 - The management of maternity, paternity, shared parental or parental leave and sickness absences

1. The effect of any absences or changes to the training programme resulting from *any* type of sickness, maternity, paternity, shared parental or parental leave should be assessed on an individual basis. The legal requirements are set out in the Medical Act 1983 [Section 34K(1)(a)].

   Any reduction in the indicative 7 year duration of the training programme is only possible if the trainee achieves the core clinical learning outcomes for each unit of training attempted in the broad based programme and is appropriately signed off has having achieved these outcomes.

2. The "Gold Guide" acknowledges that a competence defined programme of educational progression requires an agreed framework of time to enable appropriate breadth of experience and practice to be gained. Short periods of absence from the training programme may not require extension to the duration of the programme, provided assessments demonstrate continued progression with relevant learning outcomes achieved.

3. Absence from training, other than for study or annual leave, may have an impact on a doctor's ability to demonstrate competence and the satisfactory completion of the curriculum and assessment system to enable them to be awarded a CCT/CESR[CP].

   The GMC position statement "Time out of training"[43] states that if a trainee is absent for a total of 14 days or more within a 12 month period, a review of their CCT/CESR[CP] date will be triggered. This includes forms of absence such as sickness, maternity, parental, compassionate etc but not study or annual leave or prospectively approved Out of Programme Training/Research. The GMC support deaneries/LETBs in implementing the guidance flexibly so that each trainee's circumstances can be considered on an individual basis and that any changes to the CCT/CESR[CP] date will reflect the trainee's demonstration of competence.

   The administration of the absence and decision on any extension to training will be undertaken locally by the relevant deanery/LETB in consultation with the relevant College/Faculty where necessary. A review will be undertaken at the ARCP and consideration will be given to the number of absent days and progression through the training programme. A decision will then be made as to whether further targeted training or an extension to the CCT/CESR[CP] date is required.

   The Training Directorate will request confirmation from the local Specialty Training Committee or Training Programme Director that the effect of the leave has been discussed, that the programme has been adjusted to take account of the individual trainee and that the provisional CCT/CESR[CP] date needs to be revised as necessary.

   In the case of an extended period away from the workplace, e.g. maternity leave, the College recommends that before the trainee returns to work, a formal assessment of which parts of the programme have been missed along with review of the individual's remaining training programme occurs. It may be possible to incorporate missing units of training within subsequent blocks but clear educational objectives must be agreed in advance and core clinical learning outcomes as defined in the curriculum must be achieved.

4. ***Clinical duties of pregnant trainees*** – This is a potentially complex area where advice must be sought from the occupational health and personnel departments. With regard to out of hours duties Croner's information service[38] states that:

"Where a new or expectant mother works at night and a certificate from a registered medical practitioner or a registered midwife shows that it is necessary for her health and safety that she should not be at work for any period, the employer must find suitable alternative work or suspend her from work for so long as is necessary. The employer is not required to take the above actions until the employee has notified them in writing that she is pregnant, has given birth within the previous six months or is breastfeeding. The employer may request, in writing, a certificate from a registered medical practitioner or a registered midwife confirming the pregnancy. If within a reasonable period of time, the employee has not produced the certificate, the employer is not required to continue with the requirements detailed above."

[38] www.croner.co.uk or email info@croner.co.uk for specific questions

Appendix 3 - RCoA Clinical Assessment Strategy for assessment leading to the CCT/CESR[CP] in Anaesthetics

In this appendix the background to the RCoA's assessment strategy is described.

There are two significant obstacles to the assessment of clinical learning outcomes in the course of postgraduate training.

- Their Validi–y - In many situations it is difficult to find outcomes that are measurable and that relate directly to the capabilities being considered.
- Their Reliabili–y - Clinical assessment is difficult to standardise and depends upon a subjective expert judgement by the observer.

The RCoA has adopted an approach to assessment by observation of performance in line with the methodology known as the 'Cambridge Approach' that focuses on performance as a product of competence.[39] It is important that knowledge be specifically assessed separately, as knowledge and skill in procedures appear to be independently acquired with skill learning preceding knowledge[40]. This is the reason why separate, high validity, high reliability assessments of knowledge are undertaken in the FRCA primary and final examinations.

1. Evidence for the Annual Review of Competence Progression (ARCP)

Award of the CCT depends on having completed a recognised programme of training and having demonstrated key knowledge and capabilities in the course of assessments. Trainee progress through the curriculum is monitored by a scheme of assessments.

This evidence is reviewed at an Annual Review of Competence Progression (ARCP) and this determines the learner's further progress.[41]

This document describes the evidence that learners should present at their ARCP. It is primarily the responsibility of the trainee themselves both to understand what evidence will demonstrate appropriate progress and to accumulate and tabulate this evidence. Inability to collect and organise the evidence is itself taken to be a significant failing which is likely to be reflected in other aspects of professional life.

The ARCP is organised and operated by Postgraduate Deans. Its general principles are laid down by the GMC and are described in the 'Gold Guide'. The RCoA is responsible for advising on the specific evidence that is required in its specialty training programme.

2. Workplace observational Assessment is an Expert Process

Until recently postgraduate medical education relied almost entirely upon high-stakes knowledge testing in professional exams. Tests of *practice* were deficient and did not make use of the workplace (ie, specialists

[39] Rethans JJ, Norcini JJ, Barón-Maldonado M, Blackmore D, Jolly BC, LaDuca T, Lew S, Page GG, Southgate LH. The relationship between competence and performance: implications for assessing practice performance. Med Educ. 2002 Oct;36(10):901-9

[40] Sivarajan M, Miller E, Hardy C, et al. Objective evaluation of clinical performance and correlation with knowledge. Anesth Analg 1984; 63: 603–7

[41] The Gold Guide section 7

were not formally tested 'on the job'). The 'competence' movement in education was adopted into medical education in the 1990's and led the introduction of workplace testing. Both critics and enthusiasts of this approach have been concerned about the reliability and validity of assessments taking place in the non-standardised environment of the workplace.

The RCoA has used a satisfactory/unsatisfactory metric for workplace-based assessment. Michael Polyani developed the idea that much of the success of experts depends upon what he called "tacit knowledge"[42]. Tacit knowledge cannot be fully described or explained which makes it difficult to teach and test. It is widely believed that expert observers can, however, use their own tacit understandings to discern whether or not the practice of their expertise that they are observing is 'adequate'. Therefore, many workplace-based assessment systems have used a simple yes/no response to the question, *'Was this performance adequate?'*.[43] Recent publications on assessment in anaesthesia[44] and psychiatry[45] support the premise that experts can identify satisfactory performance, but are less able to judge levels of performance within the pass or fail categories. There is still need for good formative feedback and there is space on the form for this.

3. Checking competences can provide spurious evidence of competence

It is tempting to try to make assessment by observation more reliable by 'unbundling' the competences into separately-assessed sub-competences. This however, encounters the problem that it is possible to be competent in each of the individual components of a clinical process whilst the performance of the whole remains inadequate[46]. The Tooke report has specifically identified the competence approach to learning as one of the possible root causes of mediocrity[47]. The RCoA has not specifically broken down clinical work into small competences but has chosen to identify higher level learning outcomes that are demonstrated in the course of all work. This enables the use of the same marksheet in all circumstances.

4. Exams

The exams are a high stakes assessment in two parts. They principally investigate the learner's basic science and medical knowledge concentrating on its application in practice. The examination process is subject to stringent quality control and the validity and reliability of each separate assessment within the process is scrutinised.

5. Workplace-Based Assessments

5.1. The Process of ensuring face validity of assessments

The face validity of the anaesthetic workplace-based assessments depends upon the relevance of the curriculum. The content of the anaesthetic curriculum has been established in a protracted developmental programme. The first version was developed within one school of anaesthesia fifteen years ago. The process involved the use of an expert group that commented on the expected performance of the trainee in general and specialist areas, and the stage of training at which competence could be expected.[48] Subsequently this curriculum was adapted and updated for use in all anaesthetic training. In that process it

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42 Polyani M The Tacit Dimension

43 Talbot M. Monkey see, monkey do: a critique of the competency model in graduate medical education. *Medical Education* 2004; **38:** 580-1.

44 Schubert A, Tetzlaff JE, Tan M, Rychman JV, Mascha E. Consistency, inter-rater reliability, and validity of 441 consecutive mock oral examinations in anaesthesiology. *Anaesthesiology.* 1999;91:288–298

45 Femi Oyebode, Sanju George, Veena Math, Sayeed Haque, Inter-examiner reliability of the clinical parts of MRCPsych part II examinations *Psychiatric Bulletin* (2007) 31: 342-344. doi: 10.1192/pb.bp.106.012906

46 Talbot op cit

47 *Aspiring to Excellence. Findings and Final recommendations of the Independent Inquiry into Modernising Medical Careers.* London: MMC Inquiry, 2008. Available at: www.mmcinquiry.org.uk/Final_8_Jan_08_MMC_all.pdf (accessed 24 March 2009

48 A Competencey Curriculum for the Northern Schools of Anaesthesia. Greaves JD and Dodds CR. Northern Schools of Anaesthesia 1996

has three times been subjected to review by specialist societies and by working groups within the Royal College of Anaesthetists. These working groups have included medical managers, service managers and the representatives of patients. The curriculum competency statements therefore form an assured basis for the content of assessments and their direct relationship to real clinical situations encountered by the trainee at that stage assures both their face and context validity. The content validity that relates to non-technical skills derives from a taxonomy of behavioural markers developed specifically for anaesthetics using a grounded-theory research methodology.[49]

5.2. Choosing Appropriate Assessment Instruments

The curriculum was reviewed and the cognitive learning outcomes that lend themselves to conventional testing by written and oral examination were marked for formal examination.

Those cognitive, psychomotor and behavioural learning outcomes that remained have been allocated to appropriate instruments for workplace-based assessment. As an outcome-based curriculum identifies very large numbers of items, a strategy of sampling assessments has been selected in order to make the assessment task manageable and to minimise the disruption of normal work and the possibility of increased risk to patients.

An assessment instrument has been identified for every competency in the curriculum. Where possible more than one methodology is identified so that it is possible to triangulate performance. It is intended that a sample of these assessments will be undertaken by each learner. Test schedules that incorporate every competence statement tend to trivialise assessment and become very labour intensive.

All assessments are derived directly from the curriculum and are in line with the GMC standards and published guidance on assessment strategies, one of which is shown in Appendix 8. All items map to the GMCs document Good Medical Practice[50]. Non technical learning outcomes are mapped to the schedule of Anaesthetic Non-Technical Skills (ANTS) (Appendix 7). The CanMed[51] classification of the roles of doctors has informed the learning outcomes, in particular those that relate to professionalism (Appendix 4). In addition the assessment system conforms to the GMC Standards for assessment

The choice of which outcomes to assess is left to the learner and their educational and clinical supervisors. This will depend on the opportunities that the clinical work presents. The marking schemes for all the assessment instruments focus on the underlying capabilities and attitudes in such a way that general conclusions about future performance can be inferred.

5.3. The Available Assessment Methodologies

A pragmatic approach to the choice of assessment methods has been adopted. As anaesthesia and critical care have Foundation Doctors, and many Consultants are familiar with their assessment methods – and are trained in their use, it has been decided to continue with these same systems throughout the CT and ST training. These are the A-CEX, DOPS and CBD. In addition these methodologies have a practical utility attested to by experience in their use and at least some objective evidence that correctly applied they have

[49] Fletcher, G., Flin, R., McGeorge, P., Glavin, R., Maran, N., & Patey, R. (2003). Anaesthetists' Non-Technical Skills (ANTS): Evaluation of a behavioural marker system. British Journal of Anaesthesia, 90 (5), 580 - 588.

[50] GMC

[51] Frank, JR., Jabbour, M., et al. Eds. Report of the CanMEDS Phase IV Working Groups. Ottawa: The Royal College of Physicians and Surgeons of Canada. March, 2005.

validity and reliability.[52] An additional tool has been developed by the specialty of Acute Medicine which has been adopted by other specialties and is mandatory in the programs for ACCS training. The Acute Care Assessment Tool (ACAT) is used to assess a longer period of work in which a number of patients are seen, evaluated and treated. This is typically used to observe, score and report performance during a period of 'take'; when the doctor receives a number of patients during a day or night of acute reception duties. The ACAT is believed to allow observation of the ability to organise, prioritise and integrate complex clinical activities. Such extended work also calls upon advanced ability to organise and work in teams. Validation of his new assessment instrument is at present limited to a pilot study of the responses of trainers and trainees to its use.[53] There is no data to establish its validity or reliability. Nonetheless, the principle of an extended assessment is attractive and the RCoA has developed a similar approach.

Descriptors of competencies demonstrated during ACAT:	
Clinical assessment	Quality of History and Examination to arrive at appropriate differential diagnoses
Medical record keeping	Quality of recording of patient encounters on the take, and including drug and fluid prescriptions
Investigations and referrals	Quality of a trainee's choice of investigations, and referrals over a take period
Management of critically ill patient	Quality of treatment given to critically ill patients encountered on the take assessment, investigations, urgent treatment administered, involvement of appropriate colleagues (including senior)
Time management	Prioritisation of cases and issues within the take, ensuring sickest patients seen first and the patient's most pressing issues are dealt with initially. Recognition of the quality of a colleague's initial clerking to inform how much further detail is needed. A full repeat clerking is not always needed by a more senior doctor.
Management of Take / Team working	Clinical leadership Appropriate delegation and supervision of junior staff.
Appropriate relationship with and involvement of other health professionals	Handover Quality of the handover of care of patients from the take to the relieving team. If patients have been transferred to a different area of care then this applies to the quality of the handover to the new team.
Overall Performance	What level was demonstrated by the trainee's performance in this take period?

The categories of observation for the ACAT are shown above. Whilst the broad categories of work observed and its properties are the same for anaesthesia the specific descriptors of performance to be observed do not. The RCoA has therefore adapted the ACAT and produced a similar assessment for anaesthesia called the Anaesthetic List/Clinic/Ward Management Assessment Tool [ALMAT]. In line with the general approach throughout the assessment system, the marking is either satisfactory or unsatisfactory. The same descriptors are used to mark unsatisfactory performance as are used for the Anaes-CEX. This is because the descriptions of poor performance are sufficiently generic to apply to all observations of work.

[52] Ryan JG, Mandel FS, Sama A, Ward MF. Reliability of faculty clinical evaluations of nonemergency medical residents during emergency department rotations. Acad Emerg Med 1996;1124-30.

[53] Johnson G, Wade W, Barrett J, Jones M. The Acute Care Assessment Tool: a new assessment in acute medicine. The Clinical Teacher, 6, 2, 105-109 May 2009

5.4. How many workplace-based tests

The purpose of the anaesthetic workplace-based tests is not to tick off each individual competence but to provide a series of snapshots of work from the general features of which it can be inferred whether the trainee is making the necessary progress – not only in the specific work observed – but in related areas of the application of knowledge and skill. The number of observations of work required will not be fixed but will depend on the individual trainee's performance.

The literature is inconclusive but suggests that inter-rater reliability between repeat episodes of performance requires 12-15 cases to become reasonably consistent.[54,55] This number probably constitutes the minimum number of observations per year. The RCoA therefore sets a minimum of 1 assessment type identified for each unit of training in the respective training level blueprint or the School defined number, whichever is the greater. Where a trainee performs unsatisfactorily more assessments will be needed. It is the responsibility of the trainee to attend for annual review with what they consider to be evidence of satisfactory performance and satisfactory progress. It is the educational supervisors responsibility to help the trainee to understand what that evidence will be – in their specific circumstances.

Once again it must be stressed that there is no single, valid, reliable test of competence and the ARCP will review all the evidence, triangulating performance measured by different instruments, before drawing conclusions about a trainee's progress.

5.5. The Annual Review of Competence Progression (ARCP)

Performance in the course of clinical work is notoriously difficult to assess. In anaesthesia this is complicated further by the very low rate of observable errors and adverse outcomes that are caused by slips and errors on the part of the anaesthetist. It is therefore important to understand that all concerned accept the weak reliability of the observational assessment.[56] The assessments are intended to provide information to an annual review at which, by examining information from a wide variety of data a judgement about the learner's adequacy of performance and progress can be made. It is further accepted that such inadequacies may result from deficiencies in the clinical experience and problems with the instructional programme as well as from under-performance by the learner. The Annual Review will initially lead to targeted or remedial training. This will be organised from within the school of anaesthesia in partnership with the Postgraduate Dean. From an extensive review of the way anaesthesia is learned it seems clear that successful assessment of progress if simultaneous use is made of a variety of measures.[57]

A wide variety of information is available at the annual review. It is deemed to be the learner's responsibility to present their reviewers with evidence of satisfactory progress. This will be in the form of the learners 'Portfolio of Learning'. Sources of information are:

- evidence of performance in professional examinations – if applicable;
- a log of clinical work undertaken;
- a reflective diary of learning experiences;
- the results of in service assessments;

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54 Norcini JJ, Blank LL, Arnold GK, Kimball HR. Examiner differences in the mini-CEX. Adv

55 Weller, J. M. Robinson, B. J. Jolly, B. Watterson, L. M. Joseph, M. Bajenov, S. 6; Haughton, A. J. Larsen, P. D. Psychometric characteristics of simulation-based assessment in anaesthesia and accuracy of self-assessed scores Anaesthesia. 60(3):245-250, March 2005.

56 Greaves JD and Grant J Watching anaesthetists work: using the professional judgement of consultants to assess the developing clinical competence of trainees British Journal of Anaesthesia, Vol 84, Issue 4 525-533

57 Smith AF, Goodwin D, Mort M, Pope C. Expertise in practice: an ethnographic study exploring acquisition and use of knowledge in anaesthesia. Br J Anaesth 2003; 91: 319–28

- the consultants' end of module feedback;
- a record of agreed targets and outcomes from interviews with their educational supervisor;
- a multi-source feedback if appropriate; and
- optionally – a record of a School of Anaesthesia appraisal interview.

It is accepted that there is no good evidence of the validity and reliability of any of these evidences. The process of reviewing them is not arithmetic. The review must seek to use these evidences to answer 4 questions:

Criterion	Domain in Good Medical Practice	Evidence
Has the learner undertaken a clinical workload appropriate in content and volume to the acquisition of the learning outcomes	domain 1,2,3	Logbook, Consultants report, Appraisal
Has the learner met the general educational objectives of the curriculum and personal and specific objectives agreed with their educational supervisor or as a previous remedial programme	domain 1,2,3	Log-book, Educational supervision reports, Appraisal
Do the learners supervisors believe that they have performed satisfactorily in their clinical work – as judged by their reports and the workplace-based assessments	domain 1,2,3,4	Log-book, Workplace-based assessments, educational supervision, consultants reports
Is their evidence that the learner performs satisfactorily as a member of a clinical team including teamwork and a focus on safe practice	domain 2,3,4	Multi-source feedback, Consultants reports, Appraisal

Good Medical Practice	
GMP Domain	**Domain description**
1	Knowledge, skills and performance
2	Safety and Quality
3	Communication, Partnership and Teamwork
4	Maintaining Trust

6. The Workplace-Based Assessments

6.1. The DOPS and A-CEX

Assessment by the direct observation of work is based on the belief that an expert is able to make a judgement about the quality of an expert process by watching its progress.[58] This is the methodology of the motor vehicle driving test and there is a long history of the use of observational assessment in the accreditation of practice.[59]

[58] Greaves JD and Grant J Watching, op cit

[59] Smith, A.F., Pope, C., Goodwin, D. and Mort, M. (2006) What defines expertise in regional anaesthesia? An observational analysis of practice. *British Journal of Anaesthesia*, 97, (3), 401-407

Medicine has a long history of such assessments, by the informal means of supervision, but it is only recently that efforts have been made to formalise and standardise the observations. It has been noted that observation of work in the context of the formal 'long case' improves reliability and this is probably applicable in a real work situation.[60] Clinical decision making is particularly difficult to assess because the quality of the outcome is often only remotely influenced by the decision – many incorrect actions do not result in adverse consequences, and because they make extensive use of tacit knowledge which cannot be adequately articulated[61]. The literature on reliability is sparse and largely based upon showing that one form of assessment is as reliable as another or that learners and assessors felt comfortable with the assessment process.[62] [63] [64] There is little or no evidence to show that any available observational assessment correlates with capabilities such as the outcome of clinical decision-making in complex situations.

The observation of practical skills lends itself to observational assessment more easily. The assessor can observe that the critical stages of a process are carried out in correct sequence without omission and can make specific observation of factors such as knowledge of relevant anatomy and the correct performance of safety checks and precautions to maintain sterility. There is however little clinical judgement involved in most such procedures in anaesthesia and it is important that their better inter-observer reliability as compared to the A-CEX does not result in them being given an exaggerated weighting in decision making. If an event is relatively clinically insignificant repeated assessment however reliable and valid does not increase its clinical significance. It has also been observed that even straightforward practical procedures require the exercise of expert and tacit knowledge that neither trainee nor assessor may appreciate.[65]

A final point of importance in considering the acceptable standard of performance in a workplace-based assessment is the effect of steep learning curves and the lack of uniformity of the trainee's experiences. Anaesthesia has more than a dozen major subdivisions. The trainee is therefore repeatedly confronted with new situations. Often they are effectively back at square one after a change of placement. Performance has repeatedly been demonstrated to improve rapidly over the first 30 iterations.[66] [67] [68] [69] Some sub-specialty experiences are similar and having undertaken one will facilitate learning in another – so the trainee's trajectory through modules will influence their performance. Assessment of the trainee in these circumstances relies heavily on the consultant's expert understanding of the standard at which the learner should be working – taking into account their specific previous experience. It is not feasible to attempt to time assessments so that each occurs at a particular level of experience. It must also be noted that the interpretation of performance in a practical procedure must relate to the logbook data on numbers undertaken as there is evidence that trainees are unlikely to be able to undertake sufficient numbers of cases to become fully proficient.[70] [71]

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60 Wass V, Jolly B. Does observation add to the validity of the long case? Med Educ 2001;35:729-34.

61 Pope C, Smith A, Goodwin D, Mort M. Passing on tacit knowledge in anaesthesia: a qualitative study. Med Educ 2003; 37: 650–5

62 Norcini JJ, Blank LL, Arnold GK, Kimball HR. The mini-CEX (Clinical Evaluation Exercise): a preliminary investigation. Ann Intern Med 1995;123:795-9.

63 Norcini JJ, Blank LL, Arnold GK, Kimball HR

64 The Mini-CEX: A Method for Assessing Clinical Skills John J. Norcini, PhD; Linda L. Blank; F Daniel Duffy, MD; and Gregory S. Fortna, MSEd Annals of Internal medicine 18 March 2003 | Volume 138 Issue 6 | Pages 476-481

65 Rhoton MF, Barnes A, Flashburg M, Ronai A, Springman S. Influence of anesthesiology residents' noncognitive skills on the occurrence of critical incidents and the residents' overall clinical performances. Acad Med 1991; 66: 359–61

66 Kestin IG. A statistical approach to measuring the competence of anaesthetic trainees at practical procedures. Br J Anaesth 1995; 75: 805–9

67 D. QA in regional anaesthesia training: quantity or quality? Reg Anesth 1997; 22: 209–11

68 G. R. de Oliveira Filho The Construction of Learning Curves for Basic Skills in Anesthetic Procedures: An Application for the Cumulative Sum Method

69 Greaves D. Learning from work. In: Greaves D, Dodds C, Kumar CM, Mets B, eds. Clinical Teaching: A Guide to Teaching Practical Anaesthesia. Lisse: Swets and Zeitlinger, 2003; 21–31

70 Konrad C, Schupfer G, Wietlisbach M, Gerber H. Learning manual skills in anaesthesia: is there a recommended number of cases for anesthetic procedures? Anesth Analg 1998; 86:635–8

71 Kopacz DJ, Neal JM, Pollock JE. The regional anaesthesia 'learning curve'. Reg Anesth 1996; 21: 182–90

6.2. The RCoA strategy in scoring observational assessments

The reliability of observational assessment is increased by a strategy of using multiple observers and assessing on multiple occasions. With workplace-based assessment during real work this affects the progress of work and frequent testing may not be feasible.

The primary question on the RCoA mark sheet is whether the observer considers the performance satisfactory or not. The limen for this decision is part of the observer's judgement – as an expert in the field. This criterion has been adopted rather than marking against a scale because of the difficulty in defining other grades of performance. Obviously a decision about the overall adequacy of performance cannot be made by summing the grades in each element of the performance. A deficiency in one cannot be compensated by good performance in another.

If the assessor believes the performance to be satisfactory they are asked to offer feedback - both positive and negative.[72]

If the observer rates the performance unsatisfactory they must complete a grid which tabulates the specific areas for concern. Once again these categories all map to domains in Good Medical Practice to ANTS and to CanMed. The critique is highly specific and provides Consultants with an educational vocabulary in which to describe their concerns. This feedback is designed to allow the structured development of any remedial programme and to give a consistent emphasis from assessors in the event of a trainee continuing to perform so inadequately that they are unsuitable for continued training.

The RCoA recognises that the quality of the feedback given to learners who perform satisfactorily is less structured. This is not believed to be very significant in the context of our training practices. Anaesthesia is hazardous and close supervision of trainees is mandatory. The RCoA requires that trainees engage in a high proportion of supervised practice – consultant / trainee working is more frequent and closer than in most specialties. They therefore perform many cases under direct supervision and the quality of anaesthetic education depends heavily on the educational approach during that work. This will include repeated feedback.[73] [74] Against this background it has been felt that the advantage of presenting an assessment form that is easy to complete when work is satisfactory is overwhelming in improving compliance, and engagement with the testing regime.

6.3. Case Based Discussion

In anaesthesia this will most frequently focus upon the choice and practice of anaesthetic technique in many surgical and patient contexts. The RCoA has defined topics for CBD that are appropriate to all the contexts of training. Assessments should not be made using other topics without checking that they are appropriate i.e. the issue is in the curriculum for the trainee's present state of training.

CBD is also used for assessing the more generic, and less clinical, knowledge and skills needed for effective practice. e.g. evidence based practice, maintaining safety, teamwork, clinical research methodologies etc.

6.4. Simulation based assessment

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[72] Greaves D. Teaching practical procedures. In: Greaves D, Dodds C, Kumar CM, Mets B, eds. Clinical Teaching: A Guide to Teaching Practical Anaesthesia. Lisse: Swets and Zeitlinger, 2003; 121–32

[73] Gordon J. One to one teaching and feedback. Br Med J 2003; 326: 543–5

[74] Lave J, Wenger E. Situated Learning. Cambridge: Cambridge University Press, 1991 33 Cleave-Hogg D, Benedict C. Characteristics of good anaesthesia teachers. Can J Anaesth 1997; 44: 587–91

The practice of anaesthesia is often likened to flying an aeroplane. Pilots are largely trained in simulators – so why not anaesthetists. There are many reasons. Firstly, anaesthetists train for many more hours than pilots and provision of sufficient simulators and instructors is totally impracticable. Learning normally takes place during real work and time in simulation is therefore a loss of service. Secondly, medicine does not obey predictable laws. Problem solving exercises in simulators whilst useful are not predictable enough to be valid and reliable as assessments. In a recent investigation between ten and fifteen simulator assessments were necessary to achieve reliable scores between raters.[75] Simulation has an important role in teaching, particularly in rehearsing uncommon events and team training. It has an important role in assessment as a medium for demonstrating procedures and routines but at present it is impractical to use it routinely to test decision making and critical thinking skills. The RCoA has not made extended use of simulator based assessment for these positive reasons and not through omission.

6.5. A logbook and portfolio which record the learners clinical and educational experience

Trainees are required to keep a record of the cases that they undertake. The level of detail of these records is described elsewhere. The RCoA has defined the categories of experience but has not stipulated the number of cases that must be undertaken. This is because it is more important to demonstrate competence than to achieve a target of experience. Self evidently a learner cannot become competent without undertaking cases and their performance must be considered in the context of their experience. In the event that assessments indicate underperformance in an area of practice the first response is to check from the logbook that the learner has had sufficient exposure to it. Incompetence in the face of what is usually sufficient exposure is a cause for concern.

There is a significant body of evidence regarding the acquisition of complex capabilities and of isolated skills. Surprisingly the learning curves are very similar. Where a clear outcome measure is available as a judgement of performance the learning appears to occur in three stages. The rate of improvement is initially very fast with performance scores rising to about 50% of that of an expert within 10 repeats. Over the next twenty cases the rate of improvement slows down with about 75% of expert performance being achieved after 30 repeats. From this point on improvement occurs slowly and it can take 200 cases to achieve 90% of expert performance. Some studies have shown that improvement beyond this point continues – but is very slow. It is important however to appreciate that individual learners can perform well below the levels predicted from pooled data.

What is the outcome target for learning? In many clinical situations there are no measurable outcomes or proxies for performance. We have little alternative but to assume that performance follows the same profile in these situations as for those we can measure. Using this pooled data we can assume that a working knowledge of a major competence requires 10 cases and reasonable performance requires 30. It is unlikely that any learners acquire capability faster than this and some will be much slower.

Decisions regarding necessary levels of experience are further complicated by the fact that many capabilities incorporate cross competences with other situations. Sometimes competences are acquired and honed in a number of types of practice and are then brought together in a new type of case – in which case capability is gained quickly. Some capabilities are very important and all trainees must become expert in them during training. Others are less important and the development of expert performance can wait until the learner is engaged in practice that calls for their more frequent use – which may not be during postgraduate training.

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[75] *Weller, J. M. Robinson, B. J. Jolly, B. Watterson, L. M. 4; Joseph, M. Bajenov, S. Haughton, A. J. 5; Larsen, P. D.* Psychometric characteristics of simulation-based assessment in anaesthesia and accuracy of self-assessed scores . Anaesthesia. 60(3):245-250, March 2005.

In summary, judging whether a trainee's progress is satisfactory is a complex process that the trainer learns from their experience of training. Log book data will indicate whether it is possible that the learner has enough experience to be competent, it will not confirm that they are competent.

What logbook data will do is, firstly reveal any deficiencies of the training rotation in providing suitable experience, and secondly reveal situations where the learner is avoiding a particular type of work.

The portfolio of learning is more than a logbook. It will include reflections on learning and a record of other teaching and of discussions with the educational supervisor. Trainees do not always get the things out of their reflective portfolio that educationalists would hope for and expect.[76] The marking of portfolios as an assessment tool is exceptionally difficult and the RCoA does not require that this exercise be undertaken.

6.6. Evidence of participation and attendance at training events

Until recently evidence of attendance at a learning session was taken to be the standard for accumulation of credits in continuing medical education. Attendance does not assure that learning has occurred but it does signify compliance with an appropriate learning plan. There are a number of aspects of training that lie on the periphery of practice such as Research Methods, Management, Evidence Based Practice, Teaching and Assessment. At present there is little focussed assessment in these areas and significant practical difficulties lie in the way of introducing summative assessment. The RCoA has at present adopted the middle ground in these areas and requires that evidence of participation in learning is presented to the ARCP. These include attendance at specific courses, evidence of presentation at local audit/quality improvement and research meetings and records, feedback etc from teaching the trainee has delivered themselves.

6.7. An Independent Appraisal

Evidence to the ARCP must include an appraisal. In many Schools of Anaesthesia this will be with the educational supervisor and will be part of the documentation relating to episodes of supervision. Some Schools conduct independent appraisal of the ARCP evidence in advance of that meeting and include this formal appraisal in the evidence for the review. This practice provides a more independent review of their training which will also include the adequacy of their educational supervision, as poor planning by the supervisor may contribute to poor outcomes by the trainee. It also provides the trainee with the opportunity to explain and expand upon the evidence they present in their portfolio.

7. Oral Assessment in the RCoA Assessment System

Oral assessments are tasks designed to provide students with opportunities to develop and demonstrate their command of (1) an oral medium, and/or (2) of content as demonstrated through the oral medium. The RCoA makes extensive use of oral assessments in the assessment strategy for the CCT in anaesthesia.

Despite the reservations of some educationalists, in the UK, oral examination remains a common method of assessment in higher education[77] and in medical schools.[78] This can be by presentation (much used in HR

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[76] D.Greaves, S.Gupta Portfolios can assist reflective practice and guide learnin *Current Anaesthesia & Critical Care*, Volume 14, Issue 4, Pages 173-177 2006

[77] Hounsell, D, McCulloch, M, & Scott, M. (1996). *Changing assessment practices in Scottish higher education :the ASSHE inventory.* London: Universities and Colleges Staff Development Agency.

appointment procedures), by interrogation, or by discussion. It can be used in connection with work that the candidate has undertaken previously (e.g. MD thesis), to demonstrate knowledge at low taxonomic levels (recall of facts), to show the basis of decision making and manipulation of knowledge for complex problems and as a measure of oral communication skills. Its use in these contexts is well established in medicine but also in law, and most other disciplines in higher education.

There are concerns about reliability and the possibility of bias and prejudice affecting the outcome of oral assessment and this has led to criticism of its use. This is particularly the case when it is used for a high-stakes assessment such as the FRCA examinations.

The RCoA assessment system makes extensive use of oral assessment:

- Face to face examination in both parts of the FRCA;
- Some stations of the OSCE in the Primary FRCA;
- Elements of the A-CEX and CBD; and
- Simulation.

7.1. Advantages of Oral Assessment

Oral assessment:

- **Is 'Authentic'**? Case based discussion; OSCE and some viva voce discussions across the examination table are conducted in ways that resemble the clinical use of material. During work, colleagues require an anaesthetist to explain and justify a clinical decision, and an oral format for questioning allows a more realistic context for assessment.
- **Explores decision-making**. Candidates can explain the reasons for things very clearly. This applies equally to scientific understandings and to the choice between clinical alternatives. Not only can they explain their reasoning but also they can argue in favour of their choices. Written tests require that the candidate has the same understanding of the question as the examiner from a limited scenario whereas in discussion the examiner can correct any misunderstandings so that the trainee gets a fair chance to explain and defend their proposed actions. This replicates the exchanges in clinical teams.
- **Is Engaging**. Just as learners have preferred learning styles, so they have preferred assessment styles. Some candidates engage better with assessment by discussion than with written tests. Use of a variety of assessment methods allows all candidates to have some assessment in their preferred style.
- **Promotes learning**. Proper preparation for oral examinations is a powerful instructional tool. It promotes clarity of thinking and clear communication.
- **Promotes Examination Security**. Impersonation and plagiarism are hard to counter but face to face examining can be associated with good security. It would be very audacious, to appear for a high-stakes oral examination on behalf of another. If the candidate was impersonated at the written exams this could be revealed by a discrepancy between the oral, workplace and written marks.
- **Allows 'Triangulation'**. The use of a variety of assessment systems enables judgement to be made about capability by more than one method. This can confirm that a problem is real or allow the interpretation to be made that a candidate has a difficulty with the style of an assessment system – for which allowance can then be made.

[78] Daelmans HE, Scherpbier AJ, van der Vleuten CP, Donker AJ. Reliability of clinical oral examinations re-examined. *Med Teach.* 2001;23(4):422–424

Oral exams are most suitable for assessment of:

- Communication skills;
- Understanding – students can explain their knowledge and understanding;
- Problem solving, critical-thinking, clinical-reasoning and the application of knowledge – a problem can be thought through and each stage described;
- Prioritisation – learners can identify what is important and minimise less important knowledge. This is invaluable, as the trainee who knows all the answers but thinks first of rarities is well known to clinicians, and is less effective in the workplace than the learner who sees clearly;
- Interpersonal skills. Scenarios with simulations or in real clinical situations give an opportunity for candidates to show their real interpersonal skills;
- Professional demeanour – clinical cases, whether real or simulated allow the professional persona or 'bedside manner' to be observed; and
- Personal characteristics – some oral formats enable the observer to judge manner, calmness under pressure etc. Here lies a minefield.

7.2. The case against oral assessment

A vigorous argument is sometimes mounted against oral assessment. Gibbs et al have discussed its deficiencies.[79]

- Oral assessment is time consuming and expensive;
- Standardisation of encounters is difficult;
- Reliability depends on the impartiality of examiners;
- Validity depends on the skill of the examiners. It is difficult for examiners to strike a balance between setting the candidate at ease and maintaining a coherent line of questioning;
- Predictive and consequential validity are not known;
- Content of encounters varies with the candidates speed of response and language skills;
- It is sometimes difficult to miss the point of the candidate's responses because of being distracted by their manner or by their presentation;
- It is difficult for the examiners to justify a mark; because the judgement may rest on very little information and because there is no written record to review and memory of what the candidate says may be imperfect. (and at odds with the candidate's memory);
- Such a wide and unpredictable range of questions may be asked that it makes it difficult for the candidate to prepare for the test; and
- The examinees skill and experience with the format may influence their score

7.3. Reliability and Validity

If oral assessment is unreliable it is useless as a summative metric.

Its face validity is usually high because the questioning is used to relate knowledge to real contexts and sometimes the assessment takes place in real work or simulation. Its consequential and predictive validity are also questioned.

[79] Gibbs, G., Habeshaw, S., & Habeshaw, T. (1988). *53 Interesting ways to assess your students*. Bristol: Technical & Educational Services Ltd.

There have been few investigations of the validity and reliability of oral assessment as used in medical certification processes[80] [81] or of observational assessment that includes an oral component, in simulators.[82] Norcini has questioned the reliability and predictive validity of 'long case' clinical examination[83] and developed and introduced the A-CEX partly in response to these concerns.[84] He has shown that the results of several A-CEX with one observer are as reliable as a full-blown Clinical Examination Exercise lasting a couple of hours and using several observers. Daelmans also found that it was feasible to increase the number of oral exams in a CBD format within existing resources, and that this improved their reliability. Interestingly he also found that the reliability of a single global rating was superior to that of separate scoring items. It has been demonstrated that inter-rater reliability can be improved by use of a more systematic observation and scoring strategy.[85] [86] On the other hand Olson looked at scoring and candidate satisfaction between free questioning and the use of a grid of questions. He found that the grid did not increase inter-rater reliability and that the candidates felt that they had been less able to demonstrate their command of the subject.[87] Oyebode et al found with psychiatry oral exams that, when using a ten point scale that there was poor correlation between pairs of observers but that when the data was examined for correlation over the pass/fail criteria there was good agreement.[88] This may be taken as evidence to support the premise that experts know what constitutes satisfactory and unsatisfactory practice but that judgement of gradations within those categories is more difficult. Kearney examined inter-rater reliability in the Canadian anaesthetic certification oral assessment and found average correlations of just under 0.8 for 80% of test items.[89] Schubert used a mock examination format similar to the oral assessment for anaesthesiologist's specialist certification in the USA and saw inter-rater correlations of between 0.6 and 0.8. Again there was better agreement (84%) between observers when considering pass/fail criteria. These workers compared the mock assessment with other measures of performance during training and found moderate levels of correlation in the order of 0.6.[90]

Simpson carried out a study examining the various elements of questioning and decision making that demonstrated that a wide range of topics were explored, and that examiners generally presented their questions in a sequence that took the candidate through the stages of decision making. They recommended that oral examinations that intend to explore decision-making should be formally structured in ways that lead the candidate through the various stages.[91]

Sambell used a qualitative technique based on interviews to discover what effect oral exams had on the learner (consequential validity). They concluded that oral assessment did indeed have the educational

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80 Muhammed Ashraf Memon, Gordon Rowland Joughin and Breda Memon. Oral assessment and postgraduate medical examinations: establishing conditions for validity, reliability and fairness Advances in health Sciences Evaluation. DOI 10.1007/s10459-008-9111-9

81 Are medical postgraduate certification processes valid? A systematic review of the published evidence. Hutchinson L, Aitken P, Hayes T. medical education 2000, 36(1), 7-8

82 Assessment instruments used during anaesthetic simulation: review of published studies. Byrne AJ, Greaves JD. Br J Anesth 2001 Mar;86(3):445-50

83 Norcini, J. J. (2002) The death of the long case? *BMJ*, 324, 408 -409

84 Norcini, J. J., Blank, L. L., Arnold, G. K., *et al* (1995) The mini-CEX (clinical evaluation exercise): a preliminary investigation. *Annals of Internal Medicine*, 123, 795 -799

85 P. J. M. Tutton , E. F. Glasgow Reliability and predictive capacity of examinations in anatomy and improvement in the reliability of *viva voce* (oral) examinations by the use of a structured rating system Clinical Anatomy 2: 29-34

86 Femi Oyebode, Sanju George, Veena Math, Sayeed Haque, Inter-examiner reliability of the clinical parts of MRCPsych part II examinations *Psychiatric Bulletin* (2007) 31: 342-344. doi: 10.1192/pb.bp.106.012906

87 Olson LG, Coughlan J, Rolfe I, Hensley MJ The effect of a Structured Question Grid on the validity and perceived fairness of a medical long case assessment. MedEduc. 2000 Jan;34(1):46-52.

88 Oyebode, Sanju George, Veena Math, Sayeed Haque, op cit

89 Kearney RA, Puchalski SA, Yang HY, Skakun EN. The inter-rater and intra-rater reliability of new Canadian oral examination format in anesthesia is fair to good. *Can J Anaesth.* 2002;49(3):232–236.

90 Schubert A, Tetzlaff JE, Tan M, Rychman JV, Mascha E. op cit

91 Robin G Simpson, Karen D Ballard What is being assessed in the MRCGP oral examination? A qualitative study Br J Gen Pract. 2005 June 1; 55(515): 430–436

impact on learners for which teachers hope.[92]

7.4. Candidates Opinions

All doctors have undergone many oral assessments and most remember them as being amongst the most stressful and frightening of their 'life crises'. Despite this there is data suggesting that students have a positive view of oral assessment.[93] [94] Students report that the need to explain what they are thinking leads to better preparation as well as clear thinking. They also say that 'practice vivas' are actually a very valuable learning tool. Some students report that it is at the same time more demanding and more satisfying. Candidates value the opportunity to reason with the examiner and persuade them that their answer is acceptable. No candidate likes any exam, but the evidence suggests that they do not dislike orals more than other examinations.

7.5. Measures the RCoA takes to maximise the quality of its oral assessments

1. **Planning.** The examinations committee of the RCoA has planned its formal oral examinations with great care. The exams conform to GMC standards for assessment and also to the good practice identified by the American Association for Higher Education. Importantly, the RCoA examinations committee believes that oral assessment is an essential part of the college's assessment strategy. It recognises the weaknesses of oral examination, organises systems to minimise these and believes that its advantages are sufficient to make its use mandatory.

2. Examiner Preparation. The examiners for the formal FRCA examinations nominate themselves and fill in a formal application that is reviewed by the Examinations Committee and Council. Their educational knowledge and involvement is considered as well as their reputation as a content expert. Examiners observe the oral exams and undergo training before they participate. Khera et al have produced an excellent review of the situation regarding examiner training and recruitment in paediatrics.[95] Most of what they say applies equally to anaesthetics. They identify a large curriculum for training examiners. The feasibility of such a programme for new examiners in anaesthetics is doubtful but the same objectives can be more easily achieved by introducing a continuous education programme in education – starting in the ST years and continuing into the middle years of consultant appointment.

The FRCA examiners are regularly observed and their performance is scrutinised, compared with that of colleagues and with the candidate's results in other parts of the exam.

3. Student Preparation. The RCoA advises schools of anaesthesia that they should organise candidate training for the exams – including practice vivas and OSCEs. These teaching sessions usually involve the local consultants who are examiners.

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92 Sambell, Kay; Brown, Sally; McDowell Liz"But Is It Fair?": An Exploratory Study of Student Perceptions of the Consequential Validity of Assessment. Studies in Educational Evaluation, v23 n4 p349-71 1997

93 Hounsell, D. & McCune, V. (2000). *A sense of audience in oral presentations by undergraduate students.* Paper presented at the European Association for Research on Learning and Instruction, Special Interest Group on Writing, Writing Conference 2000, 7-9 September, Verona.

94 Hounsell, D. & McCune, V. (2001). *Learning to present: Students' experiences and their implications.* Paper presented at the European Association for Research on Learning and Instruction, Ninth European Conference for Research on Learning and Instruction Bienniel Meeting, 28 August – 1 September. Fribourg.

95 Khera N, Davies H, Davies H, Lissauer T, Skuse D, Wakeford R, Stroobant J. How should paediatric examiners be trained? ArchDis Child 2005 Jan;90(1):43-7

Appendix 4 – RCoA logbook summary

All those who are keeping a logbook may wish to consider the guiding principles contained in the briefing document available on the RCoA website, http://www.rcoa.ac.uk/sites/default/files/TRG-LOGBOOK-STMT2015.pdf .

LOGBOOK SUMMARY

(This can be downloaded as a report from the RCoA electronic logbook)

Summary for period:	**From:**		**To:**	

Specialty & age

Specialty	**Total cases**	**%**	**Level of Supervision**			**Age of patient**				
			Direct	**Indirect**	**Teaching others**	**<1 yr**	**1-5**	**6-15**	**16-80**	**>80**
Cardiac										
Dental										
ENT										
General										
Gynaecology										
Maxillo-facial										
Miscellaneous										
Neonates										
Neuro										
Obstetrics										
Ophthalmics										
Orthopaedics										
Paediatrics										
Plastics										
Radiology										
Resuscitation										
Trauma										
Thoracic										
Urology										
Vascular										
TOTALS										

Total number of anaesthetics given in this period

	Total number of cases
Directly supervised	
Indirectly supervised	
Teaching others	

Number of ICU sessions	

Number of acute/chronic pain sessions	

ASA Grade and level of supervision

	Direct supervision	Indirect supervision	Teaching others	Totals
ASA 1				
ASA 2				
ASA 3				
ASA 4				
ASA 5				
Donor				

Age Group and level of supervision

	Direct supervision	Indirect supervision	Teaching others	TOTALS
<1 year				
1-5 years				
6-15 years				
16-80 years				
>80 years				

Time of day and level of supervision

	Direct supervision	Indirect supervision	Teaching others	TOTALS
08.00 - 18.00				
18.00 - 24.00				
00.00 - 08.00				

Priority and level of supervision

	Direct supervision	Indirect supervision	Teaching others	TOTALS
Routine				
Day case				
Urgent				
Emergency				

Teaching experience

	Non-medical	Medical Student	Junior trainees (ST years 1 & 2)	Senior trainees (ST years 3 to 7)
No of cases				

Working pattern (based on anaesthetic *start* time)

	Weekday				Weekend		
	Day	Evening	Night		Day	Evening	Night

No of cases							

Modes of anaesthesia

Description	**Number of cases**
Primary mode	
GA mask	
GA LMA	
GA LMA IPPV	
GA ETT SV	
GA ETT IPPV	
LA	
Sedation	
Monitoring only	
Other	

Modes of anaesthesia (continued)

Secondary/Regional techniques	
Spinal	
Epidural (including CSE)	
Brachial plexus	
Sciatic	
Femoral	
IVRA	
Minor nerve blocks	
Cervical plexus	
Peripheral	
Additional procedures	
RSI	
TIVA	
PA catheter or other advanced cardiovascular monitoring techniques	
CVP line	
Arterial line	
Fibreoptic intubation	
Percutaneous tracheostomy	
Double lumen tube	
Chest drain	
Other (specify):	

Royal College of Anaesthetists

CCT in Anaesthetics

Annex A
Professionalism in Medical Practice

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Assessment method decode	
A	Anaesthesia Clinical Evaluation Exercise [A-CEX]
C	Case Based Discussion [CBD]
D	Direct Observation of Procedural Skills [DOPS]
E	Examination
I	Intensive Care Medicine Clinical Evaluation Exercise [I-CEX]
L	Anaesthesia List Management Assessment Tool [ALMAT]
M	Multi-source Feedback [MSF]
S	Simulation
T	Acute Care Assessment Tool [ACAT]

Good Medical Practice decode	
1	Knowledge, skills and performance
2	Safety and quality
3	Communication, partnership and teamwork
4	Maintaining trust

Professionalism and common competencies in medical practice

It is the view of the College that the affective competencies for learning do not relate to particular stages of training; they should be developed and followed throughout practice, both during training and post-CCT. Thus, the professional attitudes, behaviours and common competencies listed are those expected of all doctors throughout their professional practice and, as a result, there are no changes to the competencies over the years of training; inevitably some of the descriptors are more specific to the specialty of anaesthesia, intensive care and pain medicine. Whilst this section identifies the specific professionalism and common competencies expected throughout training, they are also embedded in the clinical units of training at all levels, principally as demonstrated within skills though, where more appropriate, they have been listed within the knowledge sections; as such, they will be expected to be included within the assessments of clinical training.

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

- **NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary or Final examination identified in the respective FRCA examination blueprint on pages B-100 and C-74.**

Domain 1: Professional attitudes Many of the descriptors used in this domain in this section have been taken from CANMEDS [Appendix 5]			
Competence	*Description*	*Assessment Methods*	*GMP*
a. Commitment			
CC_D1_01	Undertakes responsibilities with honesty and perseverance	A,C,M	1,2,3,4
CC_D1_02	Commits to the importance of obtaining adequate information from patients, relatives and others	A,C,D,M,E	3
CC_D1_03	Commits to the principle of keeping full, comprehensible, accurate and contemporaneous written records	A,C,M,E	1
CC_D1_04	Commits to the principle of maintaining situational awareness at all times	M	1,2,3
CC_D1_05	Commits to a rigorous policy of safety first in all clinical work	A,C,M,E	1,2,3
CC_D1_06	Commits to using measures that minimise the risks of cross infection at all times	A,C,D,M,E	1,2
CC_D1_07	Commits to the principle of maintaining a timely clinical dialogue with team members during clinical work	M	3
CC_D1_08	Commits to maintaining a contemporaneous personal portfolio	M	1
b. Compassion			
CC_D1_07	Sensitive to the emotions of patients and colleagues – particularly in difficult situations	A,D,M,E	3,4
CC_D1_08	Practices compassion by demonstrating effective communication skills by listening, seeking first to reflect and understand before making decisions and taking action	A,D,M,E	3,4
CC_D1_09	Seeks forgiveness when appropriate	M,E	3,4
CC_D1_10	Demonstrates selflessness when interacting with others	M	3,4
c. Honesty and personal integrity			
CC_D1_11	Accept personal responsibility for the quality and timeliness of work. Can be relied upon to achieve excellent results with little need for oversight	M,E	1
CC_D1_12	Values the quality of truthfulness	M,E	3,4
CC_D1_13	Commits to honesty in all personal and professional interactions	M,E	2,3,4
CC_D1_14	Commits to regular reflection on own standards of medical practice in accordance with GMC guidance on licensing and	M	1,2,3,4

	revalidation		
d. Respect for others			
CC_D1_15	Values what the patient says and their opinions	A,C,D,M,E	3,4
CC_D1_16	Sensitive to patients' concerns and anxieties	A,C,D,M,E	1,3
CC_D1_17	Commits to the need to show respect for confidentiality and follows guidance from the GMC	M,E	1,3,4
CC_D1_18	Commits to the principle of providing full information to the patient	A,C,M,E	1,3,4
CC_D1_19	Respects privacy, dignity, confidentiality and legal constraints on the use of patient data	M	3,4
CC_D1_20	Sensitive to the need to maintain a calm, non-aggressive demeanour even under pressure	M,E	3,4
CC_D1_21	Sensitivity in handling patients with cognitive disturbance and/or communication problems	M,E	2,3,4
e. Community			
CC_D1_22	Respects and values the contribution of other healthcare professionals and support workers [nurses, ODPs etc]	M	2,3,4
CC_D1_23	Strives to address ignorance, injustice, poverty, racism and bias in personal and professional life and act as patient advocate	M	3,4
CC_D1_24	Strives to understand the influence that cultures and beliefs have on patients perceptions of health	M	3,4
CC_D1_25	Commits to minimising the impact on healthcare from: • Globalisation [including climate change] • Unnecessary resource usage [environmental and financial]	M,E	3,4
CC_D1_26	Accepts the importance of good communication with other health professionals	M,E	1,2,3,4
CC_D1_27	Commits to the role of supporter and advocate for the patient	M,E	3,4
CC_D1_28	Commits to facilitating the excellent functioning of professional teams	M,E	1,2,3,4
CC_D1_29	Commits to the importance of always providing necessary information in a clear, timely way	M,E	2,3,4
f. Competence			
CC_D1_30	Strives for excellence	M,E	1,2,3,4
CC_D1_31	Commits to the need to show attention to detail	M,E	1,2
CC_D1_32	Accepts that it is necessary to have a professional appearance and manner	M,E	1,3,4
CC_D1_33	Sensitive to the need to have appropriate supervision by a more experienced colleague	M,E	1,2

CC_D1_34	Values the quality of calmness under pressure	M,E	1,2,3
CC_D1_35	Appropriate, timely and relevant communication with the clinical team members	M,E	2,3
CC_D1_36	Shows commitment to adherence to necessary hospital policies, local and national guidelines relating to workplace behaviour and clinical practice	M,E	1,2,3
Domain 2: Clinical practice			
CC_D2_01	Commits to ensuring comprehensive pre-operative assessment is performed on all patients, taking account of the nature/complexity of both the surgery and the patient	A,C,D,M,E	1,2,3,4
CC_D2_02	Commits to: • Maintaining knowledge of current drugs used in clinical practice relevant to their areas of clinical practice • Ensuring accurate and safe prescribing occurs at all times	A,C,M,E	1,2
CC_D2_03	Strives to provide high quality clinical care in all clinical situations regularly	A,C,M,E	1,2,3
CC_D2_04	Commits to safe practice in clinical care in those *less common* clinical situations	A,C,M,E	1,2,3,4
CC_D2_05	Commits to reflecting on own clinical practice in order to achieve insight and striving to correct deficiencies identified	M	1,2,3,4
CC_D2_06	Commits to providing appropriate advice to others who are less experienced regarding clinical management when required	M	1,2,3,4
CC_D2_07	Reflects on own clinical practice in order to achieve insight and: • Strives to correct deficiencies identified • Seeks learning opportunities and integrates new knowledge into clinical practice	M,E	1,2
Domain 3: Team Working			
CC_D3_01	Commits to the importance of being a good team member, working collaboratively, striving for high standards by all	M	3
CC_D3_02	Commits to the principle that the patient and their relatives are often equal members of the clinical team	M	3,4
CC_D3_03	Commits to demonstrating to others how to work properly as a team	M	3
CC_D3_04	Commits to achieving high standards and monitoring compliance to standards by the whole team	M	2,3
Domain 4: Leadership			
CC_D4_01	Commits to understanding that the role of a consultant involves leadership in clinical management, service delivery and forward planning	M	1,2,3,4

CC_D4_02	Commits to leading by example in utilising the time allocated to clinical sessions effectively without compromising safety	M	1,3
CC_D4_03	Commits to being a positive role-model for more junior members of the team including maintaining the highest clinical standards personally and encouraging others to achieve the best	M	1,2,3,4
CC_D4_04	Commits to taking the lead where appropriate in dealing with difficulties that have arisen in the clinical care of patients including communicating bad news, participating in clinical review and liaising with managers and dealing with complaints	M	1,2,3,4
CC_D4_05	Commits to communicating clearly, promptly and effectively with colleagues by means appropriate to the urgency of the situation [e.g. personal presence, telephone, email, letter etc] and recognising its crucial importance when transferring responsibility for patient care [e.g. at handovers]	M	2,3
Domain 5: Innovation			
CC_D5_01	Commits to searching and comprehending medical literature to guide reasoning	M,E	1,4
CC_D5_02	Commits to recognising the importance of research [clinical and laboratory] in the development of clinical practice is aware of current areas of research and achieves competence in understanding, and explaining, the methodology and statistics involved	C,M,E	1,2,4
CC_D5_03	Commits to the principle of inter-professional cooperation for audit/quality improvement projects in improving practice	M	1,2,4
CC_D5_04	Commits to contributing to quality improvement processes e.g. • Audit of personal and departmental/directorate/practice performance • Errors / discrepancy meetings • Critical incident and near miss reporting • Unit morbidity and mortality meetings	M	1,2,4
Domain 6: Management [see also specific management unit of training with descriptors for all levels in Annex G]			
CC_D6_01	Commits to the objectives of their team, of their hospital, and to the national planning of healthcare	M	1,2,3,4
CC_D6_02	Commits to planning their work efficiently so that they can accomplish the targets they have set themselves and meet institutional objectives	M	1
CC_D6_03	Commits to the key role of the patient and the public in determining directions and priorities in service development	M	3
CC_D6_04	Commits to the efficient use of resources and encouraging others to do the same	M	1,2,3
Domain 7: Education [see also specific unit of training with descriptors for all levels in Annex G]			
CC_D7_01	Continuously seeks to improve and update their knowledge and skills, using a variety of strategies, whilst keeping records of learning that are planned and undertaken, reflecting on their outcomes	M	1

CC_D7_02	Develops a personal learning network of individuals and organisations including; attending specialist educational meetings and reads specialist journals in special interest areas of practice	M	1,4
CC_D7_03	Is able to receive feedback appropriately for the purpose of self-improvement and provides feedback to others when asked	M	1
CC_D7_04	Actively participates in the planning and delivery of departmental teaching and training	M	1,2
Domain 8: Safety in clinical practice			
CC_D8_01	Commits to the supremacy of patient safety issues in providing an appropriate level of clinical or educational supervision	M,E	1,2,3,4
CC_D8_02	Commits 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	M,E	1,2
CC_D8_03	Adopts strategies to reduce risk [e.g. the use of the WHO Safe Surgery Checklist] and a willingness to participate in improvement strategies [e.g. critical incident reporting]; acts to rectify error immediately if it is made	M,E	1,2,3,4
CC_D8_04	Commits to the elements of clinical governance and recognising that it safeguards high standards of care and facilitates the development of improved clinical services	M,E	1,2,3,4
CC_D8_05	Commits to the importance of local health and safety protocols [fire, manual handling etc]	M	1,2,3,4
CC_D8_06	Commits to keeping abreast of national patient safety initiatives including National Patient Safety Agency [NPSA], NCEPOD reports, NICE guidelines etc	M,E	1,2,3,4
CC_D8_07	Commits to recognising the roles of regulatory agencies involved in drug use, monitoring and licensing e.g. NICE, CSM and Healthcare Products Regulatory Agency and hospital formulary committees	M,E	1,2,4
CC_D8_08	Commits to 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 • Participating in de-briefs with all the staff involved • Implementing procedures to effect a full investigation • Openness and honesty at all times The ability to learn from the errors and minimise likely recurrence	M,E	1,2,3,4
Domain 9: Medical ethics and confidentiality			
CC_D9_01	Commits to behaving in accordance with the principles of medical ethics	M,E	1,2,3,4

CC_D9_02	Commits to following the guidance given by the GMC on confidentiality	M,E	1,2,3,4
CC_D9_03	Commits to the principle of the Caldicott Guardian and Information Governance	M,E	1,2,3,4
Domain 10: Relationships with patients			
CC_D10_01	Commits to establishing an open and honest rapport with patients and their carers, tailoring language to their needs	A,M,E	1,3,4
CC_D10_02	Commits to encouraging questioning, listening actively and ensuring comprehension by the patient /carers	M,E	3,4
CC_D10_03	Commits to obtaining 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	M,E	1,3,4
CC_D10_04	Commits to 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	M,E	3,4
CC_D10_05	Commits to the principles 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	M,E	3,4
Domain 11: Legal framework for practice			
CC_D11_01	Commits to ensuring all decisions and actions are made in the best interests of the patient	M,E	1,2,3,4
CC_D11_02	Commits to understanding the legislative framework within which healthcare is provided in the UK and/or devolved administrations, in particular: death certification and the role of the Coroner/Procurator Fiscal; child protection legislation; mental health legislation [including powers to detain a patient and giving emergency treatment against a patient's will under common law]; advanced directives and living Wills; withdrawing and withholding treatment; decisions regarding resuscitation of patients; surrogate decision making; organ donation and retention; communicable disease notification; medical risk and driving; Data Protection and Freedom of Information Acts; provision of continuing care and community nursing care by a local authorities	C,M,E	1,2,3,4
CC_D11_03	Commits to understanding principles for negligence e.g. Bolam, and keeping abreast of changes in the legal framework	C,M,E	1,2,3,4
CC_D11_04	Commits to cooperating with other agencies with regard to legal requirements including reporting to the Coroner's/Procurator Officer, the Police or the proper officer of the local authority in relevant circumstances	M,E	3,4
CC_D11_05	Commits to preparing appropriate medical legal statements for submission to the Coroner's Court, Procurator Fiscal, Fatal Accident Inquiry and other legal proceedings	M	3,4
CC_D11_06	Commits to presenting such material, as is required, in Court and actively supporting more junior colleagues if they are required to present such material	M	3,4

CC_D11_07	Commits to incorporating legal principles into their day to day practice	M,E	1,2,3,4
CC_D11_08	Commits to practicing and promoting accurate documentation within clinical practice	M,E	1,2,3,4

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. To work effectively as a doctor in the NHS a trainee must have a commitment to understanding and utilising this technology.

Trainees must be able to use information technology effectively in their clinical practice and understand its role in the organisation and planning of services within the NHS. Attainment of the components of the NHS Essential IT Skills programme, NHS ELITE [NHS eLearning for IT Essentials] and NHS Health [NHS eLearning for Health Information Systems], or the relevant parts of the European Computer Driving Licence© [ECDL], may be taken as evidence of acquisition of the skills taught on those programmes. Recommended further reading: ABC of Health Informatics. Frank Sullivan and Jeremy Wyatt. Blackwell BMJ Books, 2006; Guide to Health Informatics. Enrico Coiera. 2nd edition, Arnold, London, 2003

CC_D12_01	Commits to being familiar with the systems that they need to use in their everyday practice to acquire and record information about their patients. These systems may include: • Patient Administrations Systems [PAS] • Electronic Patient Records [EPR] • Laboratory and radiology order communication systems • Laboratory Information Management Systems [LIMS] • Theatre management systems • Picture Archiving and Communication Systems [PACS] • Radiology Information Systems [RIS] • Maternity systems	A,C,D,L,E	1,2,3,4
CC_D12_02	Commits to the importance of security and confidentiality in using information technology systems	A,D,L,C,E	1,2
CC_D12_03	Commits to understanding, and incorporating into practice, issues surrounding data collection and analysis	A,D,C,E	1,2
CC_D12_04	Commits to the central role that data protection and confidentiality protocols play within healthcare	A,D,C,E	1,2
CC_D12_05	Commits to understanding the ways in which data, information and knowledge come together in the development of guidelines, protocols and care pathways	C,E	1,2
CC_D12_06	Commits to accessing, assessing, selecting and applying treatment guidelines, including local adaptations	C,D,E	1,2,3,4

CC_D12_07	Commits to the use of IT systems, such as electronic clinical record systems and electronic drug ordering, as possible ways of contributing to patient safety	C,D	1,2,3,4
CC_D12_08	Commits to keeping abreast of IT developments within healthcare, as a way of improving communication. Patient care and safety	C,M	1,2,3,4
CC_D12_09	Commits to the principle that different media are essential for good communications	C,D,E	1,2,3,4
Domain 13: Alcohol and other drugs The use of alcohol and other drugs is widely recognised as a major public health challenge with wide-reaching social and economic consequences. Core competencies that all doctors require to adequately identify and manage patients who use drugs or alcohol, have been incorporated into postgraduate curricula for all specialties. These will help to underpin the attitudes and awareness needed to increase rates of identification and treatment and are a contribution to the wider changes needed to address this major health challenge.			
CC_D13_01	Recalls the recommended limits on alcohol intake	E,C	1,2
CC_D13_02	Recalls / explains the effects, common presentations and potential for harm of alcohol and other drugs	E,C	1,2,3
CC_D13_03	Recalls / explains the range of interventions, treatments and prognoses for use of alcohol and other drugs	E,C	1,2,3
CC_D13_04	Recalls / explains the effects of alcohol and other drugs in the unborn child, children and families	A,C	1,2,3
CC_D13_05	Recalls / explains the addictive potential of alcohol and other drugs, including prescribed and over the counter medicines	E,C	1,2,3
CC_D13_06	Demonstrates assessment of alcohol and other drug use, including taking a history and using validated tools	A,E	1,2,3
CC_D13_07	Recognises the wide range of acute and long term presentations involving use of alcohol and other drugs, including but not limited to trauma, depression and hypertension	E,C	1,2
CC_D13_08	Demonstrates management and / or referral where appropriate	E,C	1,2,3,4
CC_D13_09	Demonstrates provision of brief advice on use of alcohol and other drugs	A,E	1,2,3,4
CC_D13_10	Demonstrates confidence and comfort in discussing alcohol and drug use with patients	A,E	1,2,3,4
CC_D13_11	Demonstrates appropriate actions to concerns about own or colleagues use of alcohol and / or other drugs	E,C	1,2,3,4
CC_D13_12	Demonstrates support, empathy and non-judgemental manner without collusion	C	1,2,3,4

Royal College of Anaesthetists

CCT in Anaesthetics

Annex B
Core Level Training

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Glossary of terms

ALI	Acute Lung Injury
ALS	Advanced Life Support
APLS	Advanced Paediatric Life Support
ARDS	Acute Respiratory Distress Syndrome
ASA	American Society of Anesthesiologists
ASD	Atrial septal defect
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
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
EEG	Electroeucephalogram
EMG	Electromyogram
ENT	Ear, Nose and Throat
EPLS	European Paediatric Life Support
ERPC	Evacuation of Retained Products of Conception
GCS	Glasgow Coma Score
GMC	General Medical Council
Hb	Haemoglobin
IAC	Initial assessment of competence
IDD	Intrathecal drug delivery
IPPV	Intermittent positive pressure ventilation
IRMER	Ionisation Radiation (Medical Exposure) Regulations
IT	Information technology
IVRA	Intravenous Regional Anaesthesia
LiDCO™	Lithium indicator dilution cardiac output
MAC	Minimum alveolar concentration
MH	Malignant hyperpyrexia
MRI	Magnetic resonance imaging
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
PONV	Postoperative nausea and vomiting
PSI	Pounds per square inch
Ref	Reference
RS	Respiratory system
RSI	Rapid sequence induction
SpO_2	Saturation of haemoglobin with oxygen
SVP	Saturated vapour pressure
TCI	Target Controlled Infusions
VSD	Ventricular septal defect
WCC	White cell count

Assessment method decode	
A	Anaesthesia Clinical Evaluation Exercise [A-CEX]
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D	Direct Observation of Procedural Skills [DOPS]
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I	Intensive Care Medicine Clinical Evaluation Exercise [I-CEX]
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Good Medical Practice decode	
1	Knowledge, skills and performance
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3	Communication, partnership and teamwork
4	Maintaining trust

Introduction to Anaesthetic Practice – the start of training [3-6 months]

This provides a comprehensive introduction to the principles and practices of the delivery of safe and effective anaesthetic care to patients for trainees new to the specialty. The following units of training must be completed satisfactorily:

- Perioperative medicine
  - Preoperative assessment:
    - History
    - Clinical Examination
    - Investigations
    - Specific pre-anaesthetic evaluation
  - Premedication
  - Post-operative and recovery room care
  - Perioperative management of emergency patients
- Conduct of anaesthesia
  - Induction of general anaesthesia
  - Intraoperative care
- Infection control
- Management of cardiac arrest in adults and children

The fundamental importance of developing safe clinical practice (and understanding the basic science which underpins it) means that trainees are expected to achieve ***all*** the minimum clinical learning outcomes detailed in this section ***and*** obtain the IAC before progressing to the remainder of Core Level Training. Many years of experience indicate that this will take between three and six months for most trainees.

Perioperative medicine

Preoperative assessment

Learning outcomes*:*

- To perform a structured preoperative anaesthetic assessment of a patient prior to surgery and recognise when further assessment/optimisation is required
- To explain options and risks of routine anaesthesia to patients, in a way they understand, and obtain their consent for anaesthesia
- To formulate a plan for the management of common co-existing diseases, in particular the perioperative plan for the patient with diabetes

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

A) History Taking

Objectives:

- To elicit a relevant structured history
- To record the history accurately
- To synthesise the history with the relevant clinical examination

Knowledge

Competence	*Description*	*Assessment Methods*	*GMP*
HT_BK_01	Lists the important elements of anaesthetic history taking	A,C,E	1
HT_BK_02	Recognises that patients do not always present history in a structured fashion	A,C,E	1
HT_BK_03	Lists the likely causes and risk factors for conditions relevant to mode of presentation	A,C,E	1
HT_BK_04	Uses the patient's agenda and history to inform examination, investigation and management	A,C,E	1

Skills

Competence	*Description*	*Assessment Method*	*GMP*

HT_BS_01	Identifies and overcomes barriers to effective communication	A,D	3,4
HT_BS_02	Manages time and draws consultations to a close appropriately	A,D	1,3
HT_BS_03	Recognises that effective history taking in non-urgent cases may require several discussions with the patient and other parties over time	A,C	1
HT_BS_04	Supplements history with standardised instruments or questionnaires when relevant	A,C	3
HT_BS_05	Identifies alternative and conflicting views from family, carers, friends and members of the multi-professional team	C,M	3,4
HT_BS_06	Assimilates history from the available information from the patient and other sources	A,C,M	1,3
HT_BS_07	Interprets and uses non-verbal communication to and from patients and carers	A,D	3,4
HT_BS_08	Focuses on relevant aspects of history.	A,D	1

B) Clinical Examination

Objectives:

- To perform focused, relevant and accurate clinical examination
- To develop the ability to relate physical findings to history in order to establish a diagnosis and formulate a management plan

Knowledge

Competence	*Description*	*Assessment Methods*	*GMP*
CE_BK_01	Describes the need for a targeted and relevant clinical examination	A,C,E	1
CE_BK_02	Describes the basis for clinical signs and the relevance of positive and negative physical signs	A,C,E	1
CE_BK_03	Recognises constraints to performing physical examination and uses strategies to overcome them	A,C	1
CE_BK_04	Recognises the limitations of physical examination and the need for adjunctive forms of assessment to confirm diagnoses	A,C	1
CE_BK_05	Offers or uses a chaperone when appropriate	A,C	3,4

Skills

Competence	*Description*	*Assessment Methods*	*GMP*
CE_BS_01	Performs an examination relevant to the presentation and risk factors that is valid, targeted and time efficient	A,D	1
CE_BS_02	Reports the possibility of deliberate harm [both self-harm and harm by others] in vulnerable patients to appropriate agencies	A,C,D	2,4

CE_BS_03	Actively elicits important clinical findings	D	1
CE_BS_04	Performs relevant additional examinations	A,D	1

C) Investigations

Objectives:

- To describe the indications for basic preoperative investigations
- To interpret and act upon basic investigations with relevance to anaesthesia and surgery

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
IN_BK_01 (formerly OA_BS_03)	Interprets 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	A,C,E	1
Skills			
Competence	*Description*	*Assessment Method*	*GMP*
IN_BS_01 (formerly OA_BS_04)	Interprets 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 Endocrine biochemistry such as blood glucose and thyroid function	A,C,E	1

IN_BS_02 (formerly OA_BS_05)	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	A,C,E	1

D) Specific Anaesthetic Evaluation

Objectives:

- To establish a problem list
- To determine whether the patient is risk assessed and optimally prepared
- To plan anaesthesia and postoperative care for common surgical procedures
- To recognise own limitations and reliably determine the level of supervision required
- To explain options and risks of routine anaesthesia to patients, in a way they understand, and obtain their consent for anaesthesia

Knowledge

Competence	*Description*	*Assessment Methods*	*GMP*
OA_BK_01	Gives examples of methods of anaesthesia that are suitable for common operations.	A,C,E	1,2
OA_BK_02	Describes the ASA and NCEPOD classifications and their implications in preparing for and planning anaesthesia and postoperative care	A,C,E	1
OA_BK_03	Explains the indications for and interpretation of preoperative investigations	A,C,E	1
OA_BK_04	Lists the indications for preoperative fasting and appropriate regimens	A,C,E	1
OA_BK_05	Explains the methods commonly used for assessing the airway to predict difficulty with tracheal intubation	A,C,E	1,2
OA_BK_06	Lists the indications for Rapid Sequence Induction	A,C,D,E	1,2
OA_BK_07	Gives examples of the effect of common co-existing diseases on anaesthesia and surgery including but not exclusively: obesity; diabetes; asthma; ischaemic heart disease; hypertension; rheumatoid disease; epilepsy	A,C,E	1
OA_BK_08	Discusses how to manage drug therapy for co-existing disease in the perioperative period including, but not exclusively: diabetic treatment; steroids; anti-coagulants; cardiovascular and respiratory medication; anti-convulsants	A,C,E	1
OA_BK_09	Explains the available methods to minimise the risk of thromboembolic disease following surgery	A,C,E	1,2
OA_BK_10	Describes 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	A,C,E	1,2
OA_BK_11	Identifies the principles of consent for surgery and anaesthesia, including the issue of capacity	A,C,E	3,4

OA_BK_12	Explains the guidance given by the GMC 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	A,C,E	3,4
OA_BK_13	Summarises the factors determining a patient's suitability for treatment as an ambulant or day-stay patient	A,C,E	1
OA_BK_14	Recalls the factors that affect the risk of a patient suffering post-operative nausea & vomiting	A,C,E	1
Skills			
Competence	*Description*	*Assessment Method*	*GMP*
OA_BS_01	Obtains 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	A,D,E	1
OA_BS_02	Performs 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	A,D,E	1
OA_BS_06	Makes appropriate plans for anaesthesia: • Reviews current medication and seeks advice where appropriate • Plans appropriate anaesthetic technique[s] • Secures consent for anaesthesia • Recognises the need for additional investigation and acts accordingly • Discusses issues of concern with relevant members of the team • Reliably predicts the level of supervision they will require	A,C,E	1
OA_BS_07	Presents information to patients [and carers] in a format they understand, checking understanding and allowing time for reflection on the decision to give consent	A,M	3,4

OA_BS_08	Provides a balanced view of care options	A,C,E,M	2,3

Premedication

Note: This forms part of the comprehensive pre-assessment of patients. It should be assessed as part of the overall pre-assessment process.

Learning outcome:

- To prescribe premedication when indicated, especially for the high risk population

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
PD_BK_01	Summarises the value of appropriate explanations and reassurance in alleviating the patient's anxiety	A,C,E	1,3
PD_BK_02	Lists basic indications for prescription of pre-medication	A,C,E	1
PD_BK_03	Describes the rationale for the use of different anxiolytic and sedative drugs	A,C,E	1
PD_BK_04	Discusses the applied pharmacology of sedative and anxiolytic drugs	A,C,E	1
PD_BK_05	Recalls the factors that influence the risk of gastric reflux/aspiration and lists strategies to reduce it	A,C,D,E	1,2
PD_BK_06	Explains the applied pharmacology of pro-kinetic and antacids including simple alkalis, H_2 receptor antagonists and proton pump inhibitors	A,C,E	2
PD_BK_07	Describes the application of local/national guidelines on management of thrombo-embolic risk	A,C,E	1,2
Skills			
Competence	*Description*	*Assessment Method*	*GMP*
PD_BS_01	Prescribes appropriate agents to reduce the risk of regurgitation and aspiration	A,C,D,E	1,2
PD_BS_02	Explains, in a way the patient understands, the benefits and possible risks of sedative premedication	A,E,M	3,4
PD_BS_03	Prescribes appropriate anxiolytic/sedative premedication when indicated	A,C,E	1

Postoperative and recovery room care

Learning outcomes:

- To manage the recovery of patients from general anaesthesia
- To describe the organisation and requirements of a safe recovery room
- To identify and manage common postoperative complications in patients with a variety of co-morbidities
- To manage postoperative pain and nausea and vomiting
- To manage postoperative fluid therapy
- Safely manage emergence from anaesthesia and extubation
- Shows awareness of common immediate postoperative complications and how to manage them
- Prescribes appropriate postoperative fluid and analgesic regimes
- Assess and treats PONV

Knowledge			
Competence	*Description*	*Assessment Method*	*GMP*
PO_BK_01	Lists the equipment required in the recovery unit	A,C,E	1
PO_BK_02	Lists the types of monitoring and the appropriate frequency of observations required for patients having undergone different types of surgery	A,C,E	1
PO_BK_03	Describes the care of an unconscious patient in the recovery room, including safe positioning	A,C,D,E	1,2
PO_BK_04	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 • Describes how to evaluate neuro-muscular block with the nerve stimulator	A,C,E	1
PO_BK_05	With respect to oxygen therapy: • Lists its indications • Lists the techniques for oxygen therapy and describes the performance characteristics of available devices • Recalls/explains the causes and management of stridor	A,C,E	1,2

Knowledge			
Competence	*Description*	*Assessment Method*	*GMP*
PO_BK_06	Outlines/recalls the principles of appropriate postoperative fluid regimes including volumes, types of fluids and monitoring of fluid balance including indications for urethral catheterisation	A,C,E	1
PO_BK_07	In respect of postoperative pain: • Describes how to assess the severity of acute pain • Describes the 'analgesic ladder' • Discusses how emotions contribute to pain • Identifies appropriate postoperative 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	A,C,E	1
PO_BK_08	In respect of PONV: • Recognises the impact of PONV • Lists the factors that predispose to PONV • Describes the basic pharmacology of anti-emetic drugs • Describes appropriate regimes for prevention and treatment of PONV	A,C,E	1
PO_BK_09	Describes the possible causes and management of postoperative confusion	A,C,E	1
PO_BK_10	Describes the causes and management of postoperative hypotension and hypertension	A,C,E	1
PO_BK_11	Identifies premorbid disease states that may require patients to have higher (level 2 or 3) levels of care in the postoperative period.	A,C,E	1,2
PO_BK_12	Describes the prevention, diagnosis and management of postoperative pulmonary atelectasis	A,C,E	1
PO_BK_13	Lists the appropriate discharge criteria for patients leaving the recovery room and day stay patients	A,C,E	1
PO_BK_14	Explains the importance of following up patients in the ward after surgery	A,C,E	1,2,3
Skills			
Competence	*Description*	*Assessment Method*	*GMP*
PO_BS_01	Performs safe tracheal extubation	A,D	1
PO_BS_02	Evaluates neuromuscular blockade using a nerve stimulator	A,D	1,2
PO_BS_03	Transfers an unconscious patient from the operating theatre to the recovery room	A,C,D	1,2

Knowledge			
Competence	*Description*	*Assessment Method*	*GMP*
PO_BS_04	Turns a patient into the recovery position	A,D	1
PO_BS_05	Makes a clear handover to recovery staff of perioperative management and the postoperative plan	A,D,M	1,3
PO_BS_06	Prescribes appropriate postoperative fluid regimes	A,C	1
PO_BS_07	Assesses postoperative pain and prescribes appropriate postoperative analgesia	A,C,D	1,3
PO_BS_08	Manages postoperative nausea and vomiting	A,C	1
PO_BS_09	Assesses postoperative confusion	A,C	1
PO_BS_10	Recognises when discharge criteria have been met for patients going home or to the ward	A,C,D	1,2,3
PO_BS_11	Undertakes follow-up visits to patients after surgery on the ward	A,C,D	1

Perioperative management of emergency patients

Learning outcome:

- Delivers safe perioperative care to adult ASA 1E and/or 2E patients requiring uncomplicated emergency surgery

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
ES_BK_01	Discusses the management of common problems encountered in patients requiring emergency surgery	A,C,E	1,2,3,4
ES_BK_01	Adopts a structured and timely approach to the recognition, assessment and stabilisation of the acutely ill patient with disordered physiology	A,C,E	1
ES_BK_02	In respect of the preparation of acutely ill patients for emergency surgery: • Describes the resuscitation of patient with hypovolaemia and electrolyte abnormalities • Discusses how patients may be inadequately fasted and how this problem is managed • Discusses the management of acute preoperative pain	A,C,E	1
ES_BK_03	Lists the indicators of severe illness.	A,C,E	1,2

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
ES_BK_04	Describes Rapid Sequence Induction of Anaesthesia	A,C,E	1
Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
ES_BS_01	Resuscitates acutely ill patients and identifies the need for appropriate plans for intra and postoperative care.	A,C,D	1,2,3,4

Conduct of anaesthesia

Induction of general anaesthesia

The use of simulators may assist in the teaching and assessment of some aspects of this section e.g. failed intubation drill

Learning outcomes:

- To conduct safe induction of anaesthesia in ASA grade 1-2 patients confidently
- To recognise and treat immediate complications of induction, including tracheal tube misplacement and adverse drug reactions
- To manage the effects of common complications of the induction process
- To conduct anaesthesia for ASA 1E and 2E patients requiring emergency surgery for common conditions (e.g. uncomplicated appendicectomy or manipulation of forearm fracture/uncomplicated open reduction and internal fixation)
- Demonstrates safe practice behaviours including briefings, checklists and debriefs
- Demonstrates correct pre-anaesthetic check of all equipment required ensuring its safe functioning [including the anaesthetic machine/ventilator in both the anaesthetic room and theatre if necessary]
- Demonstrates safe induction of anaesthesia, using preoperative knowledge of individual patients co-morbidity to influence appropriate induction technique; shows awareness of the potential complications of process and how to identify and manage them

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
IG_BK_01	• Recalls the pharmacology and pharmacokinetics, including doses, interactions and significant side effects of drugs used during induction of anaesthesia • Describes the factors that contribute to drug errors in anaesthesia and strategies used to reduce them	A,C,D,E	1
IG_BK_02	• Describes the basic function of monitors • Recall consensus minimum monitoring standards and the indications for additional monitoring • Explains the functions and safety features of the anaesthetic	A,C,D,E	1,2
IG_BK_03	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 • Describes the pharmacology of common intravenous induction agents • Describes the physiological effects of intravenous induction • Describes how to recognise an intra-arterial injection of a harmful substance and its appropriate management • Describes anaphylactic reactions and explains the appropriate management including follow up and patient information • Lists 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.	A,C,D,E	1,2
IG_BK_04	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	A,C,D,E	1,2
IG_BK_05	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 a tracheal tube and knows how to identify the complications of	A,C,D,E	1,2

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
	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		
IG_BK_06	Explains the importance of maintaining the principles of aseptic practice and minimising the risks of hospital acquired infection	A,C,D,E	2

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
IG_BS_01	Demonstrates safe practice in checking the patient in the anaesthetic room	A,D	1,2
IG_BS_02	Demonstrates appropriate checking of equipment prior to induction, including equipment for emergency use	A,D	1,2
IG_BS_03	In respect of the equipment in the operating environment: • Demonstrates the functions of the anaesthetic machine including o Performing proper pre-use checks o Changing/checking the breathing system o Replenishing the vaporiser o Changing the vaporiser	D	1,2
IG_BS_04	Selects, checks, draws up, dilutes, labels and administers drugs safely	A,D	1,2,3
IG_BS_05	• Obtains intravascular access using appropriately sized cannulae in appropriate anatomical locations • Demonstrates rigorous aseptic technique when inserting cannulae	D	1
IG_BS_06	Demonstrates appropriate placement of monitoring, including ECG electrodes and NIBP cuff • Uses monitors appropriately • Demonstrates proficiency in the interpretation of monitored parameters	A,D	1
IG_BS_07	Demonstrates effective pre-oxygenation	A,D	1,2,3
IG_BS_08	In respect of intravenous induction: • Explains induction to the patient	A,D	1,2,3

	• Prepares drugs for the induction of anaesthesia • Administers drugs at induction of anaesthesia • Manages the cardiovascular and respiratory changes associated with induction of general anaesthesia		
IG_BS_09	In respect of inhalational induction of anaesthesia: • Satisfactorily communicates with the patient during induction • Satisfactorily conducts induction	A,D	1,2,3
IG_BS_10	In respect of airway management: • Positions the patient for airway management • Maintains the airway with oral/nasopharyngeal airways • Ventilates the lungs with a bag and mask • Inserts and confirms placement of a Laryngeal Mask Airway • Successfully places nasal/oral tracheal tubes using direct laryngoscopy • Confirms correct tracheal tube placement • Uses bougies correctly • Secures and protects LMAs/tracheal tubes during movement, positioning and transfer • Correctly conducts RSI • Correctly demonstrates the technique of cricoid pressure	A,D	1,2,3
IG_BS_11	Demonstrates correct use of oropharyngeal, laryngeal and tracheal suctioning	A,D	1,2
IG_BS_12	Demonstrates failed intubation drill	D,S	1,2
IG_BS_13 (formerly ES_BS_03)	Manages rapid sequence induction in the high risk situation of emergency surgery for the acutely ill patient	A,D	1
IG_BS_14 (Formerly ES_BS_02)	Demonstrates safe perioperative management of ASA 1 and 2 patients requiring emergency surgery	A,C,D,M	1,2,3,4

Intra-operative care

Learning outcomes:

- The ability to maintain anaesthesia for elective and emergency surgery
- The ability to use anaesthesia monitoring systems to guide the progress of the patient and ensure safety
- Considers the effects that co-existing disease and planned surgery may have on the progress of anaesthesia and plans for the management of significant co-existing diseases

- Recognises the importance of working as a member of the theatre team
- Safely maintains anaesthesia and shows awareness of potential complications and their management

Skills			
Competence	*Description*	*Assessment Method*	*GMP*
IO_BS_01	Directs the team to safely transfer the patient and position of patient on the operating table and is aware of the potential hazards including, but not exclusively, nerve injury, pressure points, ophthalmic injuries	A,D	1,2,3
IO_BS_02	Manages the intra-operative progress of spontaneously breathing and ventilated patients	A,D	1
IO_BS_03	Maintains anaesthesia with a face mask in the spontaneously breathing patient	A,D	1,2
IO_BS_04	Uses a nerve stimulator to assess the level of neuromuscular blockade	A,D	1
IO_BS_05	Manages the sedated patient for surgery	A,D	1,3
IO_BS_06	Maintains accurate, detailed, legible anaesthetic records and relevant documentation	A,C	1
IO_BS_07	Demonstrates role as team player and, when appropriate, leader in the intra-operative environment	A,D,M	2,3
IO_BS_08	Communicates with the theatre team in a clear unambiguous style	A,D,M	3
IO_BS_09	Respond in a timely and appropriate manner to events that may affect the safety of patients [e.g. hypotension, massive haemorrhage] [S]	A,C,D,E,M,S	1,2
IO_BS_10	Manages common co-existing medical problems [with appropriate supervision] including but not exclusively: • Diabetes • Hypertension • Ischaemic Heart Disease • Asthma and COPD • Patients on steroids	A,C,D	1,2

Management of respiratory and cardiac arrest in adults and children

[To be gained during the first 6 months of training]

For those who have not completed an ALS/APLS/EPLS course successfully, simulation may be used to assist in the teaching and assessment of these competencies

Learning outcomes:

- 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
- Be able to resuscitate a patient in accordance with the latest Resuscitation Council (UK) guidelines. [Any trainee who has successfully completed a RC(UK) ALS course in the previous year, or who is an ALS Instructor/Instructor candidate, may be assumed to have achieved this outcome]

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
RC_BK_01	Lists the causes of a respiratory arrest, including but not limited to: • Drugs, toxins • Trauma • Pulmonary infection • Neurological disorders • Muscular disorders	C,E,S	1
RC_BK_02	Lists 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	C,E,S	1

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
RC_BK_03	Describes the basic principles of the ECG, and recognises arrhythmias including but not exclusively: • Ventricular fibrillation • Ventricular tachycardia • Asystole • Rhythms associated with pulseless electrical activity [PEA]	C,E,S	1
RC_BK_04	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 • Magnesium sulphate • Naloxone	C,E,S	1
RC_BK_05	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	C,E,S	1
RC_BK_06	Explains the physiology underpinning expired air ventilation and external chest compressions	C,E,S	1
RC_BK_07	Explains the need for supplementary oxygen during resuscitation from a respiratory or cardiac arrest in adults and children	C,E,S	1
RC_BK_08	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	A,C,E,S	1
RC_BK_09	Explains the reasons for avoiding hyperventilation during resuscitation	C,E	1
RC_BK_10	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	A,C,E,S	1
RC_BK_11	Explains the mechanism of defibrillation and the factors influencing the success of defibrillation	C,E,S	1
RC_BK_12	Recalls the energy used to defibrillate a patient	C,E,S	1

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
RC_BK_13	Discusses the principles of safely and effectively delivering a shock using both manual and automated defibrillator	C,E,S	1,2
RC_BK_14	Explains the need for continuous chest compressions during resuscitation from cardiac arrest once the trachea is intubated	C,E,S	1
RC_BK_15	Explains the need for minimising interruptions to chest compressions	C,E,S	1
RC_BK_16	Lists 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	C,E,S	1
RC_BK_17	Recalls/describes the Adult and Paediatric Advanced Life Support algorithms	C,E,S	1
RC_BK_18	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	C,E,S	1
RC_BK_19	Lists the signs indicating return of a spontaneous circulation	A,C,E,S	1
RC_BK_20	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	C,E,S	1
RC_BK_21	Discusses the principles of care required immediately after successful resuscitation from a respiratory or cardiac arrest	C,E,S	1,3,4
RC_BK_22	Discusses the importance of respecting the wishes of patients regarding end of life decisions	C,E,S	1,3,4
RC_BK_23	Outlines who might benefit from resuscitation attempts and the importance of knowing/accepting when to stop	C,E,S	1,3,4

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
RC_BK_24	Discusses the importance of respecting the wishes of relatives to be present during a resuscitation attempt	C,E,S	3,4
RC_BK_25	Describes the value of debriefing meetings and the importance of active participation	C,S	3,4
Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
RC_BS_01	Uses an ABCDE approach to diagnose and commence the management of respiratory and cardiac arrest in adults and children	D,S	1
RC_BS_02	Recognises cardiac and respiratory arrest	S	1,2
RC_BS_03	Maintains a clear airway using basic techniques with or without simple adjuncts: • Head tilt • Chin lift • Jaw thrust • Oro- and nasopharyngeal airways	D,S	1,2
RC_BS_04	Demonstrates correct use of advanced airway techniques including: • Supraglottic devices, including but not limited to LMA, Proseal, LMA supreme, iGel • Tracheal intubation	D,S	1,2
RC_BS_05	Maintain ventilation using: • Expired air via a pocket mask • Self-inflating bag via facemask, or advanced airway • Mechanical ventilator	D, S	1,2
RC_BS_06	Performs external cardiac compression	D,S	1,2
RC_BS_07	Monitors cardiac rhythm using defibrillator pads, paddles or ECG lead	D,S	1,2
RC_BS_08	Uses a manual or automated defibrillator to safely defibrillate a patient	D, S	1,2
RC_BS_09	Turn a patient into the recovery position	D	1,2
RC_BS_10	Prepare a patient for transfer to a higher level of care	A,M	1,2
RC_BS_11	Maintains accurate records of all resuscitation events	A,M	1,2

Control of infection

Learning Outcomes:

- To understand the need for infection control processes
- To understand types of infections contracted 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
- To be aware of the principles of surgical antibiotic prophylaxis
- The acquisition of good working practices in the use of aseptic techniques

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
IF_BK_01	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]	A,C,D,E	1,2
IF_BK_02	Lists the types of hospital acquired infections and identifies the precautions needed to reduce their transmission	C,E	1
IF_BK_03	Recalls/discusses the concept of cross infection including: • Modes of cross infection • Common cross infection agents	A,C,E	1
IF_BK_04	Recalls/explains the dynamics of bacterial and viral strain mutation and the resulting resistance to antibiotic treatment	C,E	1
IF_BK_05	Explains the need for antibiotic policies in hospitals	C,E	1,2
IF_BK_06	Recalls/discusses the cause and treatment of common surgical infections including the use of but not limited to: • Antibiotics • Prophylaxis	C,E	1

IF_BK_07	Recalls/lists the types of infection transmitted through contaminated blood including but not limited to: • HIV • Hepatitis B and C	C,E	1
IF_BK_08	Discusses the need for, and application of, hospital immunisation policies	C,E	1
IF_BK_09	Recalls/explains the need for, and methods of, sterilisation	C,E	1
IF_BK_10	Explains the Trust's decontamination policy and its application	C	1
IF_BK_11 (Formerly PD_BK_08)	Explains the principles and practice of using prophylactic antibiotics	A,C,E	1

Skills

Competence	*Description*	*Assessment Methods*	*GMP*
IF_BS_01	Identifies patients at risk of infection and applies an infection mitigation strategy	A,D	1
IF_BS_02	Identifies and appropriately treats the immunocompromised patient	A,C	1,4
IF_BS_03	Administers IV antibiotics taking into account and not limited to: • Risk of allergy • Anaphylaxis	A,D	1,2
IF_BS_04	Follows local infection control protocols and uses aseptic techniques when necessary	A,D,M	1,2
IF_BS_05	Demonstrates the correct use of disposable filters and breathing systems	A,D,M	1
IF_BS_06	Demonstrates the correct use and disposal of protective clothing items including but not limited to: • Surgical scrubs • Masks • Gloves	A,D,M	1,2
IF_BS_07	Dispose of clinical consumable items correctly [single use and reusable]	A,D,M	1,2

Core anaesthesia – [3/6 months to 24 months]

Once the trainee has completed all the minimum clinical learning outcomes identified in 'The basis of anaesthetic practice' and has obtained the IAC, they will move on to the remainder of Core Level training. This will provide a comprehensive introduction to all aspects of elective and emergency anaesthetic practice [with the exceptions some special interest areas of practice including that for cardiothoracic surgery, neurosurgery and specialist paediatric surgery amongst others]. The core anaesthetic units of training are:

- Airway management
- Critical incidents
- Day surgery
- General, urological and gynaecological surgery
- Head, neck, maxillo-facial and dental surgery
- Intensive care medicine (See Annex F)
- Non-theatre
- Obstetrics
- Orthopaedic surgery
- Paediatrics
  - *Child protection*
- Pain medicine
- Perioperative medicine
- Regional
- Sedation
- Transfer medicine
- Trauma and stabilisation

It is anticipated that the majority of these units of training will not be delivered in dedicated blocks; the exception is intensive care medicine, which must be completed in a three month block. Trainees would benefit from other units of training being dedicated; obstetrics, paediatrics and pain are three such.

Airway management

Core airway knowledge and skills have also been included within the first six months "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 novice Anaesthetist.

Core clinical learning outcomes*:*

- Able to predict difficulty with an airway at preoperative assessment and obtain appropriate help
- Able to maintain an airway and provide definitive airway management as part of emergency resuscitation
- Demonstrates the safe management of the can't intubate can't ventilate scenario
- Maintains anaesthesia in a spontaneously breathing patient via a facemask for a short surgical procedure [less than 30 mins]

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
AM_BK_01	Explains the methods commonly used for assessing the airway to predict difficulty with tracheal intubation [Ref; OA_BK_05]	A,C,E	1,2
AM_BK_02	Describes the effect of pre-oxygenation and knows the correct technique for its use [Cross Ref;induction of GA]	A,C,D,E	1,2
AM_BK_03	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]	A,C,D,E	1,2
AM_BK_04	Explains the technique of inhalational induction and describes the advantages and disadvantages of the technique. [Cross Ref; induction of GA]	A,C,D,E	1,2
AM_BK_05	Knows the factors influencing the choice between agents for inhalational induction of anaesthesia [Cross Ref; induction of GA]	A,C,D,E	1,2
AM_BK_06	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 the laryngoscopes and blades including, but not exclusively,	A,C,D,E	1,2

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
	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]		
AM_BK_07	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]	A,C,E	1
AM_BK_08	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]	A,C,E	1,2
AM_BK_09	Discusses the indications for RSI [Cross Ref; intra-operative]	A,C,D,E	1,2
AM_BK_10	Describes the care of the airway in an unconscious patient in the recovery room, including safe positioning [Cross Ref; post-operative]	A,C,D,E	1,2
AM_BK_11	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 • Tracheal intubation [Cross Ref; management of respiratory and cardiac arrest]	A,C,E,S	1
AM_BK_12	Compares the methods by which ventilation can be maintained in a patient suffering a respiratory or cardiac arrest, using:	A,C,E,S	1

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
	• Mouth to mask • Self-inflating bag • Anaesthetic breathing system • Mechanical ventilator [Cross Ref; management of respiratory and cardiac arrest]		
AM_BK_13	Discusses the different types of laryngoscope blades available in routine practice and the indications for their use	A,C,E	1
AM_BK_14	Outlines the advantages/disadvantages and reasons for development of new laryngoscopes [e.g. glidescope]	A,C,E	1
AM_BK_15	Outlines the indications for fibre-optic intubation and how awake intubation may be achieved	A,C,E	1,2
AM_BK_16	Describes the management of the 'can't intubate, can't ventilate' scenario	A,C,E	1,2
AM_BK_17	Describes the principles of, and indications for, the use of needle crycothyrotomy and manual jet ventilation	A,C,E	1,2

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
AM_BS_01	Demonstrates satisfactory proficiency in performing a relevant clinical examination and assessment of the airway and dentition [Cross Ref; intra-operative]	A,D,E	1
AM_BS_02	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]	A,C,E	1
AM_BS_03	Reliably predicts the level of supervision they will require [Cross Ref; intra-operative]	A, C,E	1
AM_BS_04	Demonstrates effective pre-oxygenation, including correct use of the mask, head position and clear explanation to the patient [Cross Ref; induction of GA]	A,D	1,2,3
AM_BS_05	In respect of airway management: • Demonstrates optimal patient position for airway management, including head tilt, chin lift, jaw thrust • Manages airway with mask and oral/nasopharyngeal airways • Demonstrates hand ventilation with bag and mask [including self- inflating bag] • Able to insert and confirm placement of a Laryngeal Mask Airway • Demonstrates correct head positioning, direct laryngoscopy and successful nasal/oral intubation techniques and confirms correct tracheal tube placement	A,D	1,2,3

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
	• Demonstrates proper use of bougies • Demonstrates correct securing and protection of LMAs/tracheal tubes during movement, positioning and transfer • Correctly conducts RSI sequence • Correctly demonstrates the technique of cricoid pressure [Cross Ref; management of respiratory and cardiac arrest; induction of GA]		
AM_BS_06	Demonstrates correct use of advanced airway techniques including but not limited to Proseal, LMA supreme, iGel [Cross Ref; management of respiratory and cardiac arrest]	D,S	1,2
AM_BS_07	In respect of inhalational induction of anaesthesia: • Satisfactorily communicates with the patient during induction • Satisfactorily conducts induction [Cross Ref; induction of GA]	A,D	1,2,3
AM_BS_08	Demonstrates the ability to maintain anaesthesia with a face mask in the spontaneously breathing patient [Cross Ref; intra-operative]	A,D	1,2
AM_BS_09	Demonstrates failed intubation drill [Cross Ref; induction of GA]	D,S	1,2
AM_BS_10	Demonstrates management of 'can't intubate, can't ventilate' scenario [Cross Ref; critical incidents]	D,S	1,2
AM_BS_11	Demonstrates correct use of oropharyngeal, laryngeal and tracheal suctioning [Cross Ref; induction of GA]	A,D	1,2
AM_BS_12	Demonstrate appropriate management of tracheal extubation, including; • Assessment of return of protective reflexes • Assessment of adequacy of ventilation • Safe practice in the presence of a potentially full stomach [Cross Ref; postoperative]	A,D	1
AM_BS_13	Demonstrates how to turn a patient into the recovery position [Cross Ref; postoperative]	A,D	1
AM_BS_14	Demonstrates small and large bore needle cricothyrotomy and manual jet ventilation	D,S	1,2
AM_BS_15	Demonstrates surgical cricothyrotomy	D,S	1,2

Critical incidents

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

Whilst trainees may come across the critical incidents listed below during the course of clinical practice, it is anticipated that many will not be encountered in this way and as a result, the use of simulation to assist teaching and assessment is expected

Core clinical Learning Outcomes:

- To gain knowledge of the principle causes, detection and management of critical incidents that can occur in theatre
- To be able to recognise critical incidents early and manage 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

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
Recall/describes the causes, detection and management of the following:			
CI_BK_01	Cardiac and/or respiratory arrest	A,C,E,S	1
CI_BK_02	Unexpected fall in $SpO_2$with or without cyanosis	A,C,E,S	1
CI_BK_03	Unexpected increase in peak airway pressure	A,C,E,S	1
CI_BK_04	Progressive fall in minute volume during spontaneous respiration or IPPV	A,C,E,S	1
CI_BK_05	Fall in end tidal CO_2	A,C,E,S	1
CI_BK_06	Rise in end tidal CO_2	A,C,E,S	1
CI_BK_07	Rise in inspired CO_2	A,C,E,S	1
CI_BK_08	Unexpected hypotension	A,C,E,S	1
CI_BK_09	Unexpected hypertension	A,C,E,S	1

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
CI_BK_10	Sinus tachycardia	A,C,E,S	1
CI_BK_11	Arrhythmias: • ST segment changes • Sudden tachyarrythmias • Sudden bradycardia • Ventricular ectopics • Broad complex tachycardia • Ventricular Fibrillation • Atrial fibrillation • Pulseless electrical activity [PEA]	A,C,E,S	1
CI_BK_12	Convulsions	A,C,E,S	1
Recalls/describes the causes, detection and management of the following specific conditions:			
CI_BK_13	Difficult/failed mask ventilation	A,C,E,S	1
CI_BK_14	Failed intubation	A,C,E,S	1
CI_BK_15	Can't intubate, can't ventilate	A,C,E,S	1
CI_BK_16	Regurgitation/Aspiration of stomach contents	A,C,E,S	1
CI_BK_17	Laryngospasm	A,C,E,S	1
CI_BK_18	Difficulty with IPPV, sudden or progressive loss of minute volume	A,C,E,S	1
CI_BK_19	Bronchospasm	A,C,E,S	1
CI_BK_20	Pneumothorax and tension pneumothorax	A,C,E,S	1
CI_BK_21	Gas / Fat/ Pulmonary embolus	A,C,E,S	1
CI_BK_22	Adverse drug reactions	A,C,E,S	1
CI_BK_23	Anaphylaxis	A,C,E,S	1
CI_BK_24	Transfusion reactions, transfusion of mis-matched blood or blood products	A,C,E,S	1
CI_BK_25	Inadvertent intra-arterial injection of irritant fluids	A,C,E,S	1

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
CI_BK_26	High spinal block	A,C,E,S	1
CI_BK_27	Local anaesthetic toxicity	A,C,E,S	1
CI_BK_28	Accidental decannulation of tracheostomy or tracheal tube	A,C,E,S	1
CI_BK_29	Coning due to increased intracranial pressure	A,C,E,S	1
CI_BK_30	Malignant hyperpyrexia	A,C,E,S	1
Discusses the importance of understanding the need for the following attitudes and behaviours:			
CI_BK_31	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	A,C,E,S	1,2,3,4
CI_BK_32	Awareness of the importance and the process of critical incident reporting	A,C,E,S	1,2,3,4
CI_BK_33	Acceptance that it can happen to you; the unexpected can happen to anyone	A,C,E,S	1,2,3,4
CI_BK_34	To practice response protocols in resuscitation room or in simulation with other healthcare professionals as appropriate	C,D,S	1, 2,3,4
CI-BK_35	The need to follow through a critical incident with proper reporting, presentation at morbidity meetings and warning flags as necessary, with appropriate supervision	A,C,E,S	1,2,3,4
CI_BK_36	The provision of information to the patient and where necessary ensuring they get the appropriate counselling and advice, with appropriate supervision	A,C,E,S	1,2,3,4

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
CI_BS_01	Demonstrates good non-technical skills such as: effective communication, team-working, leadership, decision-making and maintenance of high situation awareness	A,C,D,S	1,2,3,4
CI_BS_02	Demonstrates the ability to recognise early a deteriorating situation by careful monitoring	A,C,D,S	1,2,3,4
CI_BS_03	Demonstrates the ability to respond appropriately to each incident listed above	A,C,D,S	1,2,3,4

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
CI_BS_04	Shows how to initiate management of each incident listed above	A,C,D,S	1,2,3,4
CI_BS_05	Demonstrates ability to recognise when a crisis is occurring	A,C,D,S	1,2,3,4
CI_BS_06	Demonstrates how to obtain the attention of others and obtain appropriate help when a crisis is occurring	A,C,D,S	1, 2,3,4

Day surgery

It is anticipated that this unit of training will not be delivered as a dedicated block and that the learning outcomes will be gained throughout the duration of Core Level training and that these should be achievable in most general hospitals at this level. Inevitably this unit cross references with many of the other Core Level clinical units of training given the high percentage of day care surgical procedures

Learning outcomes:

- To gain 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]
- Understand and apply agreed protocols with regard to patient selection and perioperative care of day surgery patients
- Understand the importance of minimising postoperative complications, such as nausea and pain, in patients who are returning home the same day

Core clinical learning outcome:

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

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
DS_BK_01	Describes the principles of preoperative assessment of patients requiring day surgery including nurse-led assessment	A,C,E	1
DS_BK_02	Explains the role of appropriate preoperative investigations for day surgery patients	A,C,E	1
DS_BK_03	Describes protocols for selection of day surgery patients including medical, surgical and social factors	A,C,E	1
DS_BK_04	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	A,C,E	1,2,3,4
DS_BK_05	Describes anaesthetic techniques appropriate for day cases	A,C,E	1
DS_BK_06	Explains the potential causes of unanticipated in-patient admission following day surgery	A,C,E	1
DS_BK_07	Describes the pharmacology & selection of appropriate drugs for day cases [cross ref basic sciences]	A,C,E	1

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
DS_BK_08	Describes appropriate analgesia for day cases	A,C,E	1
DS_BK_09	Describes strategies to reduce postoperative nausea and vomiting in day case patients	A,C,E	1
DS_BK_10	Explains the management & assessment of recovery of day surgery patients to street fitness	A,C,E	1

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
DS_BS_01	Demonstrates appropriate selection and preoperative assessment of day surgery patients	A,C,M	1
DS_BS_02	Demonstrates appropriate anaesthetic management of ASA 1and 2 patients requiring day surgery	A,C,D	1,2
DS_BS_03	Demonstrates appropriate postoperative care of patients who have undergone day surgery including control of pain, nausea, fluid management & assessment of fitness for discharge	A,C	1,3,4

General, urological and gynaecological surgery (incorporating peri-operative care of the elderly)

This unit includes all aspects of elective and emergency general, urological and gynaecological surgery. It is anticipated that this unit of training will not be delivered as a dedicated block and that the learning outcomes will be gained throughout the entire duration of Core Level training and that these should be achievable in most general hospitals at this level.

Learning outcomes:

- To gain knowledge, skills and experience of the perioperative anaesthetic care of patients requiring elective and emergency general, urological and gynaecological surgery
- To gain 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
- To be able to recognise and manage the perioperative complications associated with intra-abdominal surgery that are relevant to anaesthesia
- To gain understanding of special peri-operative needs of elderly, frail patients

Core clinical learning outcomes*:*

- 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 under distant supervision
- Manage a list with uncomplicated ASA 1-3 adults for similar elective surgery under distant supervision

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment methods*	*GMP*
GU_BK_01	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]	A,C,E	1,2
GU_BK_02	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	A,C,E	1,2,3,4

Knowledge			
Competence	*Description*	*Assessment methods*	*GMP*
	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 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		
GU_BK_03	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]	A,C,E	1
GU_BK_04	Describes the principles of the anaesthetic management of patients with renal failure for non-transplant surgery, including care of shunts	A,C,E	1,2,3,4
GU_BK_05	Describes the principles of management of non-fasted patients requiring emergency surgery for whatever reason	A,C,E	1,2
GU_BK_06	Explains transfusion issues in different surgical procedures	C,E	1,2
GU_BK_07	Recalls/describes the management of major haemorrhage	A,C,E	1,2
GU_BK_08	Recalls/explains the relevance of metabolism and nutrition in the perioperative period	A,C,E	1,2
GU_BK_09	Explains the specific problems of anaesthesia for non-obstetric surgery in the pregnant patient	A,C,E	1,2
GU_BK_10	Recalls the factors associated with regurgitation and airway protection during common surgical procedures	A,C,E	1,2
GU_BK_11	Recalls/describes the anaesthetic implications of abnormal body weight, including morbid obesity	A,C,E	1,2
GU_BK_12	Describes the NCEPOD classifications and explains the importance of these in delivering surgical care to patients	A,C,E	1,2
GU_BK_13	Recalls/describes the peri-operative care of the elderly	A,C,E	1,2

Skills			
Competence	*Description*	*Assessment Method*	*GMP*
GU_BS_01	Demonstrates the ability to form an appropriate perioperative management plan for ASA 1-3 surgical patients requiring all types of surgery	A,C,D	1,2,3,4
GU_BS_02	Demonstrates the ability to recognise when more complex perioperative assessment and /or optimisation is required	A,C,D	1,2,3,4
GU_BS_03	Demonstrates the ability to identify the high risk emergency surgical patient and initiate early management/optimisation	A,C,D,M	1,2,3,4
GU_BS_04	Demonstrates the ability to deliver safe perioperative anaesthetic care to ASA1-3 patients for straightforward surgical procedures e.g. body surface surgery, appendicectomy, ERPC	A,C,D,L,M	1,2,3,4
GU_BS_05	Demonstrates the ability to manage an elective surgical list with uncomplicated ASA 1-3 adults for straightforward body surface and lower abdominal surgery under distant supervision [Examples of such cases on lists would be: • General surgical: hernia repair; 'superficial lumps/bumps'; non-complex appendicetomy • Gynaecology: non-complex total abdominal hysterectomy; hysteroscopy; minor superficial surgery	L,M	1,2,3,4
GU_BS_06	Demonstrates sensitive handling of patients with cognitive disturbances/communication problems	A,D,M	1,3,4
GU_BS_07	Shows sensitive handling of patient with cognitive impairment	A,D,M	1,2,3,4

Head, neck, maxillo-facial and dental surgery

It is anticipated that this unit of training will not be delivered as a dedicated block and that the learning outcomes will be gained throughout the duration of Core Level training and that these should be achievable in most general hospitals at this level.

Learning outcomes:

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

Core clinical learning outcome:

- 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 under direct supervision

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
EN_BK_01	Lists specific conditions that may complicate airway management [e.g. anatomical variation; tumour; bleeding]	A,C,E	1,2
EN_BK_02	Describes how the surgeon operating in the airway, or requiring access via the airway, complicates anaesthesia for this type of surgery	A,C,E	1
EN_BK_03	Recalls/describes the pathophysiology of obstructive sleep apnoea and its relevance to anaesthesia [AM_BK_07]	A,C,E	1,2
EN_BK_04	Recalls/describes the specialised devices used to maintain the airway during head and neck surgery	A,C,E	1
EN_BK_05	Identifies the indications for the special surgical devices used during surgery including gags, micro-laryngoscopes, oesophagoscopes and laser surgery equipment	A,C,E	1,2
EN_BK_06	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	A,C,E	1,2,3

EN_BK_07	Recalls/explains the principles of correct and timely recognition/management of bleeding tonsils	A,C,E	1,2,3
EN_BK_08	Explains the principles of the emergency management of the obstructed airway including tracheostomy	A,C,E	1,2,3,4
EN_BK_09	Describes the special risk of transmitting prion diseases by contamination with tonsillar tissue and explains how this risk is minimised in practice	A,C,E	1,2,3,4

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
EN_BS_01	Demonstrates development of preoperative assessment and preparation/optimisation knowledge and skills [as identified in the basis of anaesthetic practice], focused on the specific difficulties presented by these surgical sub-specialties	A,D,M	1,2,3
EN_BS_02	The provision of safe perioperative anaesthetic care for a wide range of commonly performed procedures, with good operating conditions and an appropriate level of analgesia, including: • ENT procedures such as tonsillectomy, septoplasty and myringotomy • Common dental procedures such as extractions and apicectomies	A,D,M	1,2,3,4
EN_BS_03	Demonstrates the correct use of a variety of specialised airway devices, including RAE tubes, LMAs, throat packs and intubating forceps	A,D	1
EN_BS_04	Manages anaesthesia so as to achieve smooth emergence, with minimal airway disturbance, laryngospasm and bronchospasm	A,D	1
EN_BS_05	Demonstrates awareness of the increased risk of airway complications postoperatively and takes precautions to assist in their early recognition and prompt management	A,D,M	1,2,3,4

Non-theatre

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

Learning outcomes:

- 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 clinical learning outcome:

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

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
DI_BK _01	Explains risks and benefits to patients, and risks to staff from common radiological investigations and procedures, including the use of contrast media	A,C,E	1,2,3,4
DI_BK_02	Explains current statutory radiological regulations e.g. IRMER 2000 as applied to the referrer, practitioner or operator of diagnostic services	A,C,E	1,2
DI_BK_03	Explains the general safety precautions and equipment requirements in specific environments e.g. MRI suites	A,C,E	1,2
DI_BK_04	Recalls/describes the specific anaesthetic implications of imaging techniques including but not limited to: • MRI scanning • CT scanning • Angiography	A,C,E	1,2,3,4
DI_BK_05	Recalls/explains the implications of exposing the pregnant or potentially pregnant patient to ionising radiation	A,C,E	1,2,3,4

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
DI_BS_01	Demonstrates the ability to provide safe anaesthesia for a stable adult patient for diagnostic imaging	A,C,D,M	1,2,3,4
DI_BS_02	Demonstrates the ability to manage a stable ventilated adult patient for diagnostic imaging	C,M	1,2,3,4

Obstetrics

Wherever possible, this Core Level unit of training should occur in a dedicated block. The use of simulators may assist in the teaching and assessment of some aspects of this section e.g. general anaesthesia for Caesarean section

Learning outcome:

- To gain knowledge, skills and experience of the treatment of the healthy pregnant woman

Core clinical learning outcomes*:*

- To pass the formal practical initial assessment of competence in obstetric anaesthesia and, having achieved this, be able 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], under distant supervision but recognising when additional help is required

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
OB_BK_01	Recalls/describes the anatomy, physiology and pharmacology related to pregnancy and labour [cross ref basic sciences]	A,C,E	1
OB_BK_02	Lists common obstetric indications for anaesthetic intervention on the delivery suite	A,C,E	1
OB_BK_03	Describes the effects of aortocaval compression and how to avoid it	A,C,E	1,2
OB_BK_04	Recalls/describes how to assess fetal well being in utero	A,C,E	1,2
OB_BK_05	Discusses the management of pre-eclampsia and eclampsia	C,E	1,2
OB_BK_06	Lists risk factors and describes the management of major obstetric haemorrhage	C,E	1,2
OB_BK_07	Explains local feeding / starvation policies and the reasons behind them	A,C,E	1,2
OB_BK_08	Explains the thromboprophylaxis requirements in pregnancy	A,C,E	1,2
OB_BK_09	Describes the grading of urgency of Caesarean section	A,C,E	1,2

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
OB_BK_10	Explains why anaesthetic techniques must be modified in the pregnant patient	A,C,E	1,2
OB_BK_11	Lists methods of analgesia during labour and discusses their indications and contraindications	A,C,E	1,2
OB_BK_12	Describes epidural or CSE analgesia in labour and recalls/discusses the indications, contraindications and complications	A,C,E	1,2
OB_BK_13	Explains how to provide regional anaesthesia for operative delivery	A,C,E	1
OB_BK_14	Understands the need to call for assistance after several attempts at placement of regional blocks proves unsuccessful	A,C,E	1,2,3
OB_BK_15	Describes the immediate management of accidental dural puncture	A,C,E	1
OB_BK_16	Recalls/describes maternal and basic neonatal resuscitation	A,C,E	1,2
OB_BK_17	Describes how to access local maternity guidelines and the value of having these guidelines	A,C,E	1,2

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
OB_BS_01	Undertakes satisfactory preoperative assessment of the pregnant patient	A,D	1
OB_BS_02	Demonstrates the ability to clearly explain and prepare an obstetric patient for surgery	A,C,D	1,3,4
OB_BS_03	Demonstrates the use of techniques to avoid aorto-caval compression	D	1
OB_BS_04	Demonstrates the ability to provide epidural analgesia in labour	A,D,M	1
OB_BS_05	Demonstrates the ability to provide spinal anaesthesia for caesarean section	A,D	1
OB_BS_06	Demonstrates the ability to convert epidural analgesia to epidural anaesthesia for surgical intervention	A,C,D	1
OB_BS_07	Demonstrates the ability to provide general anaesthesia for caesarean section [S]	A,C,D,S	1
OB_BS_08	Demonstrates an appropriate choice of anaesthesia/analgesia for instrumental delivery	C	1
OB_BS_09	Demonstrates an appropriate choice of anaesthesia for retained placenta	C	1,2
OB_BS_10	Demonstrates safe and effective management of post-delivery pain relief	C,M	1
OB_BS_11	Demonstrates ability to recognise when an obstetric patient is sick and the need for urgent assistance	C,M	1
OB_BS_12	Demonstrates the ability to provide advanced life support for a pregnant patient [S]	D,S	1
OB_BS_13	Demonstrates the ability to provide basic neonatal life support [S]	D,S	1

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
OB_BS_14	Obtains the Initial Assessment of Competence in Obstetric Anaesthesia	A,C,D	1,2,3,4

Orthopaedic surgery (incorporating peri-operative care of the elderly)

This unit includes all aspects of elective and emergency orthopaedic surgery. It is anticipated that this unit of training will not be delivered as a dedicated block and that the learning outcomes will be gained throughout the entire duration of Core Level training and that these should be achievable in most general hospitals at this level.

Learning outcomes:

- To gain knowledge, skills and experience of the perioperative anaesthetic care of patients requiring orthopaedic surgery including the elderly and patients with long-bone fractures
- To understand the relevance of diseases of bones and joints to anaesthesia
- To be able to recognise and manage the perioperative complications of orthopaedic surgery relevant to anaesthesia

Core clinical learning outcome*:*

- 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

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
OR_BK_01	Recalls/describes the perioperative implications of rheumatological disease, including but not limited to rheumatoid arthritis, osteoarthritis, osteoporosis and ankylosing spondylitis	A,C,E	1
OR_BK_02	Recalls the complications of prolonged immobility, including those due to traction	A,C,E	1,2
OR_BK_03	Recalls the problems associated with limb tourniquets	A,C,E	1,2
OR_BK_04	Recalls/explains the potential hazards associated with positioning [supine, lateral, prone, sitting]	A,C,E	1,2
OR_BK_05	Recalls/explains the problems associated with anaesthesia for surgery in the prone and lateral positions	A,C,E	1,2
OR_BK_06	Recalls/describes the pathophysiology, diagnosis and management of specific orthopaedic surgical complications that are relevant to anaesthesia including but not exclusively:	A,C,E	1

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
	• Bone cement Implantation Syndrome • Diagnosis and management of fat embolism • Upper and lower limb compartment syndromes		
OR_BK_07	Discusses strategies for blood conservation in major orthopaedic surgery	A,C,E	1,2
OR_BK_08	Describes the principles of perioperative anaesthetic care for elective and emergency upper and lower limb orthopaedic surgery, including primary arthroplasty	A,C,E	1,2,3
OR_BK_09	Discusses the current guidance on early surgical management of hip fractures and the necessary assessment for anaesthesia	A,C,E	1,2
OR_BK_10	Discusses the timing of surgery, and the need for investigations in urgent [surgical] cases with cardiovascular signs	A,C,E	1,2
OR_BK_11	Describes the different surgical procedures for managing hip fractures, the anaesthetic requirements for each and the current evidence for the choice of anaesthetic technique	A,C,E	1
OR_BK_12	Discusses the importance of consistent decision making on fitness for surgery in elderly patients	A,C,E	1,4
OR_BK_13	Recalls/describes the peri-operative care of the elderly	A,C,E	1,2

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
OR_BS_01	Demonstrates the provision of perioperative anaesthetic care for patients requiring orthopaedic surgery to the upper and lower limbs including but not exclusively: • ORIF surgery including internal fixation of fractured neck of femur • Lower limb primary arthroplasty including patients in the lateral position	A,D,M	1,2
OR_BS_02	Demonstrates sensitive handling of the patient with cognitive disturbance or communication problems	A,D,M	1,3,4
OR_BS_03	Demonstrates correct assessment and perioperative management of the elderly patient with a hip fracture	A,D,M	1,2,3,4
OR_BS_04	Shows sensitive handling of patient with cognitive impairment in anaesthetic room	A,D,M	1,2,3,4

Paediatrics

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

Learning outcomes:

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

Core clinical learning outcomes:

- Demonstrates correct management of the paediatric airway in the following ways [if case mix allows, down to one year of age, but at least down to five years of age]:
  - Is able to size airway devices correctly [i.e. oral airways and tracheal tubes]
  - Is able to insert airway devices correctly
  - Is able to ventilate an apnoeic child using a bag and mask +/- an oral airway
  - Is able to intubate a child correctly, using the most appropriate size tracheal tube, placed at the correct length
- Maintains anaesthesia in a spontaneously breathing patient via a facemask for a short surgical procedure [less than 15 mins]

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

It is anticipated that the competences listed will be gained throughout CT1/2 without a dedicated period spent in paediatric anaesthesia. It is accepted that not all trainees will have sufficient clinical opportunity to progress beyond direct supervision as the variation in paediatric exposure will differ amongst trainees during CT 1/2. Trainees should take whatever opportunities they can to obtain the skills listed below.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
PA_BK_01	Recalls/explains the relevance of the basic sciences specific to children aged 1 year and above [cross ref basic sciences]	A,C,E	1
PA_BK_02	Describes the preoperative assessment and psychological preparation of children aged 1 year and above [and their parents] for surgery	A,C,E	1,3,4
PA_BK_03	Explains the importance of avoiding excessive starvation times	A,C,E	1,2
PA_BK_04	Describes how anaesthesia can be induced for children aged 1 year and above	A,C,E	1

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
PA_BK_05	Describes maintenance of anaesthesia for children aged 1 year and above	A,C,E	1
PA_BK_06	Describes how recovery from anaesthesia is managed in children aged 1 year and above	A,C,E	1,2
PA_BK_07	Explains the management of postoperative pain, nausea and vomiting in children	A,C,E	1
PA_BK_08	Describes the management of acute airway obstruction including croup, epiglottitis and inhaled foreign body	A,C,E	1
PA_BK_09	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	A,C,E	1,2
PA_BK_10	Explains the importance of modification of drug dosages	A,C,E	1,2
PA_BK_11	Describes how pain-relief is provided for children undergoing surgery including the use of common regional techniques [e.g. Caudal epidural, ilioingiunal block]	A,C,E	1
PA_BK_12	Explains the place of premedication, including topical anaesthesia for venepuncture	A,C,E	1
PA_BK_13	Describes paediatric anaesthetic equipment and the differences from adult practice	A,C,E	1
PA_BK_14	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]	A,C,E	1,2
PA_BK_15	Explains the choice of breathing systems and the appropriate fresh gas flow rates	A,C,E	1
PA_BK_16	Explains the importance of identifying when upper respiratory tract infections are/are not significant and, as a result, when to cancel operations	A,C,E	1,2,4
PA_BK_17	Explains how to obtain consent for anaesthesia in children	A,C,E	1,3,4
PA_BK_18	Explains the importance of Child Protection regulations and what action must be taken when non-accidental injury is suspected	A,C,E	1,3,4

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
PA_BS_01	Undertakes satisfactory preoperative assessment of fit children aged 5 and over	A,D,M	1,3
PA_BS_02	Demonstrates ability to anaesthetise fit children aged 5 and over for elective and urgent minor surgery [including general, ENT, orthopaedic, minor trauma and other non-specialist procedures]. This includes induction, maintenance and recovery	A,D,M	1,2,3

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
	[including management of pain, nausea and vomiting]		
PA_BS_03	Shows how to manage the environment during the induction of anaesthesia in children	A,D,M	1,3
PA_BS_04	Demonstrates ability to secure peripheral venous access in children aged 5 and over	A,D	1
PA_BS_05	Demonstrates ability to perform intraosseous cannulation [S]	D,S	1
PA_BS_06	Demonstrates ability to manage the airway correctly including selection of the correct masks, airways, laryngeal mask airways and tracheal tubes	A,D	1,2
PA_BS_07	Demonstrates ability to perform both intravenous and gaseous induction of general anaesthesia in children	A,D	1,3
PA_BS_08	Demonstrates the management of laryngospasm in children [S]	A,D,S	1,2
PA_BS_09	Demonstrates ability to stabilise and manage the sick or injured child aged 5 or over until senior help arrives [S]	A,M,S	1,2,3,4
PA_BS_10	Demonstrates ability to perform paediatric resuscitation as described by the Resuscitation Council [UK] [S]	D,S	1,2,3,4
PA_BS_11	Shows sensitivity when communicating with children and their parents/carers	A,D,M	1,3,4
PA_BS_12	Shows how to recognise signs leading to suspicion of non-accidental injury or abuse and the correct action	A,D,S	1,2,3,4

Child protection

Anaesthetists may encounter children who have suffered physical and/or sexual abuse including resuscitation, intensive care as well as the routine pre-op examination. In all these situations, it is essential that health care professionals, including the anaesthetist, act in the best interests of the child

Minimum acceptable learning outcomes:

- Knows that Non-Accidental Injury [NAI] of children is not uncommon and is encountered by anaesthetists
- Demonstrates knowledge of local procedures for safeguarding children

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
CP_BK_01	Discusses the importance of knowing that NIA is not uncommon, is encountered by anaesthetists, that they must act in the child's best interests and that all hospitals must have a written protocol for its management	C	1,2,3,4

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
CP_BK_02	Understands the Child Protection procedures in their current hospital situation, who leads the process and how they may be contacted [including out of hours]	C	1,3
CP_BK_03	Describes situations in which abuse of children may present to anaesthetists including, but not exclusively, during care of the injured child whose injury cannot be wholly explained by natural circumstances or during the course of routine perioperative anaesthetic care when unusual or unexplained signs which may indicate abuse are found	A,C	1,2,4
CP_BK_04	Describes signs indicative of a possible need to safeguard the infant, child or young person	C	1,2,3,4
CP_BK_05	Describes the importance of communicating concerns within the team and asking for senior help and/or paediatrician support when appropriate	C	1,2,3,4
CP_BK_06	Outlines the importance of acting in the best interests of the child throughout any investigation of NAI	C	1,2,3,4

Skills			
Competence	*Description*	*Assessment Method*	*GMP*
CP_BS_01	Demonstrates the ability and willingness to clearly communicate concerns, verbally and in writing	C,M	1,2,3 4
CP_BS_02	Demonstrates the ability to manage the child and parents in a sensitive, appropriate manner	C,M	1,2,3,4

Further information: See e-Learning module on child protection

Pain medicine

Wherever possible, this Core Level unit of training should occur in a dedicated block.

Learning outcomes:

- To be competent in the assessment and effective management of acute post-operative and acute non post-operative pain
- To acquire knowledge necessary to provide a basic understanding of the management of chronic pain in adults
- To recognise the special circumstances in assessing and treating pain in children, the older person and those with communication difficulties
- To demonstrate an understanding of the basic principles of post-op analgesia requirements for children, the older person and those with communication difficulties

Core clinical learning outcomes*:*

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

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment methods*	*GMP*
PM_BK_01	Recalls the anatomy and physiology of pain medicine to include nociceptive, visceral and neuropathic pain [cross ref basic sciences]	A,C,E	1
PM_BK_02	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]	A,C,E	1
PM_BK_03	Explains the principles of neural blockade for acute pain management	A,C,E	1,2
PM_BK_04	Describes the methods of assessment of pain	A,C,E	1
PM_BK_05	Explains the relationship between acute and chronic pain	A,C,E	1
PM_BK_06	Describes a basic understanding of chronic pain in adults	A,C,E	1
PM_BK_07	Explains the importance of the biopsychosocial aspects of pain	A,C	1,2

Knowledge			
Competence	*Description*	*Assessment methods*	*GMP*
PM_BK_08	Describes the organisation and objectives of an acute pain service	A,C,E	1
PM_BK_09	Explains the limitations of pain medicine	A,C,E	1
Skills			
Competence	*Description*	*Assessment methods*	*GMP*
PM_BS_01	Demonstrates the ability to assess manage and monitor acute surgical and non surgical pain and side effects of medication	A	1,2,3,4
PM_BS_02	Demonstrates appropriate and safe drug prescribing	A,C	1,2
PM_BS_03	Demonstrates the safe use of equipment used to manage pain including equipment used for PCA, epidurals and inhalational techniques	A,D	1,2
PM_BS_04	Demonstrates the safe and effective use of local anaesthetic peripheral and regional neural blockade techniques	A,D	1,2
PM_BS_05	Demonstrates the ability to manage severe unrelieved acute pain and distress in a timely, safe and effective manner	A,M	1,2,3,4
PM_BS_06	Demonstrates the importance of regular on-going monitoring of pain management/follow up	A,C,M	1,2,3
PM_BS_07	Demonstrates recognition of acute neuropathic pain	C	1
PM_BS_08	Demonstrates the ability to communicate effectively with patients, relatives and carers including advantages, disadvantages and side effects of pain management	C	1,2,3

Perioperative Medicine

This unit of training is intended to run in parallel with other units of training and is not designed to be undertaken as a standalone dedicated unit. The learning outcomes are applicable to all patients and will be achievable during clinical practice whilst undertaking the other units of training. However, Perioperative Medicine elements remain within the obstetric and paediatric units of training as these elements are less transferable to other areas of anaesthesia.

Learning outcomes*:*

- Explains the main patient, anaesthetic and surgical factors influencing patient outcomes
- Describes the benefits of patient-centred, multidisciplinary care
- Delivers high quality **preoperative** assessment, investigation and perioperative management of ASA 1-3 patients for elective and emergency surgery with emphasis on the perioperative management of co-existing medical conditions
- Delivers high quality individualised anaesthetic care to ASA 1-2 [E] patients, focusing on optimising patient experience and outcome
- Plans and implements high quality individualised post-operative care for ASA 1-2 [E] patients

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Preoperative care:

Knowledge

Competence	*Description*	*Assessment Methods*	*GMP*
POM_BK_01	Describes the importance of comorbid disease in the planning and safe conduct of anaesthesia	A,C,E	1,2
POM_BK_02	Describes the role of 'do not resuscitate' procedures	A,C,E	1,3,4
POM_BK_03	Describes the effects of acute and chronic disease on patient outcomes after surgery	A,C,E	1,2
POM_BK_04	Describes the requirements for preoperative investigations including indications for specific tests	A,C,E	1,2
POM_BK_05	Interprets fundamental preoperative investigations	A,C,D,E	1
POM_BK_06	Describes the adjustments needed to provide anaesthesia for the following patient groups: the elderly, pregnant women, patients with cognitive impairment, patients with chronic pain, and substance misusers	A,C,E	1,3
POM_BK_07	Recounts implications of lifestyle factors such as smoking, alcohol intake and substance abuse on patient outcomes	A,C,E	1,3

Preoperative care:

Knowledge

Competence	*Description*	*Assessment Methods*	*GMP*
POM_BK_08	Discusses the management of concurrent medication in the perioperative period	A,C,E	1
POM_BK_09	Describes thromboprophylaxis in the perioperative period	A,C,E	1
POM_BK_10	Describes methods of risk assessment and stratification relevant to the provision of perioperative care	A,C,E	1,2
POM_BK_11	Describes methods of patient optimisation which reduce risk in the perioperative period	A,C,E	1,2
POM_BK_12	Describes how integrated perioperative care pathways in primary and secondary care affect patient outcomes	A,C,E	3
POM_BK_13	Describes specific organisational interventions which improve patient outcomes (e.g. care bundles, enhanced recovery pathways)	A,C,E	1,2,3
POM_BK_14	Describes the legal and ethical principles for obtaining informed consent in adults and the correct processes for patients who are unable to consent	A,C,E	3,4
POM_BK_15	Describes the legal and ethical considerations for determining mental capacity	A,C,E	3,4
POM_BK_16	Explains how patients requiring emergency surgery may differ from those presenting for elective surgery in terms of physiology, psychology and preparation	A,C,E	1
POM_BK_17	Describes optimal perioperative fluid and feeding regimes	A,C,E	1
POM_BK_18	Describes the impact of nutritional status on patient outcomes	A,C,E	1
POM_BK_19	Describes the effects of ethnicity on physiology	C,E	1,3,4

Skills

Competence	*Description*	*Assessment Methods*	*GMP*
POM_BS_01	Conducts a comprehensive preoperative assessment in the outpatient clinic	A,D,E	1,3
POM_BS_02	Assesses patient suitability for day case admission	A,C,E	1,2,3
POM_BS_03	Evaluates co-morbidity in ASA 1-3 patients	A,C,E	1,3
POM_BS_04	Initiates optimisation where appropriate	A, C, D	1,3
POM_BS_05	Organises appropriate special investigations	A,C,D,E	3

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
POM_BS_06	Makes appropriate referrals to other specialties when required	A,C,E	3
POM_BS_07	Works in a multi-professional team and ensures effective communication with other members	A,E,M	3
POM_BS_08	Communicates anaesthetic options with patients or surrogates effectively	A,D,E	3,4
POM_BS_09	Synthesises relevant information to develop a safe anaesthetic plan, taking the patient's wishes into consideration	A,C,D,E	1,3
POM_BS_10	Treats all patients with respect and compassion, especially those with particular physical, psychological and educational needs (See Annex A, Domain 10 of CCT in Anaesthetics, 2010)	A,D,M	3,4

Intraoperative care: **Knowledge**			
Competence	*Description*	*Assessment Methods*	*GMP*
POM_BK_20	Describes risks and benefits of different anaesthetic techniques including their effect on early mobilisation and restoration of function	A,C,E	1
POM_BK_21	Describes the effect of perioperative analgesia on patient outcome	A,C,D,E	1
POM_BK_22	Describes strategies to minimise the risk of infection in the postoperative period	A,C,E	1,2
POM_BK_23	Describes the effect of hypothermia on patient outcome	A,C,E	1
POM_BK_24	Develops an effective patient-specific strategy to minimise post-operative nausea and vomiting	A,C,E	1
POM_BK_25	Lists the risk factors for postoperative cognitive dysfunction	A,C,E	1
POM_BK_26	Recalls principles of advanced haemodynamic monitoring	A,C,E	1
POM_BK_27	Describes perioperative fluid management strategies, with reference to maintaining homeostasis	A,C,E	1
POM_BK_28	Explains the indications for the use of blood products and describes the effective management of major haemorrhage	A,C,E	1,3
POM_BK_29	Describes the consequences of failing to maintain normal biochemical parameters, e.g. acid-base balance, blood glucose	A,C,E	1
Skills			
Competence	*Description*	*Assessment Methods*	*GMP*

Intraoperative care: **Knowledge**			
Competence	*Description*	*Assessment Methods*	*GMP*
POM_BS_11	Uses operating theatre safety checklists effectively (at the appropriate time, avoiding distraction and engaging the full team)	D,M,S	2,3
POM_BS_12	Administers intravenous fluids and blood products appropriately	A,E,S	1
POM_BS_13	Uses non-invasive and invasive monitoring appropriately	A,D,S	1
POM_BS_14	Employs effective techniques to minimise the risk of aspiration of gastric contents in at-risk patients	A,D,S	1
POM_BS_15	Employs effective strategies to maintain normal body temperature intraoperatively	A,E,S	1

Postoperative care: **Knowledge**			
Competence	*Description*	*Assessment Methods*	*GMP*
POM_BK_30	Describes the consequences of postoperative malnutrition	C,E	1
POM_BK_31	Describes a patient-centred approach to postoperative analgesia and demonstrates understanding of the importance of providing adequate analgesia in the context of perioperative care	A,C,D,E	3,4
POM_BK_32	Describes the indications for Critical Care admission postoperatively	A,C,E	1,2
POM_BK_33	Describes the components of a safe and effective immediate postoperative plan (e.g. oxygen therapy, frequency and nature of observations, antibiotic prescription, thromboprophylaxis, management of glycaemic control etc.)	A,C,E	1
Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
POM_BS_16	Recognises limits of competence and seeks advice where appropriate when managing of postoperative complications	A,C,E,M	3,4
POM_BS_17	Plans the transition from intravenous to enteral hydration, nutrition and analgesia where appropriate	C,E	1
POM_BS_18	Manages postoperative nausea and vomiting effectively	A,C,E	1
POM_BS_19	Manages coexisting disease and medications in the immediate postoperative period in ASA 1-3 patients	A,C,E	1
POM_BS_20	Recognises common anaesthetic and surgical complications	A,C,E	1

Postoperative care: **Knowledge**			
Competence	*Description*	*Assessment Methods*	*GMP*
POM_BK_30	Describes the consequences of postoperative malnutrition	C,E	1
POM_BK_31	Describes a patient-centred approach to postoperative analgesia and demonstrates understanding of the importance of providing adequate analgesia in the context of perioperative care	A,C,D,E	3,4
POM_BK_32	Describes the indications for Critical Care admission postoperatively	A,C,E	1,2
POM_BK_33	Describes the components of a safe and effective immediate postoperative plan (e.g. oxygen therapy, frequency and nature of observations, antibiotic prescription, thromboprophylaxis, management of glycaemic control etc.)	A,C,E	1
Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
POM_BS_21	Demonstrates a multidisciplinary approach by ensuring effective handover of care to other professionals	A,C,M	3

Regional

It is anticipated that this unit of training will not be delivered as a dedicated block and that the learning outcomes will be gained throughout the duration of Core Level training and that these should be achievable in most general hospitals at this level.

Learning outcomes:

- To become competent in all generic aspects of block performance
- Able to obtain consent for regional anaesthesia from patients
- Create a safe and supportive environment in theatre for awake and sedated patients
- Demonstrate knowledge of the principles of how to perform a number of regional and local anaesthetic procedures
- Be able specifically to perform spinal and lumbar epidural blockade
- Be able to perform some simple upper and lower limb peripheral nerve blocks *under direct supervision*
- Be able to use a peripheral nerve stimulator or ultrasound to identify peripheral nerves
- Demonstrate clear understanding of the criteria for safe discharge of patients from recovery following surgery under regional blockade
- Recognise that they should not attempt blocks until they have received supervised training, and passed the relevant assessments
- Accepts the right of patients to decline regional anaesthesia – even when there are clinical advantages

Core clinical learning outcome:

- Demonstrates safely at all times during performance of blocks including: 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
- Establish safe and effective spinal and lumbar epidural blockade and manage immediate complications in ASA 1-2 patients under distant supervision
- Ability to establish a simple nerve block safely and effectively

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
RA_BK_01	Recalls/describes the anatomy relevant to regional and peripheral blocks identified [Cross ref basic sciences]	A,C,E	1

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
RA_BK_02	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]	A,C,E	1
RA_BK_03	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]	A,C,E	1
RA_BK_03A	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	A,C,E	1
RA-BK_04	Discusses the advantages/disadvantages, risks/benefits and indications/contra-indications of regional blockade	A,C,E	1,
RA_BK_05	Describes how to obtain consent from patients undergoing regional blockade	A,C,E	1,2,3,4
RA_BK_06	Outlines the basic functions of an ultrasound machine [including physics [ref Basic Sciences], picture optimisation and probe selection] and how nerves to and in the upper limb can be identified using ultrasound	A,C,E	1
RA_BK_07	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]	A,C,D,E	1,2,3,4
RA_BK_08	Demonstrates understanding of the use of continuous epidural infusions and the need to prescribe correctly	A,C,D,E	1
RA_BK_09	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	A,C,E	1,2,3,4
RA_BK_10	Describes techniques and complications of other blocks listed in RA_BK_07	A,C,E	1,2
RA_BK_11	Shows understanding of the principles of identification of correct anatomy including the use of nerve stimulators and ultrasound [Cross reference Ultrasound]	A,C,D,E	1,2

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
RA_BK_12	Outlines the dangers of accidental intravenous administration of local anaesthetic drugs, signs, symptoms and management, including the role of lipid emulsion	A,C,E	1,2,3,4
RA_BK_13	Outlines the management of incomplete or failed regional blockade including, where appropriate, the use of rescue blocks	A,C,D,E	1,2,3,4
RA_BK_14	Demonstrates understanding of the methods of sedation used in conjunction with regional anaesthesia	A,C,D,E	1,2,3,4
RA_BK_15	Recalls/describes absolute and relative contraindications to regional blockade	A,C,E	1,2,3,4
RA_BK_16	Outlines the possible effects regional blockade will have on the patient, list and the theatre staff and how these may be managed	A,C,E	1,2,3,4
RA_BK_17	Lists the advantages and disadvantages of regional anaesthetic techniques for post-operative analgesia	A,C,E	1,2
RA_BK_18	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	A,C,E	1,2,3,4
RA_BK_19	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	A,C,E	1,2,3
RA_BK_20	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	A,C,E	1,2,3,4
RA_BK_21	Be aware of the use of information leaflets in the decision making process and in the reporting of problems or complications following discharge	A,C,E	1,2,3,4
RA_BK_22	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	A,C,E	1

Skills			
Competence	*Description*	*Assessment Method*	*GMP*
RA_BS_01	Obtains valid consent for regional blockade, including confirmation and marking of side of operation and site or regional technique where indicated	A,D	1,2,3,4

Skills			
Competence	*Description*	*Assessment Method*	*GMP*
RA_BS_02	Demonstrates safe and correct checking of the contents of epidural / spinal packs	A,D	1,2
RA_BS_03	Practices safely including: meticulous attention to sterility during performance of blockade; selecting, checking, drawing up, diluting, adding adjuvants, labelling and administration of local anaesthetic agents	A,C,D	1,2,3,4
RA_BS_04	Demonstrates how to undertake a comprehensive and structured pre-operative assessment of patients requiring a subarachnoid blockade, perform the block and manage side effects/complications correctly	A,C,D	1,2,3,4
RA_BS_05	Demonstrates how to undertake a comprehensive and structured pre-operative assessment of patients requiring a lumbar epidural blockade, perform the block and manage side effects/complications correctly	A,C,D	1,2,3,4
RA_BS_06	Recognises which patients are unsuitable for regional blockade	A,C	1,2,3,4
RA_BS_07	Recognises patients in whom a block would be difficult to perform	A,C	1,2,4
RA_BS_08	Demonstrates the management of hypotension, nausea, anxiety and shivering induced by spinal or epidural blockade	A,C,D	1,2,3,4
RA_BS_09	Demonstrates correct post-operative care following spinal or epidural block	A,C,D	1,2,3,4
RA_BS_10	Demonstrates how to use epidural techniques for post-operative pain management	A,C,D	1,2
RA_BS_11	Demonstrates how to perform some simple nerve blocks from amongst the following: • Femoral • Ankle • Elbow, wrist and or digital • Rectus sheath • Inguinal • Intercostal • Infiltration techniques	A,C,D	1,2,3,4
RA_BS_12	Shows how to use sedation correctly during surgery under regional blockade	A,C,D	1,2,3,4
RA_BS_13	Manages patients with combined general and regional anaesthesia	A,C,D	1,2,3,4
RA_BS_14	Shows consideration for the views of patients, surgeons and theatre team with regard to surgery under regional blockade	A,C,D	1,3,4
RA_BS_15	Shows the ability to correctly manage the theatre environment with an awake or sedated patient	A,C,D	1,2,3,4
RA_BS_16	Demonstrates list planning to allow time for the conduct of a block and for it to take effect	A,C,D	1,2,3,4,
RA_BS_17	Shows good communication skills towards the patients and staff during the use of regional blockade	A,C,D	3,4
RA_BS_18	Shows due care and sensitivity to the patient's needs during performance of regional block	A,C,D	1,2,3,4

Skills			
Competence	*Description*	*Assessment Method*	*GMP*
RA_BS_19	Demonstrates how to identify peripheral nerves using basic ultrasound technology [e.g. the median, radial and ulnar in the arm]	A,C,D	1

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 CT 1/2 anaesthetic trainees understand 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.

Learning outcomes:

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

Core clinical learning outcome:

- Provision of 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

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
CS_BK_01	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	A,D,E	1,2,3
CS_BK_02	Describes the pharmacology of drugs commonly used to produce sedation	A,C,E	1

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
CS_BK_03	Explains the need for and means of monitoring the sedated patient including the use of commonly used sedation scoring systems	A,C,E	1,2
CS_BK_04	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	A,C,E	1,2
CS_BK_05	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	A,C,E	1,2,3
CS_BK_06	Can list which sedative drugs should not be given to the elderly [over 80 years of age], with reasons	A,C,E	1,2,3,4
CS_BK_07	Can explain the minimal monitoring required during pharmacological sedation	A,C,E	1
CS_BK_08	Describes the indications for the use of conscious sedation	A,C,E	1,2
CS_BK_09	Describes the risks associated with conscious sedation including [but not exclusively] those affecting the respiratory and cardiovascular systems	A,C,E	1,2
CS_BK_10	Can explain the use of single drug, multiple drug and inhalation techniques	A,C,E	1,2
CS_BK_11	Describes the particular risks of multiple drug sedation techniques	A,C,E	1,2,3
CS_BK_12	Outlines the unpredictable nature of sedation techniques in children [Cross ref paediatrics]	A,C,E	1,2,3
CS_BK_13	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]	A,C,E	1,2,3

Skills			
Competence	*Description*	*Assessment Method*	*GMP*
CS_BS_01	Demonstrates the ability to select patients for whom sedation is an appropriate part of clinical management	A,C,D	1,2,3
CS_BS_02	Demonstrates the ability to explain sedation to patients and to obtain consent	A,D	1,2,3
CS_BS_03	Demonstrates the ability to administer and monitor inhalational sedation to patients for clinical procedures [Cross ref obstetrics]	A,D	1,2,3

Skills			
Competence	*Description*	*Assessment Method*	*GMP*
CS_BS_04	Demonstrates the ability to administer and monitor intravenous sedation to patients for clinical procedures	A,D	1,2,3
CS_BS_05	Demonstrates the ability to recognise and manage the complications of sedation techniques appropriately, including recognition and correct management of loss of verbal responsiveness	A,D	1,2,3

Transfer Medicine

The learning outcomes and competencies listed are those necessary for the first 24 months of anaesthetic training. It is strongly recommended that CT 1/2 trainees complete this unit of training before undertaking intra-hospital transfer with distant supervision. Many of the competencies may be attained whilst gaining training and experience in intensive care.

Learning outcomes:

- Correctly assesses the clinical status of patients and decides whether they are in a suitably stable condition to allow **intra-hospital transfer [only]**
- Gains understanding of the associated risks and ensures they can put all possible measures in place to minimise these risks

Core clinical learning outcome:

- 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] with distant supervision

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
TF_BK_01	Explains the importance of ensuring the patient's clinical condition is optimised and stable prior to transfer	A,C,E	1,2
TF_BK_02	Explains the risks/benefits of intra-hospital transfer	A,C,E	1,2
TF_BK_03	Recalls/describes the minimal monitoring requirements for transfer	A,C,E	1,2,3
TF_BK_04	Lists the equipment [and back up equipment] that is required for intra-hospital transfer	A,C,E	1,2
TF_BK_05	Outlines the physical hazards associated with intra-hospital transfer	A,C,E	1,2
TF_BK_06	Explains the problems caused by complications arising during transfer and the measures necessary to minimise and pre-empt difficulties	A,C,E	1
TF_BK_07	Outlines the basic principles of how the ventilators used for transfer function	A,C,E	1
TF_BK_08	Indicates the lines of responsibility that should be followed during transfer	A,C,E	1,2,3

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
TF_BK_09	Outlines the consent requirements and the need to brief patients in transfer situations	A,C,E	1,2,3,4
TF_BK_10	Outline the issues surrounding the carrying/recording of controlled drugs during transfer	A,C,E	1,2,3
TF_BK_11	Describes the importance of keeping records during transfer	A,C,E	1
TF_BK_12	Outlines the problem of infection and contamination risks when moving an infected patient	A,C,E	1,2
TF_BK_13	Explains how to assess and manage an uncooperative and aggressive patient during transfer	A,C,E	1,2,3,4
TF_BK_14	Understands hospital protocols governing transfer of patients between departments	A,C,E	1
TF_BK_15	Outlines the importance of maintaining communication, when appropriate with the patient and members of the transfer team.	A,C,E	1,2

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
TF_BS_01	Demonstrates the necessary organisational and communication skills to plan, manage and lead the intra- hospital transfer of a stable patient	A,M	1,2,3,4
TF_BS_02	Demonstrates how to set up the ventilator and confirm correct functioning prior to commencing transfer	A,D	1,2
TF_BS_03	Demonstrates safety in securing the tracheal tube securely prior to commencing the movement/transfer	A,D	1,2
TF_BS_04	Demonstrates the ability to calculate oxygen and power requirements for the journey	A,D	1,2
TF_BS_05	Demonstrates safety in securing patient, monitoring and therapeutics before transfer	A,D	1,2,3,4
TF_BK_06	Demonstrates how to check the functioning of drug delivery systems	A,D	2,3
TF_BS_07	Demonstrates appropriate choices of sedation, muscle relaxation and analgesia to maintain the patient's clinical status during transfer	A,C,D,M	1,2
TF_BS_08	Demonstrates the ability to maintain monitoring of vital signs throughout transfer	A,D	1,2
TF_BS_09	Demonstrates the ability to maintain clinical case recording during transfer	C,M	1

Trauma and stabilisation

It is anticipated that this unit of training will not be delivered as a dedicated block; the learning outcomes will be gained throughout Core Level training and that this level should be achievable in most general hospitals.

Learning outcomes:

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

Core clinical learning outcome:

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

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Knowledge

Competence	*Description*	*Assessment Methods*	*GMP*
MT_BK_01	Explains the principles of the primary and secondary survey in trauma patients	A,C,E	1,2,3
MT_BK_02	Recalls/describes the related anatomy, physiology and pharmacology [cross reference Basic anatomy, physiology and pharmacology sections]	A,C,E	1
MT_BK_03	Recalls/describes the pathophysiological changes occurring in the trauma patient	A,C,E	1
MT_BK_04	Explains the importance of early recognition of and the potential for airway compromise	A,C,E	1,2
MT_BK_05	Explains the importance of correct airway management in the trauma patient	A,C,E	1,2
MT_BK_06	Describes how to recognise and correctly manage hypovolaemia and other causes of shock	A,C,E	1
MT_BK_07	Recalls/describes the indications for invasive cardiovascular monitoring, the relevant anatomy, principles of placement, associated complications and principles of their management	A,C,E	1,2
MT_BK_08	Recalls/discusses the effects of hypothermia, the reasons for its prevention and methods available in trauma patients	A,C,E	1,2

Knowledge			
Competence	*Description*	*Assessment Methods*	*GMP*
MT_BK_09	Explains the importance of correct pain relief in the trauma patient and methods used [from Emergency Dept to post-operatively]	A,C,E	1,2,3
MT_BK_10	Discusses the options available for intravenous access in trauma patients including the intraosseous route	A,C,E	1
MT_BK_11	Understands the importance of preventing hypothermia and acidosis in the trauma patient	A, C, E	1,2,3
MT_BK_12	Describes the correct initial investigations required in the trauma patient	A,C,E	1
MT_BK_13	Describes the imaging requirements in the emergency room [Cross Ref; non-theatre]	A,C,E	1,2
MT_BK_14	Recalls/explains the principles of assessment and management of patients with brain injury [including the use of the Glasgow Coma Scale [GCS]]	A,C,E	1,2
MT_BK_15	Describes the causes and mechanisms for the prevention of secondary brain injury	A,C,E	1
MT_BK_16	Outlines the particular problems associated with patients presenting with actual or potential cervical spine injuries particularly airway management	A,C,E	1,2
MT_BK_17	Describes the principles of the perioperative management of the trauma patient	A,C,E	1,2,3,4
MT_BK_18	Describes how to manage intra-hospital transfer of trauma patients [Cross Ref: transfer medicine]	A,C,E	1,2,3,4

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
MT_BS_01	Demonstrates how to perform the Primary survey in a trauma patient [S]	A,D,S	1,2
MT_BS_02	Demonstrates correct emergency airway management in the trauma patient including those with actual or potential cervical spine damage [S]	A,D,S	1,2
MT_BS_03	Demonstrates how to manage a tension pneumothorax [Cross Ref: critical incidents] [S]	A,D,S	1
MT_BS_04	Demonstrates how to insert a chest drain [S]	D,S	1
MT_BS_05	Demonstrates assessment of patients with brain injury including the use of the GCS [cross ref Neuroanaesthesia] [S]	A,D,S	1,2
MT_BS_06	Demonstrates the initial resuscitation of patients with trauma and preparation for further interventions including, emergency surgery	A,D	1,2,3,4
MT_BS_07	Demonstrates provision of safe perioperative anaesthetic management of ASA 1 and 2 patients with multiple trauma	A,C,D	1,2,3,4

Skills			
Competence	*Description*	*Assessment Methods*	*GMP*
MT_BS_08	Demonstrates how to perform a secondary survey in a trauma patient	A, D, S	1,2
MT_BS_09	Demonstrates the ability to undertake intra-hospital transfer of patients from the Emergency Dept for further management [e.g. to imaging suite, theatre and/or intensive care] [Cross Ref; transfer medicine]	A,D	1,2,3,4

Basic sciences to underpin anaesthetic practice

Learning Outcomes:

- To gain a good understanding of human anatomy relevant to the safe practice of anaesthesia at core level and to support progress to intermediate level training
- To acquire a sound understanding of human physiology, biochemistry and pharmacology, and to be able to apply this to clinical practice at core level and to support progress to intermediate training.
- To gain 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.
- To gain a good understanding of physiological and pharmacological consequences of ageing.

NB: All competencies annotated with the letter 'E' can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.

Anatomy

Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
	Respiratory system		
AN_BK_01	Mouth, nose, pharynx, larynx, trachea, main bronchi, segmental bronchi, structure of the bronchial tree; age-related changes from the neonate to the adult	A,C,E	1
AN_BK_02	Airway / respiratory tract blood supply and innervation	A,C,E	1
AN_BK_03	Pleura [including surface anatomy], mediastinum and its contents	A,C,E	1
AN_BK_04	Lungs; lobes and microstructure of lungs	A,C,E	1
AN_BK_05	Diaphragm, other muscles of respiration including innervation	A,C,E	1
AN_BK_06	The thoracic inlet and 1st rib	A,C,E	1
AN_BK_07	Interpretation of the normal adult chest x-ray	A,C,E	1
	Cardiovascular system		

Anatomy

Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
AN_BK_08	Heart - chambers, valves, conducting system and pericardium; blood supply and innervation	A,C,E	1
AN_BK_09	Great vessels, main peripheral arteries and veins	A,C,E	1
Nervous system			
AN_BK_11	Brain and its subdivisions; blood supply	A,C,E	1
AN_BK_12	Spinal cord, structure of spinal cord, major ascending and descending pathways; blood supply	A,C,E	1
AN_BK_13	Anatomical organisation of pain and sensory pathways from the periphery to the central nervous system	A,C,E	1
AN_BK_14	Pain pathways relevant to the stages of obstetric labour and delivery	A,C,E	1
AN_BK_15	Spinal meninges, subarachnoid and extradural space; contents of extradural space	A,C,E	1
AN_BK_16	Anatomy of CSF system	A,C,E	1
AN_BK_17	Spinal nerves; dermatomes; applied knowledge of dermatomes in regional anaesthesia	A,C,E	1
AN_BK_18	Brachial plexus; nerves of the upper limb	A,C,E	1
AN_BK_19	Intercostal nerves	A,C,E	1
AN_BK_20	Nerves of the abdominal wall including innervation of the inguinal region	A,C,E	1
AN_BK_21	Lumbar and sacral plexuses; nerves of the lower limb	A,C,E	1
AN_BK_22	Anatomical organisation of the autonomic nervous system. [See also PR_BK_21]	A,C,E	1
AN_BK_23	Sympathetic innervation, sympathetic chain, ganglia and plexuses	A,C,E	1
AN_BK_24	Parasympathetic innervation; cranial and sacral outflow	A,C,E	1
AN_BK_25	Stellate ganglion	A,C,E	1
AN_BK_26	Cranial nerves	A,C,E	1
AN_ BK_27	Innervation of the pharynx and larynx	A,C,E	1
AN_BK_28	Eye and orbit	A,C,E	1
Endocrine system			
AN_BK_29	Functional anatomy of the hypothalamic/pituitary system	A,C,E	1
AN_BK_30	Functional anatomy of the adrenal gland	A,C,E	1

Anatomy

Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
AN_BK_31	Functional anatomy of the thyroid and parathyroid glands	A,C,E	1
AN_BK_32	Anatomical organisation of the endocrine pancreas	A,C,E	1
	Vertebral column		
AN_BK_33	Cervical, thoracic and lumbar vertebrae	A,C,E	1
AN_BK_34	Sacrum, sacral hiatus	A,C,E	1
AN_BK_35	Ligaments of vertebral column	A,C,E	1
AN_BK_36	Surface anatomy of vertebral spaces; length of spinal cord and subarachnoid space; age-related differences from the neonate to the adult	A,C,E	1
	Surface anatomy		
AN_BK_37	Structures in the antecubital fossa	A,C,E	1
AN_BK_38	Structures in the axilla: landmarks for identifying the brachial plexus in the neck and axilla	A,C,E	1
AN_BK_39	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	A,C,E	1
AN_BK_40	Large veins of the leg and femoral triangle	A,C,E	1
AN_BK_41	Arteries of the upper and lower limbs	A,C,E	1
AN_BK_42	Landmarks for performance of cricoid pressure and surgical airway procedures	A,C,E	1
AN_BK_43	Landmarks for insertion of intercostal drainage catheters	A,C,E	1

Pharmacology

Competence	*Description*		*GMP*
Demonstrates knowledge of:			
PR_BK_01	Organic chemistry: drugs as organic molecules: types of intermolecular bonds; interactions between molecules; organic compared with inorganic compounds; bond strength; important atomic constituents: C, N, O, P, S and halides	A,C,E	1
PR_BK_02	Organic chemistry: ionization of molecules: type of groups that ionize: amides, hydroxyl, carboxyl. Oxidation and reduction.	A,C,E	1

Pharmacology			
Competence	*Description*		*GMP*
Demonstrates knowledge of:			
	Permanently charged [quaternary ammonium] drugs.		
PR_BK_03	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	A,C,E	1
PR_BK_04	Isomers: structural and stereoisomers: classification systems; clinical relevance	A,C,E	1
PR_BK_05	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	A,C,E	1
PR_BK_06	Non-specific drug actions: Physicochemical mechanisms: e.g. adsorption; chelation; neutralization	A,C,E	1,2
PR_BK_07	Voltage-gated ion channels; membrane-bound transport pumps. Sodium, potassium and calcium channels as targets for drug action	A,C,E	1,2
PR_BK_08	Receptors as proteins; ion channels; transmembrane transduction and intermediate messenger systems; intracellular/nuclear receptors. Receptor regulation and tachyphylaxis	A,C,E	1
PR_BK_09	Transduction systems as receptors: G-protein coupled receptors [GPCRs] and non-GPCR systems.	A,C,E	1
PR_BK_10	Nuclear receptors: Intracellular hormone receptors. e.g. cytoplasmic receptors for steroids; corticosteroids vs. mineralocorticoid receptors	A,C,E	1
PR_BK_11	Enzymes as drug targets: Michaelis-Menten kinetics. Direct and allosteric mechanisms. e.g. acetylcholinesterase; cyclo-oxygenase; phosphodiesterase	A,C,E	1
PR_BK_12	Anticholinesterases: Classification of drugs that inhibit acetylcholinesterase and plasma cholinesterase including organophosphates	A,C,E	1,2
PR_BK_13	Predictable side effects of drugs: non-selective actions of drugs; action at multiple receptors; multiple anatomical locations; predictable enzyme induction-inhibition	A,C,E	1,2
PR_BK_14	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	A,C,E	1,2
PR_BK_15	Tachyphylaxis and tolerance: Examples of drugs demonstrating tachyphylaxis; proposed mechanisms. Opioid dependence and tolerance	A,C,E	1,2
PR_BK_16	Drug interactions: Types of interaction: synergism, additivity, antagonism; isobolograms. Classification of mechanisms of drug	A,C,E	1

Pharmacology			
Competence	*Description*		*GMP*
Demonstrates knowledge of:			
	interaction		
PR_BK_17	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	A,C,E	1
PR_BK_18	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 iontophoretic systems	A,C,E	1
PR_BK_19	Oral administration: Time-course for systemic appearance; factors e.g. pKa, lipid solubility, active transport. Bioavailability of drugs given orally and its measurement	A,C,E	1
PR_BK_20	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	A,C,E	1,2
PR_BK_21	Non-enzymatic drug elimination: Hofmann degradation	A,C,E	1
PR_BK_22	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	A,C,E	1,2
PR_BK_23	Context-sensitive half-time: comparison of drugs e.g. propofol, fentanyl and remifentanil. Target-controlled infusions [TCI]	A,C,E	1
PR_BK_24	TCI in practice: accuracy, applicability, cost. Variations due to patient differences: predictable and unpredictable	A,C,E	1,2
PR_BK_25	Differences in patient response to therapy: gender; pathology; polypharmacy; in particular, changes occurring with increasing age	A,C,E	1,2
PR_BK_26	Pharmacogenetics: pharmacokinetic variation e.g. pseudocholinesterase; acetylation; CYP450 variants. Poor and fast metabolizers; racial and geographic distribution of common abnormal genes	A,C,E	1,2
PR_BK_27	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	A,C,E	1
PR_BK_28	Intravenous anaesthetic agents: Chemical classes. Properties of an ideal induction agent. Adverse effects on CNS [including effects on ICP], CVS, RS; pharmacokinetics including metabolism	A,C,E	1,2
PR_BK_29	Mechanisms of general anaesthetic action	A,C,E	1

Pharmacology			
Competence	*Description*		*GMP*
Demonstrates knowledge of:			
PR_BK_30	Benzodiazepines: classification of action. Clinical actions. Synergism with anaesthetic agents. Antidote in overdose	A,C,E	1,2
PR_BK_31	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	A,C,E	1,2
PR_BK_32	Analgesics. Simple analgesics, NSAIDs and opioids. Available routes of administration; peri-operative prescribing; chronic compared with acute pain prescribing	A,C,E	1,2
PR_BK_33	Aspirin and paracetamol. Comparison of structures; indications and contraindications; mechanisms of action. Bioavailability; metabolism; toxicity	A,C,E	1,2
PR_BK_34	Non-steroidal anti-inflammatory analgesics: Classification. Mechanism of action. Clinical effects and uses; unwanted effects, contraindications	A,C,E	1,2
PR_BK_35	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	A,C,E	1,2
PR_BK_36	Muscle relaxants. Classification. Sites of action. Properties of an ideal muscle relaxant. Dantrolene and management of MH	A,C,E	1,2
PR_BK_37	Depolarizing muscle relaxants: Structure, mechanism of action. Organophosphate poisoning. Adverse effects and contraindications	A,C,E	1,2
PR_BK_38	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.	A,C,E	1,2
PR_BK_39	Reversal of neuromuscular blockade: Indications for use; mechanisms of action; clinically unwanted effects of reversal of neuromuscular blockade	A,C,E	1,2
PR_BK_40	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	A,C,E	1
PR_BK_41	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:	A,C,E	1,2
PR_BK_42	Drugs and the parasympathetic nervous system: nicotinic and muscarinic receptors with subgroups. Mechanism of action. Agonists, antagonists. Comparison of available drugs. Hyoscine and antiemesis	A,C,E	1,2

Pharmacology			
Competence	*Description*		*GMP*
Demonstrates knowledge of:			
PR_BK_43	Cardiovascular system: general: drug effects on the heart [inotropy and chronotropy] and on the circulation: arterial and venous effects; systemic and pulmonary effects	A,C,E	1
PR_BK_44	Inotropes and pressors: Classification; site of action. Synthetic inotropes compared with adrenaline	A,C,E	1,2
PR_BK_45	Drugs used in ischaemic heart disease: Classification of drugs used. Mechanisms of drug action. Unstable angina	A,C,E	1,2
PR_BK_46	Antiarrhythmics: Classification. Indications for use, including use in resuscitation	A,C,E	1,2
PR_BK_47	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	A,C,E	1,2
PR_BK_48	Anticoagulants: oral and parenteral. Sites of action; indications use; monitoring effect. Comparison of heparins: unfractionated and fractionated. Newer anticoagulants	A,C,E	1,2
PR_BK_49	Antiplatelet agents. Perioperative management of antiplatelet medication	A,C,E	1,2
PR_BK_50	Pro-coagulants: Drugs. Individual factor concentrates; multi-factor preparations including FFP; vitamin K	A,C,E	1,2
PR_BK_51	Colloids, including blood and blood products: Composition of preparations; safe use and avoidance of errors	A,C,E	1,2
PR_BK_52	Crystalloid fluids: Composition; suitable fluids for maintenance and replacement of losses. Comparison with colloids; unwanted effects	A,C,E	1,2
PR_BK_53	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	A,C,E	1,2
PR_BK_54	Respiratory system: drugs used in acute severe asthma and chronic asthma; volatile agents. Mechanisms of action	A,C,E	1,2
PR_BK_55	Gastrointestinal system: general: antisialogogues; drugs reducing gastric acidity; drug effects on the GI tract including gastric and bowel motility	A,C,E	1,2
PR_BK_56	Antiemetics: Anatomical sites for antiemetic action; central and peripheral inputs to vomiting centre; use of dexamethasone	A,C,E	1,2
PR_BK_57	Renal system: diuretics: Classification of diuretics. Unwanted effects; indications for use	A,C,E	1,2
PR_BK_58	CNS: antiepileptic agents: Mechanisms of action; unwanted side effects	A,C,E	1,2
PR_BK_59	CNS: antidepressants: Classes of drug: anaesthetic relevance	A,C,E	1,2
PR_BK_60	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	A,C,E	1,2

Pharmacology

Competence	*Description*		*GMP*
Demonstrates knowledge of:			
PR_BK_61	Hormones: corticosteroids: Indications for use; clinical effects; long-term complications of glucocorticoid use	A,C,E	1,2
PR_BK_63	Hormones: treatment of thyroid disorders: Synthesis and release of thyroid hormones. Preparations used in hyper- and hypo-thyroidism	A,C,E	1,2
PR_BK_64	CNS stimulants; classes, mechanisms of action, uses in anaesthesia	A,C,E	1,2
PR_BK_65	RS stimulants including theophyllines, doxapram	A,C,E	1,2
PR_BK_66	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	A,C,E	1,2
PR_BK_67	Effects of drugs on the eye and vision; includes intra-ocular pressure	A,C,E	1.2
PR_BK_68	Social drugs including tobacco, alcohol and non-legal drugs: anaesthetic relevance	A,C,E	1.2

Physiology and Biochemistry

Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
	GENERAL		
PB_BK_01	Organization of the human body and control of internal environment	A,C,E	1
PB_BK_02a	Changes at birth and in early life	A,C,E	1
PB_BK_02b	Changes with advancing age	A,C,E	1
PB_BK_03	Cells; components and organelles	A,C,E	1
PB_BK_04	Function of cells; genes and their expression	A,C,E	1
PB_BK_05	Cell membrane characteristics; cell junctions, receptors	A,C,E	1
PB_BK_06	Protective mechanisms of the body	A,C,E	1
	BIOCHEMISTRY		

Physiology and Biochemistry			
Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
PB_BK_07	Definition of pH. Strong and weak acids.	A,C,E	1
PB_BK_08	Acid base balance. Includes buffers, Henderson-Hasselbalch equation and anion gap	A,C,E	1
PB_BK_09	Ions e.g. Na^+, K^+, Ca^{++}, Mg^{++}, Cl^-, HCO_3^-	A,C,E	1
PB_BK_10	Cellular metabolism; aerobic vs anaerobic	A,C,E	1
PB_BK_11	Enzymes	A,C,E	1
BODY FLUIDS AND THE FUNCTIONS AND CONSTITUENTS			
PB_BK_12	Capillary dynamics and interstitial fluid; osmosis, filtration and convection	A,C,E	1
PB_BK_13	Osmolarity: osmolality, partition of fluids across membranes, tonicity	A,C,E	1
PB_BK_14	Lymphatic system	A,C,E	1
PB_BK_15	Special fluids especially cerebrospinal fluid: also pleural, pericardial and peritoneal fluids	A,C,E	1
PB_BK_16	Active cellular transport mechanisms	A,C,E	1
HAEMATOLOGY AND IMMUNOLOGY			
PB_BK_17	Blood: physical properties, components, functions	A,C,E	1
PB_BK_18	Red blood cells: production and turnover, haematinics, haemoglobin and its variants including abnormal haemoglobins eg thalassaemia, HbS	A,C,E	1
PB_BK_19	Anaemia: acute and chronic adaptations – Iron absorption, transportation, metabolism	A,C,E	1
PB_BK_20	Polycythaemia: causes and implications	A,C,E	1
PB_BK_21	Blood groups: ABO, Rhesus, others	A,C,E	1
PB_BK_22	Transfusion reactions; rhesus incompatibility	A,C,E	1
PB_BK_23	Haemostasis and coagulation, fibrinolysis – including abnormalities, congenital and acquired	A,C,E	1
PB_BK_24	Alternative oxygen carrying solutions	A,C,E	1
PB_BK_25	White blood cells: types, origins, characteristics, turnover	A,C,E	1
PB_BK_26	The inflammatory response, systemic inflammatory responses, hypersensitivity reactions	A,C,E	1
PB_BK_27	Immunity and allergy; innate vs acquired, non-specific vs specific, humoral vs cellular	A,C,E	1

Physiology and Biochemistry			
Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
PB_BK_28	Immunodeficiency – congenital and acquired	A,C,E	1
MUSCLE			
PB_BK_29	Action potential generation and its transmission	A,C,E	1
PB_BK_30	Neuromuscular junction and transmission, motor end-plate	A,C,E	1
PB_BK_31	Disturbances of neuromuscular transmission	A,C,E	1
PB_BK_32	Myopathies – congenital and acquired	A,C,E	1
PB_BK_33	Muscle contracture – malignant hyperthermia, myoclonus, burns	A,C,E	1
PB_BK_34	Muscle types; skeletal, smooth, cardiac	A,C,E	1
PB_BK_35	Skeletal muscle excitation-contraction coupling	A,C,E	1
PB_BK_36	Smooth muscle contraction: sphincters	A,C,E	1
PB_BK_37	Motor unit concept	A,C,E	1
HEART/CIRCULATION			
PB_BK_38	Cardiac muscle contraction	A,C,E	1
PB_BK_39	The cardiac cycle: pressure volume relationships, work and power	A,C,E	1
PB_BK_40	Rhythmicity of the heart; cardiac impulse generation	A,C,E	1
PB_BK_41	Regulation of cardiac function; general and cellular	A,C,E	1
PB_BK_42	Control of cardiac output [including Starling relationship]	A,C,E	1
PB_BK_43	Fluid challenge and heart failure, types of shock	A,C,E	1
PB_BK_44	Electrocardiogram and arrhythmias, origin of ECG, effects of temperature, ischaemia, infarction and electrolyte imbalance	A,C,E	1
PB_BK_45	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]	A,C,E	1
PB_BK_46	Peripheral circulation: capillaries, vascular endothelium and arteriolar smooth muscle	A,C,E	1
PB_BK_47	Functions of endothelium	A,C,E	1
PB_BK_48	Characteristics of special circulations including: pulmonary, coronary, cerebral, renal, portal, transitional and fetal	A,C,E	1

Physiology and Biochemistry			
Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
	RENAL TRACT		
PB_BK_49	Structure and function, renal circulation	A,C,E	1
PB_BK_50	Blood flow and glomerular filtration, plasma clearance and tubulo-glomerular feedback	A,C,E	1
PB_BK_51	Tubular function and urine formation; transport processes	A,C,E	1
PB_BK_52	Assessment of renal function	A,C,E	1
PB_BK_53	Regulation of water and electrolyte [Na^+, K^+, Ca^{++}, Mg^{++}, $PO4^{--}$,] balance; response to fluid loss /hypovolaemia. Role of urea and creatinine measurement.	A,C,E	1
PB_BK_54	Regulation of acid-base balance	A,C,E	1
PB_BK_55	Micturition	A,C,E	1
PB_BK_56	Pathophysiology of acute renal failure	A,C,E	1
	RESPIRATION		
PB_BK_57	Gaseous exchange: O_2 and CO_2 transport, hypoxia and hyper- and hypocapnia, hyper- and hypobaric pressures	A,C,E	1
PB_BK_58	Function of haemoglobin in oxygen carriage and acid-base equilibrium	A,C,E	1
PB_BK_59	Pulmonary ventilation: volumes, capacities, flows, dead space, compliance, work of breathing	A,C,E	1
PB_BK_60	Effect of IPPV on lungs	A,C,E	1
PB_BK_61	Mechanics of ventilation: ventilation/perfusion abnormalities, regional V/Q, surfactant	A,C,E	1
PB_BK_62	Control of breathing, acute and chronic ventilatory failure, effect of oxygen therapy	A,C,E	1
PB_BK_63	Effects of altitude	A,C,E	1
PB_BK_64	Non-respiratory functions of the lungs	A,C,E	1
	NERVOUS SYSTEM		
PB_BK_65	Neuronal structure and function	A,C,E	1
PB_BK_66	Resting membrane potential, action potentials, conduction, synaptic mechanisms, actions of neurotransmitters	A,C,E	1
PB_BK_67	The brain: functional divisions	A,C,E	1
PB_BK_68	Brain stem; organization, interconnections	A,C,E	1

Physiology and Biochemistry			
Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
PB_BK_69	Intracranial pressure: cerebrospinal fluid, blood flow	A,C,E	1
PB_BK_70	Maintenance of posture	A,C,E	1
PB_BK_71	Autonomic nervous system; organization, ganglia, adrenergic vs cholinergic	A,C,E	1
PB_BK_72	Neurological reflexes: monosynaptic, polysynaptic, stretch, inhibition	A,C,E	1
PB_BK_73	Motor function: basal ganglia, spinal and peripheral	A,C,E	1
PB_BK_74	Sense: receptors, nociception, proprioception, sight, taste, smell, hearing, balance, touch, temperature	A,C,E	1
PB_BK_75	Pain: afferent nociceptive pathways, dorsal horn, peripheral and central mechanisms, neuromodulatory systems, supraspinal mechanisms, visceral pain, neuropathic pain, influence of therapy on nociceptive mechanisms	A,C,E	1
PB_BK_76	Spinal cord: anatomy and blood supply, effects of spinal cord section	A,C,E	1
PB_BK_77	Nausea and vomiting	A,C,E	1
LIVER			
PB_BK_78	Functional anatomy and blood supply, immunological functions	A,C,E	1
PB_BK_79	Metabolic and digestive functions	A,C,E	1
GASTROINTESTINAL			
PB_BK_80	Gastric function; secretions, nausea and vomiting	A,C,E	1
PB_BK_81	Gut motility, sphincters and reflex control – neurohumoral integration	A,C,E	1
PB_BK_82	Digestive functions; composition of secretions; digestion of carbohydrates, lipids, proteins, vitamins, minerals	A,C,E	1
PB_BK_83	Immune functions	A,C,E	1
METABOLISM			
PB_BK_84	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 measurements. Immune function.	A,C,E	1
PB_BK_85	Principles of nutrition: carbohydrates, fats, proteins, vitamins and minerals. Energy requirements/expenditure and measurement.	A,C,E	1
PB_BK_86	Metabolic pathways, energy production and enzymes; metabolic rate; lactate metabolism	A,C,E	1

Physiology and Biochemistry

Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
PB_BK_87	Hormonal control of metabolism: regulation of plasma glucose, response to trauma	A,C,E	1
PB_BK_88	Physiological alterations in starvation, obesity [including normal and abnormal BMI ranges], exercise and the stress response.	A,C,E	1
PB_BK_89	Body temperature and its regulation, [including differences at extremes of age]	A,C,E	1
ENDOCRINOLOGY			
PB_BK_90	Hormones; types, receptors, heirarchy, extracellular signalling	A,C,E	1
PB_BK_91	Mechanisms of hormonal control; feedback mechanisms, effects on membrane and intracellular receptors	A,C,E	1
PB_BK_92	Hypothalamic and pituitary function	A,C,E	1
PB_BK_93	Adrenocortical hormones	A,C,E	1
PB_BK_94	Adrenal medulla; adrenaline and noradrenaline	A,C,E	1
PB_BK_95	Pancreas; insulin, glucagons and exocrine function	A,C,E	1
PB_BK_96	Thyroid and parathyroid hormones and calcium homeostasis	A,C,E	1
PREGNANCY			
PB_BK_97	Physiological changes associated with pregnancy	A,C,E	1
PB_BK_98	Materno-fetal, fetal and neonatal circulation	A,C,E	1
PB_BK_99	Function of placenta; placental transfer	A,C,E	1
PB_BK_100	Fetus; physiological changes at birth	A,C,E	1
PB_BK_101	Lactation	A,C,E	1

Physics and Clinical Measurement

Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
PC_BK_01	Mathematical concepts: relationships and graphs	A,C,E	1
PC_BK_02	Exponential functions including wash-in, wash-out, tear-away	A,C,E	1

Physics and Clinical Measurement			
Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
PC_BK_03	Logarithms	A,C,E	1
PC_BK_04	Area under the curve [integration] and rate of change [differentiation]	A,C,E	1
PC_BK_05	Basic measurement concepts relevant to understanding of monitoring in anaesthesia: • linearity • drift • hysteresis • signal to noise ratio • static and dynamic response	A,C,E	1
PC_BK_06	Electrolyte solutions [also drug doses]: conversion between units e.g. molar, mg/ml, %	A,C,E	1
PC_BK_07	SI Units: fundamental units and derived units	A,C,E	1
PC_BK_08	Other non SI units relevant to anaesthesia: including mmHg, bar, atmospheres, cm H2O, psi	A,C,E	1
PC_BK_09	Simple mechanics: mass, force, work, energy, power	A,C,E	1
PC_BK_10	Heat: including temperature, absolute zero	A,C,E	1
PC_BK_11	Heat transfer and loss: conduction, convection, radiation, evaporation	A,C,E	1
PC_BK_12	Temperature measurement: including Hg, alcohol, infrared, thermistor, thermocouple, Bourdon gauge, liquid crystal. Anatomical sites used for measurement	A,C,E	1
PC_BK_13	Latent heats, triple point of water	A,C,E	1
PC_BK_14	Patient warming systems: principles	A,C,E	1
PC_BK_15	Warming equipment for intravenous fluids: principles	A,C,E	1
PC_BK_16	Laws of thermodynamics; mechanical equivalent of heat	A,C,E	1
PC_BK_17	Humidity, absolute and relative; including measurement	A,C,E	1
PC_BK_18	Colligative properties: osmolarity, osmolality, osmometry, diffusion	A,C,E	1
PC_BK_19	Physics of gases. Gas Laws: kinetic theory of gases, Boyles, Henry's, Dalton, Charles, Gay-Lussac	A,C,E	1
PC_BK_20	Critical temperature, critical pressure	A,C,E	1
PC_BK_21	Physics of vapours	A,C,E	1

Physics and Clinical Measurement			
Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
PC_BK_22	Pressure: absolute and relative pressure; gauge pressure	A,C,E	1
PC_BK_23	Manufacture and storage of gases and vapours, safety	A,C,E	1
PC_BK_24	Cylinders and pipelines, Bourdon gauge	A,C,E	1
PC_BK_25	Suction devices	A,C,E	1
PC_BK_26	Scavenging devices	A,C,E	1
PC_BK_27	Measurement of lung volumes and diffusion	A,C,E	1
PC_BK_28	Density and viscosity of gases	A,C,E	1
PC_BK_29	Laminar and turbulent flow: Hagen-Poiseuille equation, Reynold's number, examples including helium	A,C,E	1
PC_BK_30	Measurement of volume and flow in gases and liquids, including pneumotachograph and other respirometers	A,C,E	1
PC_BK_31	Bernoulli principle	A,C,E	1
PC_BK_32	Venturi effect and entrainment devices	A,C,E	1
PC_BK_33	Vapour pressure: saturated vapour pressure	A,C,E	1
PC_BK_34	Vaporisation: process of vaporisation	A,C,E	1
PC_BK_35	Vaporisers: principles, including plenum and draw-over, temperature compensation, concentration	A,C,E	1
PC_BK_36	Principles of surface tension	A,C,E	1
PC_BK_37	Basic concepts of electricity and magnetism	A,C,E	1
PC_BK_38	Electrical voltage, AC and DC current, resistance, impedance	A,C,E	1
PC_BK_39	Electrical circuits: series and parallel	A,C,E	1
PC_BK_40	Symbols of basic components of electrical circuits	A,C,E	1
PC_BK_41	Capacitance, inductance	A,C,E	1
PC_BK_42	Wheatstone bridge: principles, uses	A,C,E	1
PC_BK_43	Electrical hazards: causes and prevention	A,C,E	1
PC_BK_44	Electrocution: including microshock, earth faults, leakage	A,C,E	1
PC_BK_45	Electrical equipment safety: domestic and medical, classification/types of equipment, symbols	A,C,E	1

Physics and Clinical Measurement			
Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
PC_BK_46	Circuit breakers, fuses	A,C,E	1
PC_BK_47	Transformers, inductance	A,C,E	1
PC_BK_48	Transistors, diodes	A,C,E	1
PC_BK_49	Amplifiers: band width, low pass, high pass, band pass filters	A,C,E	1
PC_BK_50	ECG: principles including electrodes and electrode placement	A,C,E	1
PC_BK_51	Fourier analysis	A,C,E	1
PC_BK_52	Amplification of biological signals: including ECG, EMG, EEG, BIS, CFM, CFAM	A,C,E	1
PC_BK_53	Piezo-electric devices	A,C,E	1
PC_BK_54	Electrical interference: sources, methods of reduction	A,C,E	1
PC_BK_55	Processing, storage, display of physiological measurements	A,C,E	1
PC_BK_56	Transducers and strain gauges	A,C,E	1
PC_BK_57	Lasers: basic principles and safety	A,C,E	1
PC_BK_58	Ultrasound: basic principles of ultrasound	A,C,E	1
PC_BK_59	Demonstrates knowledge of the physics relevant to optical fibres	A,C,E	1
PC_BK_60	Doppler effect, principle and clinical application	A,C,E	1
PC_BK_61	Cardiac pacemakers: principles and classification	A,C,E	1
PC_BK_62	Defibrillators and defibrillation: principles, including thoracic impedance, monophasic, multiphasic, implantable devices	A,C,E	1
PC_BK_63	Diathermy: monopolar, bipolar; safety and uses	A,C,E	1
PC_BK_64	Pressure transducers	A,C,E	1
PC_BK_65	Resonance, damping, frequency response	A,C,E	1
PC_BK_66	Plenum systems: warming blankets, theatre and anaesthetic room ventilation	A,C,E	1
PC_BK_67	Breathing systems: Maplesons' classification, coaxial systems, circle systems, T-piece; resuscitation breathing devices	A,C,E	1
PC_BK_68	Ventilators: principles, including pressure and flow generators, cycling, minute volume dividers, jet and oscillator ventilators	A,C,E	1
PC_BK_69	Disconnection: monitoring of patient ventilatory disconnection	A,C,E	1

Physics and Clinical Measurement			
Competence	*Description*	*Assessment Methods*	*GMP*
Demonstrates knowledge of:			
PC_BK_70	CO_2 absorption: chemistry, complications	A,C,E	1
PC_BK_71	Capnography	A,C,E	1
PC_BK_72	Pulse oximetry	A,C,E	1
PC_BK_73	Fires and explosions: risks and prevention	A,C,E	1
PC_BK_74	Measurement of gas pressures	A,C,E	1
PC_BK_75	Blood pressure: direct and indirect measurement	A,C,E	1
PC_BK_76	Pulmonary artery pressure measurement	A,C,E	1
PC_BK_77	Cardiac output: principles of measurement	A,C,E	1
PC_BK_78	Measurement of gas and vapour concentrations: e.g. infra-red, paramagnetic, fuel cell, oxygen electrode, mass spectrometry	A,C,E	1
PC_BK_79	Measurement of pH, PCO_2, PO_2, electrolytes	A,C,E	1
PC_BK_80	Derived blood gas variables, e.g. HCO_3a, HCO_3s, BE. Siggaard-Andersen nomogram	A,C,E	1
PC_BK_81	Measurement of CO_2 production, oxygen consumption, respiratory quotient	A,C,E	1
PC_BK_82	Simple tests of pulmonary function: peak flow rate, spirometry	A,C,E	1
PC_BK_83	Measurement of perfusion: coronary, cerebral, splanchnic, renal	A,C,E	1
PC_BK_84	Assessment of neuromuscular blockade	A,C,E	1
PC_BK_85	Infusion pumps and syringe drivers; including PCA drivers and epidural infusion devices: principles, use, safety, and relevant drug infusion calculations	A,C,E	1
PC_BK_86	Environmental monitoring: contamination by anaesthetic gases and vapours	A,C,E	1
PC_BK_87	Minimum monitoring standards	A,C,E	1
PC_BK_88	Understanding the limits of monitoring equipment	A,C,E	1
PC_BK_89	Principles of calibration of monitoring equipment	A,C,E	1
PC_BK_90	Principles of hygiene, including cleaning and sterilisation of equipment	A,C,E	1

Statistical Methods

Learning Outcomes:

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

Knowledge			
Competence	*Description*	*Assessment methods*	*GMP*
Demonstrates knowledge of:			
	Data Collection		
SM_BK_01	Recalls the simple aspects of study design	A,C,E	1
SM_BK_02	Explains the outcomes measures and the uncertainty in their definition	A,C,E	1
SM_BK_03	Explains the basis of meta-analysis and evidence based medicine	A,C,E	1
	Descriptive statistics		
SM_BK_04	Recalls the types of data and their representation	A,C,E	1
SM_BK_05	Explains the normal distribution as an example of parametric distribution	A,C,E	1
SM_BK_06	Explains indices of central tendency and variability	A,C,E	1
	Deductive and inferential statistics		
SM_BK_07	Recalls simple probability theory and the relationship to confidence values	A,C,E	1
SM_BK_08	Explains the null hypothesis	A,C,E	1
SM_BK_09	Explains the choices for simple statistical tests for different types of data	A,C,E	1
SM_BK_10	Recalls type I and type II errors	A,C,E	1

Assessments to be used for the Initial Assessment of Competence

A-CEX	
Assessment Code	*Assessment*
IAC_A01	Preoperative assessment of a patient who is scheduled for a routine operating list [not urgent or emergency] [0-3 months]
IAC_A02	Manage anaesthesia for a patient who is not intubated and is breathing spontaneously [0-3 months]
IAC_A03	Administer anaesthesia for acute abdominal surgery [0-3 months]
IAC_A04	Demonstrate Rapid Sequence Induction [0-3 months]
IAC_A05	Recover a patient from anaesthesia [0-3 months]

DOPS	
Assessment Code	*Assessment*
IAC_D01	Demonstrate functions of the anaesthetic machine [0-3 months]
IAC_D02	Transfer a patient onto the operating table and position them for surgery [lateral, Lloyd Davis or lithotomy position] [0-3 months]
IAC_D03	Demonstrate cardio-pulmonary resuscitation on a manikin. [0-3 months]
IAC_D04	Demonstrates technique of scrubbing up and donning gown and gloves. [0-3 months]
IAC_D05	Core Competencies for Pain Management – manages PCA including prescription and adjustment of machinery [0-3 months]
IAC_D06	Demonstrates the routine for dealing with failed intubation on a manikin.

CBD	
Examine the case-notes. Discuss how the anaesthetic plan was developed. Ask the trainee to explain their approach to pre-op preparation, choice of induction, maintenance, post op care. Select each one of the following topics and discuss the trainees understanding of the issues in context.	
Assessment Code	*Assessment*
IAC_C01	Discuss the steps taken to ensure correct identification of the patient, the operation and the side of operation
IAC_C02	Discuss how the need to minimise postoperative nausea and vomiting influenced the conduct of the anaesthetic
IAC_C03	Discuss how the airway was assessed and how difficult intubation can be predicted
IAC_C04	Discuss how the choice of muscle relaxants and induction agents was made
IAC_C05	Discuss how the trainee's choice of post-operative analgesics was made
IAC_C06	Discuss how the trainee's choice of post-operative oxygen therapy was made
IAC_C07	Discuss the problems emergency intra-abdominal surgery causes for the anaesthetist and how the trainee dealt with these
IAC_C08	Discuss the routine to be followed in the case of failed intubation.

The Initial Assessment of Competence Certificate is available for download from the secure area of the College website.

Assessments for the Initial Assessment for Competence in Obstetric Anaesthesia

A-CEX	
Assessment Code	*Assessment*
OB_BTC_A01	Core Competencies for Obstetric Anaesthesia – conduct epidural analgesia for labour [12-24 months]
OB_BTC_A02	Core Competencies for Obstetric Anaesthesia – conduct regional anaesthesia for caesarean section [12-24 months]
OB_BTC_A03	Core Competencies for Obstetric Anaesthesia – conduct general anaesthesia for caesarean section [12-24 months][S]

DOPS	
Assessment Code	*Assessment*
OB_BTC_D01	Core Competencies for Obstetric Anaesthesia – top up epidural for labour analgesia [12-24 months]
OB_BTC_D02	Core Competencies for Obstetric Anaesthesia – top up epidural for caesarean section [12-24 months]
OB_BTC_D03	Core Competencies for Obstetric Anaesthesia – Perform spinal anaesthesia [12-24 months]

CBD	
Examine the case-notes. Discuss how the anaesthetic plan was developed. Ask the trainee to explain their approach to pre-op preparation, choice of induction, maintenance, post op care. Select each one of the following topics and discuss the trainees understanding of the issues in context	
Assessment Code	*Assessment*
OB_BTC_C01	Discuss how changes in the anatomy and physiology due to pregnancy influenced the conduct of anaesthesia
OB_BTC_C02	Discuss whether pregnancy influenced the choice of drugs used during anaesthesia
OB_BTC_C03	Discuss how the conduct of general anaesthesia is affected by late pregnancy
OB_BTC_C04	Examine the case records of a patient that the trainee has anaesthetised for operative delivery in a situation where major haemorrhage might be expected. Discuss the factors that influence the likelihood of major obstetric haemorrhage, the precautions that should be taken to deal with it and the principles of its management.
OB_BTC_C05	Examine the case records of a patient with pregnancy associated hypertension that the trainee has treated. Discuss how this influences anaesthetic management.
OB_BTC_C06	Examine the case records of a patient for whom the trainee provided extradural analgesia for normal labour. Discuss the methods of pain relief available for normal delivery.

The obstetric core test of competence certificate can be downloaded from the secure area of the College website.

Blueprint of the Primary FRCA examination mapped against the core level units of training

Unit of Training	MCQ	OSCE	SOE 1	SOE 2
Preoperative assessment	√	√	√**	√
Premedication	√	√	√	√
Induction of general anaesthesia	√	√	√	√
Intra-operative care	√	√	√	√
Postoperative and recovery room care	√	√	√	√
Perioperative management of emergency patients	√	√	√	√
Transfer medicine		√		√
Management of respiratory and cardiac arrest in adults and children	√	√	√	√
Control of infection	√	√	√	√***
Academic and research		√*		
Airway management	√	√		√
Critical incidents	√	√		√
Day surgery	√	√	√	√
General, urological and gynaecological surgery	√	√		√
Head, neck, maxillo-facial and dental surgery	√	√		√
Intensive care medicine	√	√	√	√
Non-theatre	√	√		√
Obstetrics	√	√	√	√
Orthopaedic surgery	√	√		√
Sedation	√	√	√	√
Paediatrics including child protection	√	√	√	√
Pain medicine	√	√	√	√
Perioperative 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.

SOE1: ** All the drugs patients may be on preoperatively. SOE2: *** Partially covered

Blueprint of the Primary FRCA examination mapped against the professionalism of medical practice [Annex A]

Domain	MCQ	OSCE	SOE 1	SOE 2
Domain 1 – Professional attitudes				
a. Commitment		√		√
b. Compassion		√		√
c. Honesty and integrity		√		√
d. Respect for others		√		√
e. Community		√		√
f. Competence		√		√
Domain 2 – Clinical practice		√		√
Domain 5 – Innovation	√	√	√	√
Domain 8 - Safety in clinical practice		√	√	√
Domain 9 - Medical ethics and confidentiality		√		√
Domain 10 – Relationships with patients		√		√
Domain 11 – Legal framework for practice				√

Blueprint for workplace based assessments against the core level units of training

Unit of Training	A-CEX	ALMAT	CBD	DOPS
Introduction to anaesthesia				
Preoperative assessment	√		√	√
History taking	√		√	√
Clinical examination	√		√	√
Investigations	√		√	
Specific anaesthetic evaluation	√		√	√
Premedication	√		√	√
Induction of general anaesthesia	√		√	√
Intra-operative care	√		√	√
Postoperative and recovery room care	√		√	√
Perioperative management of emergency patients	√		√	√
Management of respiratory and cardiac arrest in adults and children	√		√	√
Control of infection	√		√	√
Core anaesthesia				
Airway management	√		√	√
Critical incidents	√		√	√
Day surgery	√		√	√
General, urological and gynaecological surgery	√	√	√	√
Head, neck, maxillo-facial and dental surgery	√		√	√
Intensive care medicine	See Annex F			
Non-theatre	√		√	√
Obstetrics	√		√	√
Orthopaedic surgery	√		√	√
Paediatrics	√		√	√
Child protection	√		√	√
Pain medicine	√		√	√
Regional	√		√	√
Perioperative medicine	√		√	√
Sedation	√		√	√
Transfer medicine	√		√	√
Trauma and stabilisation	√		√	√

Royal College of Anaesthetists

CCT in Anaesthetics

Annex F
Intensive Care Medicine

Edition 2 | August 2010 | Version 1.8

Contents

1. Principles of Assessment

1.1 The competencies in ICM required of an anaesthetist are the same as those required of a CCT intensivist albeit, ultimately, to a different level of achievement. In order to facilitate the smooth functioning of Dual CCT training the full competence schedule in ICM *for Anaesthetic trainees* is included in this Annex *(Annex F* of *The CCT in Anaesthetics)*, along with a competence progression grid for each Domain of the ICM Syllabus. Whilst no trainee should view ICM attachments as the only place to acquire and demonstrate ICM competence, certification that a trainee has reached the required level must be by a Faculty of Intensive Care Medicine (FICM) Tutor. FICM Tutors must ensure they are able to certify that trainees have achieved appropriate levels for each competency as it relates to their stage of ICM training, within the requisite stage of anaesthesia training i.e. basic, intermediate or higher.

1.2 There are 99 competencies within the ICM curriculum. The ICM CCT has an assessment system that in some ways differs from that used in anaesthetic training. Anaesthetic assessment samples from its curriculum and has an indicative minimum number of workplace-based assessments (WPBA) in each training module. The ICM CCT requires trainees to demonstrate increasing competency in all domains of the curriculum. Sub-domain competence progression is judged on a descriptive scale of 1 to 4 (novice to independent practitioner); competencies are revisited throughout each of the three ICM Stages of training with increasing target levels of achievement.

Several competencies will be assessed by Multi-Source Feedback; an ICU is a particularly good place to observe a trainee's behaviour and attitudes which can be assessed using MSF. A MSF is to be completed for each block of ICM training at each level of training. An appropriate mix of respondents should be identified to provide feedback, e.g. nursing as well as medical staff.

1.3 Some competencies must be **mandatorily** assessed within the ICM block of training – these are the competencies pertaining to initial recognition, diagnosis, investigation and management of critically ill patients. These competencies, achieved in ICM, make a significant contribution to safe peri-operative anaesthetic practice. Such competencies **must** be signed-off by a FICM trainer.

1.4 Many ICM –related competencies are common to the anaesthesia curriculum and for these trainees can show supervisors, through their portfolio, that they have already demonstrated their abilities. These competences are **not** mandatorily assessed in the ICM block of training and can be signed-off by an **anaesthetic trainer**. Good examples are performance of many practical procedures such as lumbar puncture, central venous access and epidural analgesia. Less common occurrences such as knowledge of major incidents and mass casualties can be dealt with through private study, e-learning or group discussion/seminars. A few competencies relate to particular areas of practice such as cardiothoracic and neurosurgical postoperative care and these should be assessed during the relevant anaesthesia/critical care training modules. Skills required for management of emergencies in children should be achieved during the relevant paediatric anaesthesia modules.

1.5 An ICM Training Progression Grid (see section 5 below) should be issued to trainees at the start of their respective stage of training i.e. at CT1 (basic), ST3 (intermediate) and ST5 (higher). The Grids are divided into two sections for each stage of training. The first section of each Grid details those competencies which must be mandatorily assessed to the appropriate level of achievement during the ICM attachments. The second section indicates those competences where it is likely that an anaesthetic trainee, at the appropriate level, will be able to accumulate evidence of ICM competency during their wider anaesthetic practice. These competences have been cross-mapped to the Anaesthetic CCT Curriculum to indicate where they may be acquired.

Trainees are not expected to record evidence against every competency listed in the second section, but are strongly encouraged to map their cross-specialty competency achievement as and when they are acquired. This will enable easy demonstration of competency acquisition should a trainee later wish to dual accredit in ICM.

1.6 The Grid tables also suggest acceptable sources of other evidence for completion of competences e.g. educational event.

The Grid for each level of training is to be used by trainees to record their **mandatory** competence acquisition, and then uploaded to their personal library in the e-Portfolio system as evidence for sign-off of the ICM unit of training in e-Portfolio, using the 'Completion of Unit of ICM Training' form.

'Completion of Unit of ICM Training' paperwork may only be completed by a FICM Tutor, or designated ICM Educational Supervisor.

1.8 Trainees undertaking, or contemplating undertaking, Dual CCTs in Anaesthesia and ICM are strongly advised to consult the FICM Curriculum and Assessment guidance provided by the FICM (see http://www.ficm.ac.uk/).

2. Workplace Based Assessments

2.1 As with all modules of the *CCT in Anaesthetics*, a minimum of one of each of the listed assessment types or the School mandated minimum, whichever is greater, should be completed before the unit of training can be considered completed.

Core Training (3 months)	Intermediate ST (3 months)	Higher ST (3 months)	Advanced (6 months)
1 x DOPS 1 x ICM -CEX 1 x CBD 1 x ACAT	1x DOPS 1 x ICM -CEX 1 x CBD 1 x ACAT	1 x ICM -CEX 1 x CBD 1 x ACAT	2 x ICM -CEX 2 x CBD 2 x ACAT

2.2 The number of assessments which must be mandatorily assessed to the appropriate level during ICM attachments varies slightly with training level.

2.3 Each piece of evidence can potentially be used to support multiple competencies. A single patient encounter involving a history, examination, differential diagnosis and construction and implementation of a management plan could assess many of the competencies together. For example, a trainee may see a patient in the acute admission unit, assess them, start investigations, diagnose their pneumonia, start the patient on antibiotics and bring them to the ICU where they may need respiratory support. In such a scenario the trainee can, via the use of CBD, DOPS or CEX, bundle together assessment of competencies such as:

- **1.1** Adopts a structured and timely approach to the recognition, assessment and stabilisation of the acutely ill patient with disordered physiology;
- **2.1** Obtains a history and performs an accurate clinical examination;
- **2.2** Undertakes timely and appropriate investigations;
- **2.5** Obtains and interprets the results of blood gas samples;
- **3.1** Manages the care of the critically ill patient with specific acute medical conditions;
- **4.2** Manages antimicrobial drug therapy;
- **5.1** Administers oxygen using a variety of administration devices;
- **5.8** Performs arterial catheterisation

2.4 Using this approach it is estimated that a trainee will need to produce **a minimum of 4 separate WBPAs per 3 month ICM module** to fulfil training requirements during each attachment. This is an indicative number only; the final tally will be guided by the trainees mapping of assessments against the curriculum competencies.

3 Competency Level Descriptors

3.1 Both trainees and trainers need to ensure that training is comprehensive and progressing at a satisfactory rate. The level of attainment descriptors are as follows:

Level	Task orientated competence	Knowledge orientated competence	Patient management competence
1	Performs task under direct supervision	Very limited knowledge; requires considerable guidance to solve a problem within the area.	Can take history, examine and arrange investigations for straight forward case [limited differential diagnosis]. Can initiate emergency management and continue a management plan, recognising acute divergences from the plan. Will need help to deal with these.
2	Performs task in straightforward circumstances, requires help for more difficult situations. Understands indications and complications of task.	Sound basic knowledge; requires some guidance to solve a problem within the area. Will have knowledge of appropriate guidelines and protocols.	Can take history, examine and arrange investigations in a more complicated case. Can initiate emergency management. In a straightforward case, can plan management and manage any divergences in short term. Will need help with more complicated cases.
3.	Performs task in most circumstances, will need some guidance in complex situations. Can manage most complications, has a good understanding of contraindications and alternatives.	Advanced knowledge and understanding; only requires occasional advice and assistance to solve a problem. Will be able to assess evidence critically.	Can take history, examine and arrange investigations in a more complex case in a focused manner. Can initiate emergency management. In most cases, can plan management and manage divergences. May need specialist help for some cases.
4.	Independent [consultant] practice	Expert level of knowledge.	Specialist

3.2 The syllabus for each of the Domains is broken down into knowledge, skills and attitudes for the Basic, Intermediate, and Higher levels.

3.3 It is envisaged that in future all trainees who wish to achieve advanced level ICM training will do so via Dual Anaesthesia/ICM CCT programmes. However it is acknowledged that there may be a small number of trainees who wish to achieve additional experience and competences other than the mandatory blocks of ICM training in the Basic, Intermediate and Higher level anaesthetic training program, to compliment advanced level training in specialty areas of anaesthetic practice.

The learning needs in this situation are likely to vary and so trainees in conjunction with their trainers should refer to the ICM curriculum (http://www.ficm.ac.uk/curriculum-and-assessment) and identify the competences that they plan to achieve within the period of additional ICM training. Prospective approval must then be sought by application to the RCoA Training Department. The application should detail the rationale for completing additional ICM training, the planned location, a named ICM

Educational Supervisor, and the competences to be achieved together with confirmation of support from the Head of the School of Anaesthesia and the relevant FICM Regional Adviser. The duration of additional ICM training would not normally be expected to exceed six months, and the trainee must have completed the mandatory Higher level block of ICM training prior to undertaking additional experience.

Trainees and trainers should be aware that additional ICM experience is not a substitute, either in part or in whole, for an ICM CCT training programme, nor does it confer official FICM training recognition. Any further queries regarding training in Intensive Care Medicine (including CESR applications) should be directed to the Faculty of Intensive Care Medicine (ficm@rcoa.ac.uk).

4 Assessment Tools Key

Each competence is mapped to the relevant assessment tools as follows:

Code	Full name
D	Direct Observation of procedural Skills (DOPS)
I	ICM Clinical Evaluation Exercise (ICM-CEX)
C	Case Based Discussion (CBD)
M	Multisource Feedback (MSF)
T	Acute Care Assessment Tool (ACAT)
S	Simulation

Additional Assessment tools are also suggested as follows:

Code	Full name
EE	Educational Event
G	Logbook page … [*include page ref, i.e. G22*]
L	Anaesthetic List Management Tool [ALMAT]

5 Training Progression Grid for Anaesthetic ICM Training

5.1 The following grids demonstrate the level of achievement expected of anaesthetic trainees in the various domain competencies of ICM training, at each stage of anaesthetic training (Basic, Intermediate, Higher). These are adapted from the Training Progression Grid which appears in *Part II* of *The CCT in Intensive Care Medicine* (2011). The grids acknowledge that trainees will reach Level 4 in some fundamental competencies earlier in their training (e.g. infection control, aspects of professionalism), but will not reach Level 4 at all in some highly specialised areas of intensive care (e.g. Paediatric Intensive Care Medicine, burns management).

5.2 The Training Record Matrices are to be issued to trainees at the start of their respective stage of training i.e. at CT1 (basic), ST3 (intermediate) and ST5 (higher). The Stage Record for each level of training is to be used by trainees to record their competence acquisition, and then uploaded to their personal library in e-Portfolio as evidence for sign-off of that unit of training in e-Portfolio.

The overall sign-off of the ICM unit of training will be undertaken by the local FICM Tutor/Educational Supervisor. The 'Completion of Unit of ICM Training' form will be used for this purpose.

All anaesthesia trainees will complete a block of Basic level ICM training at core level but, trainees who have completed ACCS (Anaesthesia) will have developed a higher level of competency in some areas due to their exposure to Acute and Emergency Medicine.

5.3 The possible assessment methods which can be used for anaesthetic trainees completing blocks of ICM within their anaesthetic CCT are denoted alongside each competency. One assessment can be used to cover multiple curriculum competencies, and other types of evidence may be used to demonstrate competence, as described in 'Additional Assessment Tools Key' below. The assessment tools used are:

Workplace-Based Assessment Tools Key	
C	Case-Based Discussion [CBD]
D	Direct Observation of Procedural Skills [DOPS]
I	ICM Mini-Clinical Evaluation Exercise [I-CEX]
M	Multi-source Feedback [MSF]
S	Simulation
T	Acute Care Assessment Tool [ACAT]
Additional Assessment Tools Key	
EE	Educational Event
G	Logbook page … [*include page ref, i.e. G22*]
L	Anaesthetic List Management Tool [ALMAT]

Basic Level Intensive Care Medicine:

Number each assessment in your ICM portfolio (e.g. for DOPS D1, D2 etc). Complete the table columns 'Trainee Evidence' by identifying the relevant item(s) of evidence in your portfolio by its code (D1, D2 etc).

At least one piece of suitable evidence is required for each of the relevant competencies. One assessment can be used to cover multiple curriculum competencies. The 'Assessment Tools' column describes what type of workplace-based assessment is suitable for each competency. Other types of evidence may be used to demonstrate competencies, as described in 'Additional Assessment Tools Key' below. Please ensure that the numbering of evidence items in this table matches that in your portfolio.

'CAT Target Level' indicates the final competency level for this stage of training. Trainees should **not *normally*** be marked higher than these levels at the end of CAT unless in exceptional circumstances with accompanying evidence. **Please see the full ICM Syllabus for details of the knowledge, skills and behaviours which make up each competency.**

Those competencies which **must** be achieved in the 3/12 Basic ICM block are delineated below. ICM curriculum competencies which have been cross-mapped as achievable either within the 3/12 Basic ICM module or elsewhere in Core Anaesthesia Training are shown separately in the second section of the Grid. These competencies are **not** mandatorily assessed in the 3/12 Basic ICM module **but Core Anaesthesia trainees are encouraged to map their cross-specialty competency achievement.** This will enable easy demonstration of competency acquisition should they later wish to Dual accredit in ICM.

Competency Level Descriptors			
Level	**Task orientated competence**	**Knowledge orientated competence**	**Patient management competence**
1	Performs task under direct supervision.	Very limited knowledge; requires considerable guidance to solve a problem within the area.	Can take history, examine and arrange investigations for straight forward case (limited differential diagnosis). Can initiate emergency management and continue a management plan, recognising acute divergences from the plan. Will need help to deal with these.
2	Performs task in straightforward circumstances, requires help for more difficult situations. Understands indications and complications of task.	Sound basic knowledge; requires some guidance to solve a problem within the area. Will have knowledge of appropriate guidelines and protocols.	Can take history, examine and arrange investigations in a more complicated case. Can initiate emergency management. In a straightforward case, can plan management and manage any divergences in short term. Will need help with more complicated cases.
3	Performs task in most circumstances, will need some guidance in complex situations. Can manage most	Advanced knowledge and understanding; only requires occasional advice and assistance to solve a problem.	Can take history, examine and arrange investigations in a more complex case in a focused manner. Can initiate emergency management. In a most cases, can plan management and

	complications, has a good understanding of contraindications and alternatives.	Will be able to assess evidence critically.	manage any divergences. May need specialist help for some cases.
4	Independent (consultant) practice.	Expert level of knowledge.	Specialist.

Workplace-Based Assessment Tools Key			
D	Direct Observation of Procedural Skills [DOPS]	**C**	Case-Based Discussion [CBD]
I	ICM Mini-Clinical Evaluation Exercise [I-CEX]	**M**	Multi-source Feedback [MSF]
Additional Assessment Tools Key			
L	Anaesthetic List Management Tool [ALMAT]		
EE	Educational Event		
G	Logbook page … [*include page ref, i.e. G22*]		

These competencies **must be mandatorily assessed** during 3/12 block of Basic ICM during Basic Level Anaesthetic Training:

ICM Domain and Competencies	CAT Target Level	Level Achieved	Assessment Tools	Trainee Evidence	ICM Educational Supervisor	
					Sign-off	Date
Domain 1: Resuscitation and management of the acutely ill patient						
1.1 Adopts a structured and timely approach to the recognition, assessment and stabilisation of the acutely ill patient with disordered physiology	1		I, C, M, T, S			
1.4 Triages and prioritises patients appropriately, including timely admission to ICU	1		C, M, T			
Domain 2: Diagnosis, Assessment, Investigation, Monitoring and Data Interpretation						
2.1 Obtains a history and performs an accurate clinical examination	1		I, M			
2.2 Undertakes timely and appropriate investigations	1		I, C, M			
2.4 Obtains appropriate microbiological samples and interprets results	1		D, C			
2.8 Integrates clinical findings with laboratory investigations to form a differential diagnosis	1		I, C, T, S			
Domain 3: Disease Management						
3.1 Manages the care of the critically ill patient with specific acute medical conditions	1		D, I, C, M, T, S			
3.2 Identifies the implications of chronic and co-morbid disease in the acutely ill patient	1		C			
3.3 Recognises and manages the patient with circulatory failure	1		I, C, T, S			
3.4 Manages the patient with, or at risk of, acute renal failure	1		I, C, T			
3.6 Recognises and manages the patient with neurological impairment	1		I, C, T, S			

3.9 Recognises and manages the septic patient	1		I, C, T			
Domain 4: Therapeutic interventions / Organ support in single or multiple organ failure						
4.2 Manages antimicrobial drug therapy	2		I, C, M			
4.6 Initiates, manages, and weans patients from invasive and non-invasive ventilatory support	1		D, C, T			
4.8 Recognises and manages electrolyte, glucose and acid-base disturbances	1		I, C, T, S			
Domain 5: Practical procedures						
Domain 5 competencies can be covered elsewhere in CAT or not assessed at this level						
Domain 6: Perioperative care						
6.1 Manages the pre- and post-operative care of the high risk surgical patient	1		C, M, T			
Domain 7: Comfort and recovery						
7.1 Identifies and attempts to minimise the physical and psychosocial consequences of critical illness for patients and families	1		M, C			
7.2 Manages the assessment, prevention and treatment of pain and delirium	2		D, I, C, M, T			
7.4 Communicates the continuing care requirements, including rehabilitation, of patients at ICU discharge to health care professionals, patients and relatives	1		M, T, S			
7.5 Manages the safe and timely discharge of patients from the ICU	1		M, T			
Domain 8: End of life care						
8.1 Manages the process of withholding or withdrawing treatment with the multi-disciplinary team	1		C, M			
Domain 9: Paediatric care						
9.2 Describes national legislation and guidelines relating to child protection and their relevance to critical care	1		C			
Domain 10: Transport						
10.1 Undertakes transport of the mechanically ventilated critically ill patient outside the ICU	1		D, I, C, M			
Domain 11: Patient safety and health systems management						
11.2 Complies with local infection control measures	3		C, M			
Domain 12: Professionalism						
12.8 Ensures continuity of care through effective hand-over of clinical information	2		C, M, T, S			

Basic ICM module sign-off: *To be completed following 3/12 CAT Basic ICM module and acquisition of mandatory competencies*

Trainer Signature: _____ Trainer Name (Print): _____ Date (DD/MM/YYYY) | | | |

(*ICM Educational Supervisor or FICM Tutor*)

Trainee Signature: _____ Trainee Name (Print): _____ Date (DD/MM/YYYY) | | | |

Comments:

Additional Basic level Intensive Care Medicine Competencies

These competencies are **not mandatory** for assessment within the 3/12 ICM block in Basic Level Anaesthesia. However, trainees **may** acquire them during their Basic ICM module or via the cross-mapped Anaesthetic CCT competencies detailed below – this table provides the opportunity to demonstrate this competency acquisition. Due to the competency-sampling nature of *The CCT in Anaesthetics*, trainees may not be exposed to all of the areas of practice detailed below; therefore trainees are **not** expected to record evidence against every competency listed below, only those competencies which they have acquired.

All Core level trainees are encouraged to record their cross-specialty competencies to remain pluri-potential for Dual CCTs ICM recruitment at ST3 level. Trainees who do not record cross-competency acquisition during CAT are **fully eligible** for entry to ST3 ICM, but the portfolio-mapping exercise may be useful when first entering ICM CCT and working with TPDs and trainers to determine the rest of their Stage 1 requirements.

ICM Domain and Competencies	CAT Target Level	Level Achieved	Assessment Tools	Anaesthesia CCT Competency	Trainee Evidence	ICM Educational Supervisor	
						Sign-off	Date
Domain 1: Resuscitation and management of the acutely ill patient							
1.2 Manages cardiopulmonary resuscitation – ALS recommended	3		I, M, T, S	RC_BS_01			
1.3 Manages the patient post resuscitation	1		I, M, T, S	RC_BK_21			
1.5 Assesses and provides initial management of the trauma patient	1		D, I, M, T, C, S	MT_BS_01 MT_BS_02 MT_BS_06			

Domain 2: Diagnosis, Assessment, Investigation, Monitoring and Data Interpretation							
2.3 Performs electrocardiography (ECG / EKG) and interprets the results	2		D, I, C	OA_BS_03			
2.5 Obtains and interprets the results from blood gas samples	2		D, C	OA_BS_04			
2.6 Interprets imaging studies	1		I, C	OA_BS_05			
2.7 Monitors and responds to trends in physiological variables	2		I, T, S	CI_BS_02 CI_BS_03 IG_BK_03 GU_BK_03 MT_BK_03			
Domain 3: Disease Management							
3.5 Recognises and manages the patient with, or at risk of, acute liver failure	1		I, C, T	IO_BS_10 PB_BK_78 PB_BK_79			
3.7 Recognises and manages the patient with acute gastrointestinal failure	1		I, C, T	PR_BK_55 GU_BK_05			
3.10 Recognises and manages the patient following intoxication with drugs or environmental toxins	1		I, C, S	RC_BK_01 RC_BK_02 RC_BK_16 RC_BK_18			
3.11 Recognises life-threatening maternal peripartum complications and manages care	1		I, C, S	OB_BK_06 OB_BS_11 OB_BS_12			
Domain 4: Therapeutic interventions / Organ support in single or multiple organ failure							
4. 1 Prescribes drugs and therapies safely	2		D, C, M	Annex A Domain 2: CC_D2_02 PM_BS_02 OA_BK_08 IG_BK_01 PO_BS_07 PD_BS_01			
4.3 Administers blood and blood products safely	2		D, C, M	GU_BK_06 GU_BK_07 CI_BK_24 OB_BK_06 IO_BS_09			
4.4 Uses fluids and vasoactive / inotropic drugs to support the circulation	2		I, C	ES_BK_02 MT_BK_06 PR_BK_41 PR_BK_42 PR_BK_43			

4.9 Co-ordinates and provides nutritional assessment and support	2		I, C, T	PB_BK_82 PB_BK_84 PB_BK_85 GU_BK_08 OA_BS_02			
Domain 5: Practical procedures							
5.1 Administers oxygen using a variety of administration devices	2		D, S	PO_BK_05 AM_BK_08 IAC_C06			
5.2 Performs emergency airway management	2		D, S				
5.3 Performs difficult and failed airway management according to local protocols	2		D, S	Airway Management IAC_D06 IG_BS_12			
5.4 Performs endotracheal suction	2		D	AM_BS_11 IG_BS_11			
5.7 Performs chest drain insertion	1		D	MT_BS_04			
5.8 Performs arterial catheterisation	1		D, C	MT_BK_07			
5.9 Performs ultrasound techniques for vascular localisation	1		C	AN_BK_39			
5.10 Performs central venous catheterisation	1		D, C	MT_BK_07			
5.11 Performs defibrillation and cardioversion	2		D, C, S	RC_BS_08			
5.13 Describes how to perform pericardiocentesis	1		C	RC_BK_16			
5.14 Demonstrates a method for measuring cardiac output and derived haemodynamic variables	1		D, C				
5.15 Performs lumbar puncture (intradural / 'spinal') under supervision	2		D, S	OB_BS_05			
5.16 Manages the administration of analgesia via an epidural catheter	1		I	OB_BS_04 PM_BS_03			
5.18 Describes Sengstaken tube (or equivalent) placement	1		C				
5.19 Performs nasogastric tube placement	3		D				
5.20 Performs urinary catheterisation	3		D	PO_BK_06			
Domain 6: Perioperative care							
6.5 Manages the pre- and post-operative care of the trauma patient	1		C. T	MT_BS_06 MT_BK_17			
Domain 7: Comfort and recovery							
7.3 Manages sedation and neuromuscular blockade	2		D, I, C, M, T	IO_BS_04, CS_BS_01/02			
Domain 8: End of life care							

8.2 Discusses end of life care with patients and their families / surrogates	1		C, M, D	Annex A Domain 1b: CC_D1_07 CC_D1_08 Domain 10: CC_D10_01			
Domain 9: Paediatric care							
9.2 Describes national legislation and guidelines relating to child protection and their relevance to critical care	1		C	Child Protection CP_BK_02 CP_BK_03 PA_BK_18			
Domain 10: Transport							
Domain 10 competencies are covered in 3/12 Basic ICM module or not assessed at this level							
Domain 11: Patient safety and health systems management							
11.3 Identifies environmental hazards and promotes safety for patients and staff	2		C, M	Annex A Domain 8: CC_D8_01 CC_D8_02 CC_D8_05 IF_BK_01 IF_BS_04 DI_BK_03			
11.4 Identifies and minimises risk of critical incidents and adverse events, including complications of critical illness	1		C, M	Annex A Domain 8: CC_D8_03 CC_D8_04 CC_D8_06 CI_BK_32 CI_BK			
11.6 Critically appraises and applies guidelines, protocols and care bundles	2		C	Annex A Domain 8: CC_D8_03 CC_D8_06 AR_BS_02 AR_BS_03 AR_BS_04			
11.7 Describes commonly used scoring systems for assessment of severity of illness, case mix and workload	1		C	-			

Domain 12: Professionalism							
12.1 Communicates effectively with patients and relatives	2		D, M, T, S	Annex A Domain 10			
12.2 Communicates effectively with members of the health care team	2		D, M, S	Annex A Domain 3: TF_BK_15			
12.3 Maintains accurate and legible records / documentation	2		D, M, T	Annex A Domain 1a: CC_D1_03 IO_BS_06			
12.4 Involves patients (or their surrogates if applicable) in decisions about care and treatment	1		C, M, T	Annex A Domain 10			
12.5 Demonstrates respect of cultural and religious beliefs and an awareness of their impact on decision making	2		C, M, T	Annex A Domain 1e			
12.6 Respects privacy, dignity, confidentiality and legal constraints on the use of patient data	2		C, M	Annex A Domain 9			
12.7 Collaborates and consults; promotes team-working	2		M	Annex A Domain 3			
12.9 Supports clinical staff outside the ICU to enable the delivery of effective care	2		C, M, T	Annex A Domain 4			
12.10 Appropriately supervises, and delegates to others, the delivery of patient care	1		C, M, T	Annex A Domain 8: CC_D8_01			
12.11 Takes responsibility for safe patient care	2		D, C, M, T	Annex A Domain 9 and 11			
12.12 Formulates clinical decisions with respect for ethical and legal principles	1		C, M, T	Annex A Domains 2 and 8			
12.13 Seeks learning opportunities and integrates new knowledge into clinical practice	2		M	Annex G			
12.14 Participates in multidisciplinary teaching	3		M	Annex G			
12.15 Participates in research or audit under supervision	2		M	Annex A Domain 3			

Intermediate Level Intensive Care Medicine:

Number each assessment in your ICM portfolio (e.g. for DOPS D1, D2 etc). Complete the table columns 'Trainee Evidence' by identifying the relevant item(s) of evidence in your portfolio by its code (D1, D2 etc).

At least one piece of suitable evidence is required for each of the relevant competencies. One assessment can be used to cover multiple curriculum competencies. The 'Assessment Tools' column describes what type of workplace-based assessment is suitable for each competency. Other types of evidence may be used to demonstrate competencies, as described in 'Additional Assessment Tools Key' below. Please ensure that the numbering of evidence items in this table matches that in your portfolio.

'INT Target Level' indicates the final competency level for this stage of training. Trainees should **not *normally*** be marked higher than these levels at the end of Intermediate training unless in exceptional circumstances with accompanying evidence. 'Entry Levels' shows the levels at which trainees will enter Intermediate level training from Core Anaesthetics (CAT). **Please see the full ICM Syllabus for details of the knowledge, skills and behaviours which make up each competency.** Achievement Levels for some competencies may not change between training stages – these have been highlighted. In these instances Educational Supervisors must still sign-off each competency but trainees need not provide additional WPBA or assessment evidence if trainers are satisfied they have demonstrated maintenance of their skills and knowledge in these specific competencies. Further assessments in these competencies may be conducted if required. Competencies not assessed at this stage (level 0) have been removed.

Those competencies which **must** be achieved in the 3/12 Intermediate ICM block are delineated below. ICM curriculum competencies which have been cross-mapped as achievable either within the 3/12 Intermediate ICM module or elsewhere in Anaesthesia training are shown separately. These competencies are **not** mandatorily assessed in the 3/12 Intermediate ICM module **but Anaesthesia trainees are encouraged to map their cross-specialty competency achievement.** This will enable easy demonstration of competency acquisition should they later wish to Dual accredit in ICM. **Anaesthesia trainees already undertaking Dual CCTs with ICM should use the ICM curriculum Stage 2 Training Record instead of this form to demonstrate their continued competency development.**

Competency Level Descriptors			
Level	**Task orientated competence**	**Knowledge orientated competence**	**Patient management competence**
1	Performs task under direct supervision.	Very limited knowledge; requires considerable guidance to solve a problem within the area.	Can take history, examine and arrange investigations for straight forward case (limited differential diagnosis). Can initiate emergency management and continue a management plan, recognising acute divergences from the plan. Will need help to deal with these.
2	Performs task in straightforward circumstances, requires help for more difficult situations. Understands indications and complications of task.	Sound basic knowledge; requires some guidance to solve a problem within the area. Will have knowledge of appropriate guidelines and protocols.	Can take history, examine and arrange investigations in a more complicated case. Can initiate emergency management. In a straightforward case, can plan management and manage any divergences in short term. Will need help with more complicated cases.

3	Performs task in most circumstances, will need some guidance in complex situations. Can manage most complications, has a good understanding of contraindications and alternatives.	Advanced knowledge and understanding; only requires occasional advice and assistance to solve a problem. Will be able to assess evidence critically.	Can take history, examine and arrange investigations in a more complex case in a focused manner. Can initiate emergency management. In a most cases, can plan management and manage any divergences. May need specialist help for some cases.
4	Independent (consultant) practice.	Expert level of knowledge.	Specialist.

Workplace-Based Assessment Tools Key			
D	Direct Observation of Procedural Skills [DOPS]	**C**	Case-Based Discussion [CBD]
I	ICM Mini-Clinical Evaluation Exercise [I-CEX]	**M**	Multi-source Feedback [MSF]
Additional Assessment Tools Key			
L	Anaesthetic List Management Tool [ALMAT]		
EE	Educational Event		
G	Logbook page … [*include page ref, i.e. G22*]		

These competencies **must be mandatorily assessed** during 3/12 block of ICM during Intermediate Level Anaesthetic training:

Domain and Competencies	Entry Level	INT Target Level	Level Achieved	Assessment Tools	Trainee Evidence	Educational Supervisor	
						Sign-off	Date
Domain 1: Resuscitation and management of the acutely ill patient							
1.1 Adopts a structured and timely approach to the recognition, assessment and stabilisation of the acutely ill patient with disordered physiology	1	2		I, C, M, T, S			
1.4 Triages and prioritises patients appropriately, including timely admission to ICU	1	2		C, M, T			
1.5 Assesses and provides initial management of the trauma patient	1	2		D, I, M, T, C, S			
Domain 2: Diagnosis, Assessment, Investigation, Monitoring and Data Interpretation							
2.1 Obtains a history and performs an accurate clinical examination	1	2		I, M			
2.2 Undertakes timely and appropriate investigations	1	2		I, C, M			
2.4 Obtains appropriate microbiological samples and interprets results	1	2		D, C			
2.6 Interprets imaging studies	1	2		I, C			
2.8 Integrates clinical findings with laboratory investigations to form a differential diagnosis	1	2		I, C, T, S			
Domain 3: Disease Management							
3.1 Manages the care of the critically ill patient with specific acute medical conditions	1	2		D, I, C, M, T, S			
3.2 Identifies the implications of chronic and co-morbid disease in the acutely ill patient	1	2		C			
3.3 Recognises and manages the patient with circulatory failure	1	2		I, C, T, S			

3.4 Recognises and manages the patient with, or at risk of, acute renal failure	1	2		I, C, T			
3.6 Recognises and manages the patient with neurological impairment	1	2		I, C, T, S			
3.8 Recognises and manages the patient with severe acute respiratory failure / acute lung injury syndromes (ALI / ARDS)	1	2		I, C, T			
3.9 Recognises and manages the septic patient	1	2		I, C, T			
Domain 4: Therapeutic interventions / Organ support in single or multiple organ failure							
4.2 Manages antimicrobial drug therapy	2	2		I, C, M			
4.6 Initiates, manages, and weans patients from invasive and non-invasive ventilatory support	1	2		D, C, T			
4.7 Initiates, manages and weans patients from renal replacement therapy	0	1		D, I, C, T			
Domain 5: Practical procedures							
5.5 Performs fibreoptic bronchoscopy and BAL in the intubated patient	0	2		D, M			
Domain 6: Perioperative care							
6.1 Manages the pre- and post-operative care of the high risk surgical patient	1	3		C, M, T			
6.5 Manages the pre- and post-operative care of the trauma patient	1	2		C. T			
Domain 7: Comfort and recovery							
7.1 Identifies and attempts to minimise the physical and psychosocial consequences of critical illness for patients and families	1	2		M, C			
7.2 Manages the assessment, prevention and treatment of pain and delirium	2	2		D, I, C, M, T			
7.3 Manages sedation and neuromuscular blockade	2	3		D, I, C, M, T			
7.4 Communicates the continuing care requirements, including rehabilitation, of patients at ICU discharge to health care professionals, patients and relatives	1	2		M, T, S			
7.5 Manages the safe and timely discharge of patients from the ICU	1	2		M, T			
Domain 8: End of life care							
8.1 Manages the process of withholding or withdrawing treatment with the multi-disciplinary team	1	1		C, M			
8.2 Discusses end of life care with patients and their families / surrogates	1	2		C, M, D			
8.3 Manages palliative care of the critically ill patient	0	1		C, M, T			
8.4 Performs brain-stem death testing	0	1		D, S			
8.5 Manages the physiological support of the organ donor	0	1		I, C			
8.6 Manages donation following cardiac death	0	1		C, T, S			
Domain 9: Paediatric care							
Domain 9 competencies can be covered elsewhere in Anaesthesia or entered below if achieved within ICM module							
Domain 10: Transport							
10.1 Undertakes transport of the mechanically ventilated critically ill patient outside the ICU	1	2		D, I, C, M, S			
Domain 11: Patient safety and health systems management							
11.1 Leads a daily multidisciplinary ward round	0	1		M, T			

11.2 Complies with local infection control measures	3	3		C, M			
11.7 Describes commonly used scoring systems for assessment of severity of illness, case mix and workload	1	2		C			
11.8 Demonstrates an understanding of the managerial and administrative responsibilities of the ICM specialist	0	1		C, M			
Domain 12: Professionalism							
12.8 Ensures continuity of care through effective hand- over of clinical information	2	3		C, M, T, S			

Intermediate ICM module sign-off: *To be completed following 3/12 Anaesthetic Intermediate ICM module and acquisition of mandatory competencies*

Trainer Signature: _____ Trainer Name (Print): _____ Date (DD/MM/YYYY) | | | |

(*ICM Educational Supervisor or FICM Tutor*)

Trainee Signature: _____ Trainee Name (Print): _____ Date (DD/MM/YYYY) | | | |

Comments:

Additional Intermediate level Intensive Care Medicine Competencies

These competencies are **not mandatory** for assessment within the 3/12 ICM block in Intermediate Level Anaesthesia. However, trainees **may** acquire them during their Intermediate ICM module or via the cross-mapped Anaesthetic CCT competencies detailed below – this table provides the opportunity to demonstrate this competency acquisition. Due to the competency-sampling nature of *The CCT in Anaesthetics*, trainees may not be exposed to all of the areas of practice detailed below; therefore trainees are **not** expected to record evidence against every competency listed below, only those competencies which they have acquired.

All trainees are <u>encouraged</u> to record their cross-specialty competencies to remain pluri-potential for Dual CCTs ICM recruitment at ST3 level. Trainees who do not record additional cross-competency acquisition during Intermediate Anaesthesia are **fully eligible** for entry to ST3 ICM, but the below portfolio-mapping exercise may be useful when first entering ICM CCT and working with TPDs and trainers to determine the rest of their Stage 1 requirements.

Domain and Competencies	Entry Level	INT Target Level	Level Achieved	Assessment Tools	Anaesthesia CCT Competency	Trainee Evidence	ICM Educational Supervisor	
							Sign-off	Date
Domain 1: Resuscitation and management of the acutely ill patient								
1.2 Manages cardiopulmonary resuscitation – ALS recommended	3	3		I, M, T, S	RC_IS_05			
1.3 Manages the patient post resuscitation	1	2		I, M, T, S	RC_BK_21			
1.6 Assesses and provides initial management of the patient with burns	0	1		D, I, M, T, C	PL_IS_03 MT_IK_05			
1.7 Describes the management of mass casualties	0	1		C				
Domain 2: Diagnosis, Assessment, Investigation, Monitoring and Data Interpretation								
2.3 Performs electrocardiography (ECG / EKG) and interprets the results	2	3		D, I, C	OA_BS_03			
2.5 Obtains and interprets the results from blood gas samples	2	2		D, C	OA_BS_04			
2.7 Monitors and responds to trends in physiological variables	2	2		I, T, S	MT_IS_04			
Domain 3: Disease Management								
3.5 Recognises and manages the patient with, or at risk of, acute liver failure	0	1		I, C, T	PB_IK_16 PB_IK_17			
3.7 Recognises and manages the patient with acute gastrointestinal failure	1	2		I, C, T	PB_IK_31 PB_IK_32			
3.10 Recognises and manages the patient following intoxication with drugs or environmental toxins	1	2		I, C, S	RC_IS_02 PR_IK_17			
3.11 Recognises life-threatening maternal peripartum complications and manages care	1	2		I, C, S	OB_IK_04 OB_IK_05 OB_IK_06 OB_IK_07 OB_IK_08 OB_IS_11			
Domain 4: Therapeutic interventions / Organ support in single or multiple organ failure								

4. 1 Prescribes drugs and therapies safely	2	3		D, C, M	Annex A Domain 2: CC_D2_02 PA_IS_07 PM_BS_02 PM_IS_02 PM_IS_03				
4.3 Administers blood and blood products safely	2	3		D, C, M	GU_IS_03				
4.4 Uses fluids and vasoactive / inotropic drugs to support the circulation	2	3		I, C	CT_IK_16 CT_IS_05 CT_IS_06 PA_IS_01 PR_IK_06				
4.8 Recognises and manages electrolyte, glucose and acid-base disturbances	1	2		I, C, T, S	PA_IK_14 PB_IK_10 PB_IK_15 PB_IK_38 NA_IK_20				
4.9 Co-ordinates and provides nutritional assessment and support	2	2		I, C, T	PA_IS_05 PR_IK_15 NU_IK_01 NU_IK_02 NU_IK_03 NU_IK_04 NU_IK_05 NU_IK_06 NU_IK_07 NU_IK_08				
Domain 5: Practical procedures									
5.1 Administers oxygen using a variety of administration devices	2	3		D, S	EN_IS_10 EN_IS_03				
5.2 Performs emergency airway management	2	3		D, S					
5.3 Performs difficult and failed airway management according to local protocols	2	3		D, S	Airway Management				
5.4 Performs endotracheal suction	2	2		D	AM_BS_11				
5.7 Performs chest drain insertion	1	2		D	MT_BS_04				
5.8 Performs arterial catheterisation	1	3		D, C	NA_IS_10 CT_IS_05				
5.9 Performs ultrasound techniques for vascular localisation	1	3		C	CT_IS_05				
5.10 Performs central venous catheterisation	1	3		D, C	CT_IS_05				

5.11 Performs defibrillation and cardioversion	2	2		D, C, S	RC_BS_08 CT_IS_07 RC_IS_02				
5.12 Performs transthoracic cardiac pacing, describes transvenous	0	1		D, C	RC_IK_04 RC_IS_01				
5.13 Describes how to perform pericardiocentesis	1	1		C					
5.14 Demonstrates a method for measuring cardiac output and derived haemodynamic variables	1	3		D, C	CT_IS_05				
5.15 Performs lumbar puncture (intradural / 'spinal') under supervision	2	3		D, S	RA_IS_02				
5.16 Manages the administration of analgesia via an epidural catheter	1	3		I	OB_IS_06				
5.18 Describes Sengstaken tube (or equivalent) placement	1	1		C					
5.19 Performs nasogastric tube placement	3	4		D					
5.20 Performs urinary catheterisation	3	3		D					
Domain 6: Perioperative care									
6.2 Manages the care of the patient following cardiac surgery	0	1		C	CT_IS_03 CT_IS_04				
6.3 Manages the care of the patient following craniotomy	0	1		C, T	NA_IS_03 NA_IS_05 NA_IS_14				
Domain 7: Comfort and recovery									
Domain 7 competencies assessed mandatorily within ICM module									
Domain 8: End of life care									
Domain 8 competencies assessed mandatorily within ICM module									
Domain 9: Paediatric care									
9.1 Describes the recognition of the acutely ill child and initial management of paediatric emergencies	1	2		I, C, S	PA_IK_14				
9.2 Describes national legislation and guidelines relating to child protection and their relevance to critical care	1	2		C	Child Protection				
Domain 10: Transport									
Domain 10 competencies assessed mandatorily within ICM module									
Domain 11: Patient safety and health systems management									
11.3 Identifies environmental hazards and promotes safety for patients and staff	2	2		C, M	Annex A Domain 8: CC_D8_01 CC_D8_02 CC_D8_05				

11.4 Identifies and minimises risk of critical incidents and adverse events, including complications of critical illness	1	2		C, M	Annex A Domain 8: CC_D8_03 CC_D8_04 CC_D8_06 CI_IK_01				
11.6 Critically appraises and applies guidelines, protocols and care bundles	2	3		C	Annex A Domain 8: CC_D8_03C C_D8_06 AR_IS_01				
Domain 12: Professionalism									
12.1 Communicates effectively with patients and relatives	2	3		D, M, T, S	Annex A Domain 10				
12.2 Communicates effectively with members of the health care team	2	3		D, M, S	Annex A Domain 3				
12.3 Maintains accurate and legible records / documentation	2	3		D, M, T	Annex A Domain 1a: CC_D1_03				
12.4 Involves patients (or their surrogates if applicable) in decisions about care and treatment	1	2		C, M, T	Annex A Domain 10				
12.5 Demonstrates respect of cultural and religious beliefs and an awareness of their impact on decision making	2	2		C, M, T	Annex A Domain 1e				
12.6 Respects privacy, dignity, confidentiality and legal constraints on the use of patient data	2	3		C, M	Annex A Domain 9				
12.7 Collaborates and consults; promotes team-working	2	2		M	Annex A Domain 3				
12.9 Supports clinical staff outside the ICU to enable the delivery of effective care	2	2		C, M, T	Annex A Domain 4				
12.10 Appropriately supervises, and delegates to others, the delivery of patient care	1	2		C, M, T	Annex A Domain 8: CC_D8_01				
12.11 Takes responsibility for safe patient care	2	3		D, C, M, T	Annex A Domain 9 and 11				
12.12 Formulates clinical decisions with respect for ethical and legal principles	1	2		C, M, T	Annex A Domains 2 and 8				

12.13 Seeks learning opportunities and integrates new knowledge into clinical practice	2	3		M	Annex G,			
12.14 Participates in multidisciplinary teaching	3	3		M	Annex G			
12.15 Participates in research or audit under supervision	2	2		M	Annex A Domain 3			

Higher Level Intensive Care Medicine:

Number each assessment in your ICM portfolio (e.g. for DOPS D1, D2 etc). Complete the table columns 'Trainee Evidence' by identifying the relevant item(s) of evidence in your portfolio by its code (D1, D2 etc).

At least one piece of suitable evidence is required for each of the relevant competencies. One assessment can be used to cover multiple curriculum competencies. The 'Assessment Tools' column describes what type of workplace-based assessment is suitable for each competency. Other types of evidence may be used to demonstrate competencies, as described in 'Additional Assessment Tools Key' below. Please ensure that the numbering of evidence items in this table matches that in your portfolio.

'HIGHER Target Level' indicates the final competency level for this stage of training. Trainees should **not *normally*** be marked higher than these levels at the end of Higher training unless in exceptional circumstances with accompanying evidence. 'Entry Levels' shows the levels at which trainees will enter Higher level training from Intermediate Anaesthesia. **Please see the full ICM Syllabus for details of the knowledge, skills and behaviours which make up each competency.** Achievement Levels for some competencies may not change between training stages – these have been highlighted. In these instances Educational Supervisors must still sign-off each competency but trainees need not provide additional WPBA or assessment evidence if trainers are satisfied they have demonstrated maintenance of their skills and knowledge in these specific competencies. Further assessments in these competencies may be conducted if required. Please note that there are no level 0 competencies at this stage of training.

Those competencies which **must** be achieved in the 3/12 Higher ICM block are delineated below. ICM curriculum competencies which have been cross-mapped as achievable either within the 3/12 Intermediate ICM module or elsewhere in Anaesthesia training are shown separately. These competencies are **not** mandatorily assessed in the 3/12 Intermediate ICM module **but Anaesthesia trainees are encouraged to map their cross-specialty competency achievement.** This will enable easy demonstration of competency acquisition should they later wish to Dual accredit in ICM. **Anaesthesia trainees <u>already</u> undertaking Dual CCTs with ICM should use the ICM curriculum Stage 2 Training Record instead of this form to demonstrate their continued competency development.**

Competency Level Descriptors			
Level	**Task orientated competence**	**Knowledge orientated competence**	**Patient management competence**
1	Performs task under direct supervision.	Very limited knowledge; requires considerable guidance to solve a problem within the area.	Can take history, examine and arrange investigations for straight forward case (limited differential diagnosis). Can initiate emergency management and continue a management plan, recognising acute divergences from the plan. Will need help to deal with these.
2	Performs task in straightforward circumstances, requires help for more difficult situations. Understands indications and complications of task.	Sound basic knowledge; requires some guidance to solve a problem within the area. Will have knowledge of appropriate guidelines and protocols.	Can take history, examine and arrange investigations in a more complicated case. Can initiate emergency management. In a straightforward case, can plan management and manage any divergences in short term. Will need help with more complicated cases.

3	Performs task in most circumstances, will need some guidance in complex situations. Can manage most complications, has a good understanding of contraindications and alternatives.	Advanced knowledge and understanding; only requires occasional advice and assistance to solve a problem. Will be able to assess evidence critically.	Can take history, examine and arrange investigations in a more complex case in a focused manner. Can initiate emergency management. In a most cases, can plan management and manage any divergences. May need specialist help for some cases.
4	Independent (consultant) practice.	Expert level of knowledge.	Specialist.

Workplace-Based Assessment Tools Key			
D	Direct Observation of Procedural Skills [DOPS]	**C**	Case-Based Discussion [CBD]
I	ICM Mini-Clinical Evaluation Exercise [I-CEX]	**M**	Multi-source Feedback [MSF]
Additional Assessment Tools Key			
L	Anaesthetic List Management Tool [ALMAT]		
EE	Educational Event		
G	Logbook page … [*include page ref, i.e. G22*]		

Higher level ICM within *The CCT in Anaesthetics*

These competencies **must be mandatorily assessed** during 3/12 block of ICM during Higher Level Anaesthetic training:

ICM Domain and Competencies	Entry Level	HIGHER Target Level	Level Achieved	Assessment Tools	Trainee Evidence	Educational Supervisor	
						Sign-off	Date
Domain 1: Resuscitation and management of the acutely ill patient							
1.1 Adopts a structured and timely approach to the recognition, assessment and stabilisation of the acutely ill patient with disordered physiology	2	3		I, C, M, T, S			
1.4 Triages and prioritises patients appropriately, including timely admission to ICU	2	3		C, M, T			
1.5 Assesses and provides initial management of the trauma patient	2	3		D, I, M, T, C, S			
Domain 2: Diagnosis, Assessment, Investigation, Monitoring and Data Interpretation							
2.1 Obtains a history and performs an accurate clinical examination	2	3		I, M			
2.2 Undertakes timely and appropriate investigations	2	3		I, C, M			
2.4 Obtains appropriate microbiological samples and interprets results	2	3		D, C			
2.6 Interprets imaging studies	2	3		I, C			

2.8 Integrates clinical findings with laboratory investigations to form a differential diagnosis	2	2		I, C, T, S			
Domain 3: Disease Management							
3.1 Manages the care of the critically ill patient with specific acute medical conditions	2	2		D, I, C, M, T, S			
3.2 Identifies the implications of chronic and co-morbid disease in the acutely ill patient	2	2		C			
3.3 Recognises and manages the patient with circulatory failure	2	3		I, C, T, S			
3.4 Recognises and manages the patient with, or at risk of, acute renal failure	2	3		I, C, T			
3.6 Recognises and manages the patient with neurological impairment	2	3		I, C, T, S			
3.8 Recognises and manages the patient with severe acute respiratory failure / acute lung injury syndromes (ALI / ARDS)	2	3		I, C, T			
3.9 Recognises and manages the septic patient	2	3		I, C, T			
Domain 4: Therapeutic interventions / Organ support in single or multiple organ failure							
4.2 Manages antimicrobial drug therapy	2	3		I, C, M			
4.5 Describes the use of mechanical assist devices to support the circulation	0	1		C			
4.6 Initiates, manages, and weans patients from invasive and non-invasive ventilatory support	2	3		D, C, T			
4.7 Initiates, manages and weans patients from renal replacement therapy	1	2		D, I, C, T			
Domain 5: Practical procedures							
5.5 Performs fibreoptic bronchoscopy and BAL in the intubated patient	2	3		D, M			
Domain 6: Perioperative care							
6.1 Manages the pre- and post-operative care of the high risk surgical patient	3	4		C, M, T			
6.5 Manages the pre- and post-operative care of the trauma patient	2	3		C. T			
Domain 7: Comfort and recovery							
7.1 Identifies and attempts to minimise the physical and psychosocial consequences of critical illness for patients and families	2	3		M, C			
7.2 Manages the assessment, prevention and treatment of pain and delirium	2	3		D, I, C, M, T			
7.3 Manages sedation and neuromuscular blockade	3	3		D, I, C, M, T			
7.4 Communicates the continuing care requirements, including rehabilitation, of patients at ICU discharge to health care professionals, patients and relatives	2	3		M, T, S			
7.5 Manages the safe and timely discharge of patients from the ICU	2	2		M, T			
Domain 8: End of life care							
8.1 Manages the process of withholding or withdrawing treatment with the multi-disciplinary team	1	2		C, M			
8.2 Discusses end of life care with patients and their families / surrogates	2	3		C, M, D			
8.3 Manages palliative care of the critically ill patient	1	2		C, M, T			
8.4 Performs brain-stem death testing	1	2		D, S			
8.5 Manages the physiological support of the organ donor	1	2		I, C			

8.6 Manages donation following cardiac death	1	2		C, T, S			
Domain 9: Paediatric care							
Domain 9 competencies can be covered elsewhere in Anaesthesia or entered below if achieved within ICM module							
Domain 10: Transport							
10.1 Undertakes transport of the mechanically ventilated critically ill patient outside the ICU	2	3		D, I, C, M, S			
Domain 11: Patient safety and health systems management							
11.1 Leads a daily multidisciplinary ward round	1	2		M			
11.2 Complies with local infection control measures	3	4		C, M			
11.7 Describes commonly used scoring systems for assessment of severity of illness, case mix and workload	2	3		C			
11.8 Demonstrates an understanding of the managerial and administrative responsibilities of the ICM specialist	1	2		C, M			
Domain 12: Professionalism							
12.8 Ensures continuity of care through effective hand- over of clinical information	3	4		C, M, T, S			

Higher ICM module sign-off: *To be completed following 3/12 Anaesthetic Higher ICM module and acquisition of mandatory competencies*

Trainer Signature: _____ Trainer Name (Print): _____ Trainer GMC Number: _____ Date (DD/MM/YYYY) | | | |

(*ICM Educational Supervisor or FICM Tutor*)

Trainee Signature: _____ Trainee Name (Print): _____ Trainee GMC Number: _____ Date (DD/MM/YYYY) | | | |

Comments:

Additional Higher level Intensive Care Medicine Competencies

These competencies are **not mandatory** for assessment within the 3/12 ICM block in Higher Level Anaesthesia. However, trainees **may** acquire them during their Higher ICM module or via the cross-mapped Anaesthetic CCT competencies detailed below – this table provides the opportunity to demonstrate this competency acquisition. Due to the competency-sampling nature of *The CCT in Anaesthetics*, trainees may not be exposed to all of the areas of practice detailed below; therefore trainees are **not** expected to record evidence against every competency listed below, only those competencies which they have acquired.

All trainees are encouraged to record their cross-specialty competencies to remain pluri-potential for Dual CCTs ICM recruitment at ST3 level. Trainees who do not record additional cross-competency acquisition during Intermediate Anaesthesia are **fully eligible** for entry to ST3 ICM, but the below portfolio-mapping exercise may be useful when first entering ICM CCT and working with TPDs and trainers to determine the rest of their Stage 1 requirements.

ICM Domain and Competencies	Entry Level	HIGHER Target Level	Level Achieved	Assessment Tools	Anaesthesia CCT Competency	Trainee Evidence	ICM Educational Supervisor	
							Sign-off	Date
Domain 1: Resuscitation and management of the acutely ill patient								
1.2 Manages cardiopulmonary resuscitation – ALS recommended	3	4		I, M, T, S	RC_HS_02			
1.3 Manages the patient post resuscitation	2	3		I, M, T, S	RC_HS_02			
1.6 Assesses and provides initial management of the patient with burns	1	2		D, I, M, T, C	PL_IS_03 PL_HS_03 PL_HS_04			
1.7 Describes the management of mass casualties	1	2		C	MT_HK_01 MT_HK_03			
Domain 2: Diagnosis, Assessment, Investigation, Monitoring and Data Interpretation								
2.3 Performs electrocardiography (ECG / EKG) and interprets the results	3	4		D, I, C	OA_BS_03			
2.5 Obtains and interprets the results from blood gas samples	2	3		D, C	OA_BS_04			
2.7 Monitors and responds to trends in physiological variables	2	3		I, T, S	MT_HK_02			
Domain 3: Disease Management								
3.5 Recognises and manages the patient with, or at risk of, acute liver failure	1	2		I, C, T				
3.7 Recognises and manages the patient with acute gastrointestinal failure	2	2		I, C, T				
3.10 Recognises and manages the patient following intoxication with drugs or environmental toxins	2	3		I, C, S				
3.11 Recognises life-threatening maternal peripartum complications and manages care	2	3		I, C, S	Annex B, C, D			
Domain 4: Therapeutic interventions / Organ support in single or multiple organ failure								
4. 1 Prescribes drugs and therapies safely	3	4		D, C, M	Annex A Domain 2: CC_D2_02			
4.3 Administers blood and blood products safely	3	4		D, C, M	GU_HS_03 GU_HS_04			
4.4 Uses fluids and vasoactive / inotropic drugs to support the circulation	3	4		I, C	GU_IS_03			

4.8 Recognises and manages electrolyte, glucose and acid-base disturbances	2	3		I, C, T, S	PA_HS_05 PI_HK_04				
4.9 Co-ordinates and provides nutritional assessment and support	2	2		I, C, T	PA_IS_05 PR_IK_15 NU_IK_01 NU_IK_02 NU_IK_03 NU_IK_04 NU_IK_05 NU_IK_06 NU_IK_07 NU_IK_08 EN_HK_05				
Domain 5: Practical procedures									
5.1 Administers oxygen using a variety of administration devices	3	4		D, S					
5.2 Performs emergency airway management	3	4		D, S	RC_HS_01				
5.3 Performs difficult and failed airway management according to local protocols	3	4		D, S	Airway Management RC_HS_01				
5.4 Performs endotracheal suction	2	4		D	AM_BS_11				
5.6 Performs percutaneous tracheostomy	0	1		D, M, S					
5.7 Performs chest drain insertion	2	3		D	MT_BS_04 MA_HS_02 CT_HS_17				
5.8 Performs arterial catheterisation	3	4		D, C					
5.9 Performs ultrasound techniques for vascular localisation	3	4		C					
5.10 Performs central venous catheterisation	3	4		D, C					
5.11 Performs defibrillation and cardioversion	2	3		D, C, S	RC_BS_08				
5.12 Performs transthoracic cardiac pacing, describes transvenous	1	2		D, C					
5.13 Describes how to perform pericardiocentesis	1	1		C					
5.14 Demonstrates a method for measuring cardiac output and derived haemodynamic variables	3	4		D, C					
5.15 Performs lumbar puncture (intradural / 'spinal') under supervision	3	4		D, S					
5.16 Manages the administration of analgesia via an epidural catheter	3	4		I					
5.17 Performs abdominal paracentesis	0	1		D, S					
5.18 Describes Sengstaken tube (or equivalent) placement	1	1		C					
5.19 Performs nasogastric tube placement	4	4		D					
5.20 Performs urinary catheterisation	3	3		D					
Domain 6: Perioperative care									

6.2 Manages the care of the patient following cardiac surgery	1	2		C	CT_HS_07				
6.3 Manages the care of the patient following craniotomy	1	2		C, T	NA_IS_03 NA_IS_14				
6.4 Manages the care of the patient following solid organ transplantation	0	1		C					
Domain 7: Comfort and recovery									
Domain 7 competencies assessed mandatorily within ICM module									
Domain 8: End of life care									
Domain 8 competencies assessed mandatorily within ICM module									
Domain 9: Paediatric care									
9.1 Describes the recognition of the acutely ill child and initial management of paediatric emergencies	2	2		I, C, S	PA_HS_10 PA_HS_11				
9.2 Describes national legislation and guidelines relating to child protection and their relevance to critical care	2	3		C	Child Protection				
Domain 10: Transport									
Domain 10 competencies assessed mandatorily within ICM module									
Domain 11: Patient safety and health systems management									
11.3 Identifies environmental hazards and promotes safety for patients and staff	2	3		C, M	Annex A Domain 8: CC_D8_01 CC_D8_02 CC_D8_05				
11.4 Identifies and minimises risk of critical incidents and adverse events, including complications of critical illness	2	3		C, M	Annex A Domain 8: CC_D8_03 CC_D8_04 CC_D8_06				
11.5 Organises a case conference	0	1		C, M	MN_HS_01				
11.6 Critically appraises and applies guidelines, protocols and care bundles	3	3		C	Annex A Domain 8: CC_D8_03C C_D8_06				
Domain 12: Professionalism									
12.1 Communicates effectively with patients and relatives	3	3		D, M, T, S	Annex A Domain 10				
12.2 Communicates effectively with members of the health care team	3	3		D, M, S	Annex A Domain 3				
12.3 Maintains accurate and legible records / documentation	3	4		D, M, T	Annex A Domain 1a: CC_D1_03				

12.4 Involves patients (or their surrogates if applicable) in decisions about care and treatment	2	3		C, M, T	Annex A Domain 10				
12.5 Demonstrates respect of cultural and religious beliefs and an awareness of their impact on decision making	2	3		C, M, T	Annex A Domain 1e				
12.6 Respects privacy, dignity, confidentiality and legal constraints on the use of patient data	3	4		C, M	Annex A Domain 9				
12.7 Collaborates and consults; promotes team-working	2	3		M	Annex A Domain 3				
12.9 Supports clinical staff outside the ICU to enable the delivery of effective care	2	3		C, M, T	Annex A Domain 4				
12.10 Appropriately supervises, and delegates to others, the delivery of patient care	2	3		C, M, T	Annex A Domain 8: CC_D8_01				
12.11 Takes responsibility for safe patient care	3	4		D, C, M, T	Annex A Domain 9 and 11				
12.12 Formulates clinical decisions with respect for ethical and legal principles	2	3		C, M, T	Annex A Domains 2 and 8				
12.13 Seeks learning opportunities and integrates new knowledge into clinical practice	3	4		M	Annex G				
12.14 Participates in multidisciplinary teaching	3	4		M	Annex G				
12.15 Participates in research or audit under supervision	2	3		M	Annex A Domain 3				

ICM Module Educational Agreement

Trainee: ………………………………….….. **Educational Supervisor:** ……………………..……….…..……….…....

Attachment

Hospital & ICU: …….……….

Level of Training aiming towards: ………………………………….……… **Date:** ……….. /……….. /……..…

Objectives

Clinical management:

Practical procedures:

ICU management: Examinations:

Audit, research, presentations:

Teaching:

Number of assessments during attachment: ……………………………………………….……

I agree to complete and keep up to date the appropriate training documents relevant to this ICM attachment and that the result of any assessment of this attachment can be passed on to my next training supervisor.

Date of review of progress in achieving educational goals: ……….. /……….. /……..…

Signature Trainee: …………………………………… **Signature Trainer:** ……………………………………………

Royal College of Anaesthetists

CCT in Anaesthetics

Annex G
Teaching and Training, Academic and Research (including Audit), Quality Improvement, and Management for Anaesthesia, Critical Care and Pain Medicine

Edition 2 | August 2010 | Version 1.8

Table of Contents

Academic and research [including Audit]

Basic level

Learning outcomes:

- Understands and commits to the principles of evidence based practice. Is expert at finding evidence, standards and guidelines
- Contributes actively to the local processes of auditing clinical performance against agreed standards
- Commits to the belief that evidence based practice improves patient safety and clinical outcomes
- Commits to openness in audit including inter-professional cooperation and the principle of making outcomes available to patients
- Understands the principles of scientific enquiry in medical practice
- Can read and evaluate a report of medical research in their area of practice including a consideration of the numerical analysis
- Can present a topic at an audit, clinical governance meeting and/or journal club
- Passed Primary FRCA

Assessment

- Has recorded satisfactory attendance at local audit, M & M, MDT and journal club meetings
- Reflective portfolio of attendances
- Has engaged in audit personally
- Passed primary exam

Knowledge		
Competence	*Description*	*GMP*
	Evidence based practice	
AR_BK_01	Outlines levels of evidence and quality of evidence and explain the implications for practice	1
AR_BK_02	Understands the processes that result in nationally applicable guidelines e.g. NICE and SIGN	1
AR_BK_03	Recognises the common need to practice outside clinical guidelines	1
	Monitoring practice	
AR_BK_04	Explains critical incident reporting, including but not exclusively:	1,2

Knowledge		
Competence	*Description*	*GMP*
	• Purpose and value • Local and national methods • Pros and cons of anonymity	
AR_BK_05	Understands the steps involved in completing the audit cycle	1
AR_BK_06	Understands the different methods of obtaining data for audit including patient feedback questionnaires, hospital sources and national reference data	1
AR_BK_07	Understands the role of audit including but not exclusively improving patient care and services, risk management etc	1
Developing practice		
AR_BK_09	Explains the scientific basis of clinical practice	1
AR_BK_10	Outlines the differences between audit and research	1
AR_BK_11	Understands the use and differences between the basic measures of risk and uncertainty	1,2
AR_BK_12	Knows the basis of the numerical methods commonly used in quantitative research	1
AR_BK_13	Know the advantages and disadvantages of different study methodologies [quantitative and qualitative] for different types of questions	1
AR_BK_14	Explains how to assess the appropriateness of the statistical methods used to analyse research data	1
AR_BK_15	Explains how to interpret clinical data and deal with artefact and error	1
AR_BK_16	Explains how relative and absolute risks are derived and the meaning of the terms predictive value, sensitivity and specificity in relation to diagnostic tests	1,2

Skills		
Competence	*Description*	*GMP*
Evidence based practice		
AR_BS_01	Able to search the medical literature including using PubMed, Medline, Cochrane reviews and the internet	1
AR_BS_02	Appraises retrieved evidence to address a clinical question	1
AR_BS_03	Applies conclusions from critical appraisal into clinical care	1

Skills		
Competence	*Description*	*GMP*
AR_BS_04	Aims for best clinical practice [clinical effectiveness] at all times, as informed by evidence based medicine	1
AR_BS_05	Able to explain the evidence base of clinical care to patients and to other members of the clinical team	1,3
AR_BS_06	Communicates risk information, and risk-benefit trade-offs, in ways appropriate for individual patients	1,2,3,4
AR_BS_07	Keeps up to date with national reviews, key new research, and guidelines of practice e.g. NICE and SIGN	1,2
Monitoring practice		
AR_BS_08	Recognises knowledge gaps, and keeps a logbook of clinical questions Portfolio	1
AR_BS_09	Attends departmental audit meetings	1,2,3
AR_BS_10	Contributes data to a local or national audit	1,3
AR_BS_11	Describes the Plan, Do, Study, Act [PDSA] audit cycle and takes an audit through the first steps	1,2
AR_BS_12	Demonstrate presentation skills to a live audience including the planning and preparation of the presentation	1
AR_BS_13	Regularly attends morbidity and mortality review meetings [See recommendations in 'Assessment' above]	1,2,3
Developing practice		
AR_BS_14	Demonstrates an informed critical approach to scientific literature	1
AR_BS_15	Regularly participates in departmental or other local journal club [See recommendations in 'Assessment' above]	1,2,3
AR_BS_16	Demonstrates an inquisitive and questioning approach to clinical practice	1,2
AR_BS_17	Demonstrates ability to assess the appropriateness of the statistical techniques used to analyse research data	1
AR_BS_18	Demonstrates ability to analyse and structure clinical decisions in terms of risks and benefits	1,2,3,4

Intermediate level

Learning outcomes:

- At the end of this period of training the trainee will have consolidated their understanding of evidence based practice and audit
- They will be able to undertake simple audit projects independently
- They will have extended their critical abilities with regard to clinical science
- They will be assured presenters in clinical audit meetings and journal clubs

Assessment

- Has recorded satisfactory attendance at 15 of local audit, MDT, M & M and journal club meetings
- Reflective portfolio of attendances
- Passed Final FRCA exam
- Has presented at Journal club, Audit and Morbidity and Mortality meeting
- Portfolio shows clinical critical incidents and reports

Knowledge		
Competence	*Description*	*GMP*
	Evidence based practice	
AR_IK_01	Understands the rationale and methodology of meta-analysis	1
AR_IK_02	Describes how clinical guidelines are produced	1
	Monitoring practice	
AR_IK_03	Explains the major national audit processes, including but not exclusively the National Confidential Enquiry into Patient Outcomes and Death [NCEPOD]	1,2
AR_IK_04	Understands the links between audit and quality improvement	1,2
	Developing practice	
AR_IK_05	Describes and explains the methodology and processes of clinical research, including but not exclusively: • Ethical and approval considerations raised by research • The importance of study design in clinical research	1,2

	• The importance of statistical analyses	
AR_IK_06	Outlines the GMC guidance on good practice in research	1
AR_IK_07	Knows about local and national research guidelines	1,2
AR_IK_08	Demonstrates a knowledge of research principles	1
AR_IK_09	Explains how to test, refine and verify hypotheses	1
AR_IK_10	Explains how reasoning leads to hypothesis within the context of clinical likelihood	1
AR_IK_11	Understands the difference between population-based assessment and unit-based studies and is able to evaluate outcomes for epidemiological work	1
AR_IK_12	Demonstrates the principles of meta-analysis	1

Skills		
Competence	*Description*	*GMP*
	Evidence based practice	
AR_IS_01	Critically reviews an article to identify the level of evidence and submits the same for objective review	1
	Monitoring practice	
AR_IS_02	Describe the working uses of national and local databases used for audit such as specialty data collection systems, cancer registries, and for reporting and learning from clinical incidents and near misses in the UK	1
AR_IS_03	Supports audit by junior medical trainees and within the multidisciplinary team	1,2,3
AR_IS_04	Suggests ideas for local audit	1,2
AR_IS_05	Attends morbidity and mortality meetings, contributes to discussions and presents cases when required	1,2,3

Higher level

At the end of this training the learner will be ready for independent clinical practice. Their personal practice will be evidence based and they will understand, discuss and advise in situations where evidence is absent or contradictory. They will commit to the importance of audit, and engage in continuous review of their personal and team performance. They will be able to develop, complete and report audit projects. They will strive to be an opinion leader through a continuous critical approach to the published literature and will undertake personal evaluation and consultation with colleagues regarding the timely introduction of new practices.
They will be ever conscious of their responsibility for patient safety and will understand how proper evidence, monitoring outcome and a cautious, critical, scientific approach to reported developments of practice will assist this. They will understand the basic principles of clinical research and will know the ethical and organisational steps needed to initiate a project – under the mentorship of a research experienced colleague.

Assessment

- Has recorded satisfactory attendance at 15 local audit, MDT, M & M and journal club meetings
- Reflective portfolio of attendances
- Undertaken research methods course
- Presented literature review
- Written up case report or evidence-based review (typically a CEACCP article) to a standard suitable for publication OR contribution to a departmental guideline or change in practice to a reasonable standard for implementation

Knowledge		
Competence	*Description*	*GMP*
	Monitoring practice	
AR_HK_01	Understands their role in supporting quality through participating in and promoting audit of clinical outcomes	1,2,3,4
AR_HK_02	Understands the ethical issues relating to audit	1,2
	Developing practice	
AR_HK_03	Know the principles of research governance	1,2

AR_HK_04	Understands the roles of the Royal College of Anaesthetists in postgraduate and continuing education, and in the setting and maintenance of standards	1
AR_HK_05	Knows about the National Institute for Academic Anaesthesia	1

Skills		
Competence	*Description*	*GMP*
	Evidence based practice	
AR_HS_01	Leads in a departmental or other local journal club	1,2,3
AR_HS_02	Undertakes a literature review in relation to a clinical problem or topic and presents the same	1
AR_HS_03	Produces a review article on a clinical topic, having reviewed and appraised the relevant literature	1
AR_HS_04	Uses statistical methods to analyse data and estimate probabilities	1
	Monitoring practice	
AR_HS_05	Designs, implements and completes audit cycles	1,2,3
AR_HS_06	Collaborates in a systematic review of the medical literature	1,2,3
AR_HS_07	Identifies problems and develops standards for a local audit	1,2,3
AR_HS_08	Proposes and tests ways to improve patient care	1,2,3,4
AR_HS_09	Compares the results of an audit with criteria and standards to reach conclusions	1,2,3
AR_HS_10	Critically reviews an article to identify the level of evidence and submits the same for objective review	1,2
AR_HS_11	Undertakes a literature review in relation to a clinical problem or topic and presents the same	1,2
AR_HS_12	Encourages discussion amongst colleagues on evidence-based practice	1,2,3
AR_HS_13	Uses the findings of an audit to develop and implement change	1,2,3,4
AR_HS_14	Contributes to local and national audit projects as appropriate e.g. NCEPOD and SASM	1,2,3,4
	Developing practice	
AR_HS_15	Identifies the ethical issues relating to the organisation of clinical research	1
AR_HS_16	Outlines the principles of formulating a research question and designing a project	1

AR_HS_17	Demonstrates an awareness of and detachment from vested interests or entrenched views	1
AR_HS_18	Demonstrates the use of reference manager software in the production of manuscripts	1
AR_HS_19	Demonstrates ability to analyse research data using advanced statistical software e.g. SPSS	1

Advanced level

The advanced module will be undertaken as an attachment to an individual [not department] who is an experienced clinical investigator. At the end of this training the learner will have participated in the development, data collection, analysis and reporting [by presentation and as a scientific paper] of a study relating to clinical practice. It is understood that all these stages of work may not take place during the learners attachment and where that is the case they should write a report relating to the progress of the aspects of the work in which they were not able to participate directly. The emphasis must be on the potential value of a project rather than on the necessity of getting a project done, however weak the idea.

Their focus will be on clinical research methods. Trainees who undertake this module will be equipped to develop a special interest in research in their subsequent career, ideally working within a local research network. They will teach research methods to junior trainees and represent a knowledgeable, responsible attitude to enquiry and practice development.

Assessment

- Evaluation of their placement by their academic supervisor
- Has prepared a review article to a standard suitable for publication
- Has engaged in a clinical research project and demonstrated understanding of all aspects of the work

Knowledge		
Competence	*Description*	*GMP*
	Evidence based practice	
AR_AK_01	Commits to leadership in relation to evidence based practice	1,2,3
AR_AK_02	Understands how to undertake thorough data searches including involving professional literature	1
AR_AK_03	Up to date with current clinical and research literature in their areas of interest	1,2
	Monitoring practice	
AR_AK_04	Understands their role as an opinion leader in maintaining standards of practice through audit	1,2,3,4

AR_AK_05	May play organisational role in morbidity and mortality meetings	1,2,3
Developing practice		
AR_AK_06	Presents clinical and academic work at deanery and national scientific meetings where possible submitting reports for presentation or posters	1,3
AR_AK_07	Knows how to produce a poster summarising a project for presentation	1
AR_AK_08	Understands material specifically related to their 'project'	1,2

Skills		
Competence	*Description*	*GMP*
Evidence based practice		
AR_AS_01	Contributes to the development of local and national clinical guidelines and protocol	1,2,3
AR_AS_02	Champions practice change supported by audit	1,2,3
Monitoring practice		
AR_AS_03	Organises or leads departmental audit meeting	1,2,3
AR_AS_04	Leads a complete audit cycle including development of conclusions, the changes needed for improvement, implementation of findings and re-audit to assess effectiveness of the changes	1,2,3,4
Developing practice		
AR_AS_05	Shows willingness to encourage and take part in research	1,2,3
AR_AS_06	Applies appropriate ethical research approval	1,2,3
AR_AS_07	Follows guidelines on ethical conduct in research and consent for research	1,3,4
AR_AS_08	Demonstrates ability to write a scientific paper	1
AR_AS_09	Acquires skills relating to their project	1
AR_AS_10	Attends relevant national and international meetings	1,2,3

Improvement Science, Safe and Reliable Systems

Basic Level

Learning Outcomes:

- Understands and commits to the principles of Quality Improvement
- Demonstrates knowledge of the fundamental concepts of Improvement Science
- Understands the difference between audit and quality improvement
- Understands and demonstrates importance of safety, team work and human factors in anaesthetic practice

Assessment

- Evidence of participation in critical incident reporting
- Evidence of active participation in a Quality Improvement project

Intermediate Level

Learning Outcomes:

- Consolidates understanding of Quality Improvement principles
- Demonstrates enhanced knowledge and skills of Improvement Science
- Can present evidence of quality improvement outcome and impact of change implemented
- Can demonstrate quality improvement benefit to patient, staff and organisation

Assessment

- Has personally led a Quality Improvement project
- Presentation of a Quality Improvement project (case study, oral or poster presentation)
- Participates in learning sets (face to face or web based)

Higher / Advanced Level

Learning Outcomes:

- Can participate in peer support for Quality Improvement trainees at basic level
- Can lead teams to introduce a clinical quality improvement
- Can assess evidence for quality improvement and develop into evidence based practice
- Can lead teams to introduce a clinical quality improvement
- Can mentor Quality Improvement trainees at basic / intermediate level

Assessment

- Presentation of a Quality Improvement project through poster, case study or oral presentation ideally at a regional, national or international quality forum
- Supervises a Quality Improvement project involving trainees at basic / intermediate level
- Leads in learning sets (face to face or web based)
- Completion of an extended essay on a quality improvement topic
- Authorship of a peer-reviewed quality improvement research paper

Knowledge		
Competence	*Description*	*GMP*
	Profound knowledge and Systems Appreciation	
IS_K_01	Appreciation of a System; Understanding Variation; Human Side of Change (Psychology);	1,2
IS_K_02	Recognises that real improvements come from changing systems not changing within systems.	1,2
IS_K_03	Demonstrates root cause and systems analysis.	1,2
IS_K_04	Building Knowledge and Deming's Profound Knowledge.	1,2
	Clinical human factors	
IS_K_05	Explains that Enhanced Clinical Performance is achieved through an understanding of the effects of teamwork, tasks, equipment, workspace, culture, organisation on human behaviour and abilities, and application of that knowledge in clinical settings.	1,2
IS_K_06	Explains the importance of human factors when designing or evaluating system safety or reliability	1,2
IS_K_07	Systems design to make it easy to do the right thing.	1,2
	Process	
IS_K_08	Explains the definition of processes, process mapping and assessment of process value	1,2

IS_K_09	Recognises that process drives outcome and quality improvement as the science of process management.	1,2
IS_K_10	Recognises how system processes set up healthcare workers to make errors.	1,2
IS_K_11	Understands reliable process delivery	1,2
CMO evaluation		
IS_K_12	Explains CMO evaluation (context+mechanism = outcomes)	1,2
IS_K_13	Explains the importance of CMO evaluation to improve local health care systems	1,2
IS_K_14	Understands the difference between CMO (context+mechanism = outcomes) evaluations and OXO evaluation (observe a system, introduce perturbation X, observe again)	1,2
The Model for Improvement		
IS_K_15	Explains the Model for Improvement and is able to describe the key components of the MFI.	1,2
Goal setting		
IS_K_16	Explains Goal and aim setting: setting an improvement aims statement including how much by when.	1,2
IS_K_17	Explains creation of an operational definition	1,2
The different types of measurement		
IS_K_18	Describes measurement for improvement, versus measurement for research or measurement for accountability/judgement.	1,2
Variation in measurement		
IS_K_19	Understands variation, time series analysis of events; ability to create a simple run chart, ability to understand fundamentals of statistical process control charts, methods to separate random from assignable variation.	1,2
Measurement 1		
IS_K_20	Explains Tally charts, Pareto charts, Run Charts, SPC Charts	1,2
Measurement 2		
IS_K_21	Explains fundamentals of SPC charts (Statistical Process Control Charts)	1,2
PDSA testing		
IS_K_22	Explains Shewart's PDSA Plan Do Study Act cycle.	1,2
IS_K_23	Explains importance of predicting outcomes before the test	1,2
Reliability		

IS_K_24	Describes 4 levels of system reliability and how this is calculated.	1,2
IS_K_25	Describes one simple way to evaluate local system reliability	1,2
Structure plus process leads to outcome [S+P=O]		
IS_K_26	Explains how to define outcomes and link how improving outcomes is linked to improving processes. Recognises that structure plus process leads to outcome.	1,2
Reliable implementation		
IS_K_27	Explains implementing a change.	1,2
Spread		
IS_K_28	Explains spreading improvement.	1,2
Sustainability		
IS_K_29	Explains sustaining improvement.	1,2
Influencing skills		
IS_K_30	Explains ways to influence	1,2
Teams and communication		
IS_K_31	Explains the features of effective teams and communication, (safe, inclusive, open, consensus seeking).	1,2
IS_K_32	Explains reasons for good communicating with patients after adverse events.	1,2
IS_K_33	Explains how pre-operating list safety briefings drive communication and safety climate	1,2
SKILLS		
Competence	*Description*	*GMP*
Plot and evaluate run chart		
IS_S_01	Demonstrates creation of a simple run chart, and is able to describe 4 ways to separate random from assignable variation	1,2
PDSA test of change		
IS_S_02	At your place of clinical work, perform at least two tests of change as a PDSA (Plan (and predict outcome) Do Study Act) cycle.	1,2
IS_S_03	Demonstrate the learning from the experience. Specify the learning and action generated from PDSA 1 and record what happens when they do it in PDSA 2	1,2
Structure + process = outcome [S+P=O]		

IS_S_04	Demonstrates ability to draw a simple process map	1,2
IS_S_05	Demonstrates ability to develop a driver diagram of processes that will lead to an improved outcome.	1,2
Participate and contribute to a very small improvement project		
IS_S_06	Demonstrates involvement with a local improvement initiative	1,2
Reliability		
IS_S_07	Describes a change concept used to improve reliability.	1,2
IS_S_08	Describes a design /change concept used to improve reliability in the workplace	1,2
Clinical human factors		
IS_S_09	Demonstrates ability to analyse a real critical incident from a human factors perspective.	1,2
IS_S_10	Performs one observation of where environment, equipment and other factors make it difficult to do the right thing.	1,2
IS_S_11	Describes common systems designs used in healthcare to improve reliability.	
IS_S_12	Demonstrates improvement planning using a real critical incident	

Teaching and learning

Basic Level

The basic level competencies are aimed at developing the core educational capabilities of the trainee and to develop them professionally as an effective learner. On completion of the Basic level competencies the trainee will have insight into their own educational responsibilities as a Core Trainee in anaesthetics, critical care and pain medicine. They will have developed an awareness of the College curriculum and engaged with the assessment framework. They will understand the importance of patient safety in relation to clinical practice and clinical supervision. They will be able to describe the nature of their accountability and responsibility to their clinical and educational supervisors. They will specifically understand the importance of workplace-based assessments, keeping a reflective portfolio, the role of developmental feedback in promoting professional learning and the need to engage effectively in multi-source feedback.

Trainees work in a clinical team within which, from an early stage, they will engage in appropriate teaching and supervision of less experienced members of the team (medical students, foundation trainees).

Minimum Learning Outcomes:

- Manages their own programme of learning derived from the RCoA curriculum
- Become an experienced in the use of e-learning systems and understands the place they have in their individual learning style
- Contributes to institutional educational programmes by attending teaching, and engaging as teacher/presenter when appropriate
- Delivers a lecture or audio-visual presentation using appropriate multimedia devices and techniques, reflecting on feedback
- Always ensures that their own level of supervision is appropriate to their capabilities
- Engages properly with the process of personal educational supervision
- Engages in the assessment process by appropriately managing their own portfolio of assessments

Assessment

There are no specific assessments relating to education and training at this stage. Evidence of satisfactory performance comes mostly from the learner's engagement with the processes of their own learning. This is revealed in by their reflective portfolio, reports of educational supervisors and supervising consultants. In addition there should be records of attendance and participation at departmental teaching and clinical meetings

Knowledge		
Competence	*Description*	*GMP*
TM_BK_01	Knows that patient safety is paramount in all aspects of medical education	1,2
TM_BK_02	Knows their roles and responsibilities as a trainee in the context of clinical governance and patient safety	1,2,3,4
TM_BK_03	Knows how to use the RCoA curriculum to find the objectives, outcomes and assessments relating to their training programme	1
TM_BK_04	Knows the process and purpose of workplace-based assessment	1
TM_BK_05	Understands their preferred approach to their own learning	1
TM_BK_06	Knows the roles and responsibilities of their clinical and educational supervisors and understands who to approach locally regarding training issues and concerns	1,2,3
TM_BK_07	Describes the difference between learning objectives and outcomes	1
TM_BK_08	Knows how to engage in e-learning	1

Skills		
Competence	*Description*	*GMP*
TM_BS_01	Uses the RCoA curriculum to determine the learning outcomes and workplace assessments relating to their stage of training	1
TM_BS_02	Seeks appropriate levels of supervision for themselves when undertaking activities in which they are not fully competent	1,2,3
TM_BS_03	Demonstrates safe practice in patient management when teaching and supervising others	1,2,3
TM_BS_04	Demonstrates self-critical review of their own clinical practice in the context of workplace-based assessments such as multi-source feedback	1
TM_BS_05	Demonstrates general computing skills, including but not exclusively, by: • Managing files/folders in a Windows environment • Document creation using a word processor • Spreadsheet creation using spreadsheet software • Presentation creating using presentation software • Basic functions of databases • The use of online browsers • Communication by email software	1,2,3

Skills		
Competence	*Description*	*GMP*
TM_BS_06	Delivers a lecture or audio-visual presentation using appropriate multimedia devices & techniques	1
TM_BS_07	Obtains feedback on presentations and tutorials they have delivered [in written format]	1,3
TM_BS_08	Delivers informal teaching in the workplace	1,3
TM_BS_09	Keeps a reflective portfolio of learning and clinical practice	1
TM_BS_10	Appropriately solicits and receives feedback from others regarding their own clinical knowledge, skills and behaviour	1,3,4
TM_BS_11	Demonstrates an ability to reflect and analyse constructive feedback from others regarding their own clinical knowledge, skills and behaviour	1,3
TM_BS_12	Engages in opportunistic workplace-based learning and teaching	1,3
TM_BS_13	In discharging educational duties acts to maintain the dignity and safety of patients at all times	1,2,4
TM_BS_14	Demonstrates how to use information technology to keep up-to-date	1
TM_BS_15	Becomes experienced in the use of e-learning systems incorporating, as appropriate, into their own learning style	1
TM_BS_16	Uses on line e-assessment tools	1

Intermediate Level

On completion of the Intermediate level competencies the trainee will have enhanced insight into their own educational responsibilities as a Specialty Trainee. They will understand the importance of patient safety in relation to clinical supervision as they will now be directly supervising other trainees. By developing an understanding of the importance of team-based or inter-professional education they will also have developed increased awareness of their role in training others. In support of developing these capabilities trainees will have developed the necessary skills to receive and give effective developmental feedback to others. The intermediate level sees the trainee develop the necessary skills and insight to develop personally as an educator but also to contribute effectively to team-based, inter-professional education. In addition they will participate more actively in departmental teaching and must be able to plan and deliver effective presentations showing evidence of satisfactory preparation. Their progress should be recorded in their portfolio and where they have presented formal sessions they should obtain written feedback from the audience.

Core learning outcomes*:*

- ***These outcomes build upon those from basic level training***
- ***Continues to participate appropriately in the management of their own teaching, learning and assessment***
- ***Contributes to institutional educational programmes as participant and presenter developing upon the learning gained in CT 1/2 and now actively seeking feedback on their performance***
- ***Undertakes appropriate supervision and practical teaching within the clinical team***
- ***Gives appropriate feedback when they have taught and supervised***
- ***Undertakes opportunistic teaching and in less structured, informal, educational contexts***

Assessment

Evidence for ARCP:

- Appropriate reports from educational supervisor and consultant/SAS trainers
- Portfolio recording their engagement in teaching and learning; including reflections
- Record of participation in their institutions formal educational meetings and teaching
- Feedback on teaching delivered, including own reflections
- A-CEX relating to their own teaching and supervision of a more inexperienced trainee
- CBD on selected education topics

Knowledge		
Competence	*Description*	*GMP*
TM_IK_01	Knows how to design and implement a personal learning plan for an educational activity related to their own learning	1
TM_IK_02	Understands the importance of demonstrating respect for learners	1,3
TM_IK_03	Knows how to create a framework in which to teach a practical skill safely	1,2
TM_IK_04	Knows that personal and team performance is affected by non-technical skills and knowledge	1,2,3
TM_IK_05	Understands which teaching method to select for effective learning in a variety of situations	1
TM_IK_06	Knows how to give and receive effective feedback	1,3
TM_IK_07	Knows how to perform WBA for foundation and less experienced anaesthetic trainees	1,3
TM_IK_08	Knows the value of inter-professional learning in their own development and in the development other professional roles	1
TM_IK_09	Explains the roles and responsibilities of educational agencies involved in postgraduate medical education	1
TM_IK_10	Lists the basic concepts and role of human factors and team-based training including crisis resource management in ensuring patient safety	1,2,3
TM_IK_11	Knows the value of inter-professional learning	1

Skills		
Competence	*Description*	*GMP*
TM_IS_01	Participates actively in departmental education and learning and records their participation in their reflective portfolio	1,3
TM_IS_02	Creates good opportunistic clinical learning opportunities for others	1,3
TM_IS_03	Plans and conducts a teaching session e.g. lectures workshop, tutorial, and seeks written feedback on their performance from participants	1,3
TM_IS_04	Provides appropriate clinical supervision to less experienced colleagues	1,2,3
TM_IS_05	Appropriately performs workplace-based assessments for foundation trainees	1
TM_IS_06	Engages with and contribute to inter-professional learning opportunities	1,3
TM_IS_07	Gives and receives effective feedback	1,3
TM_IS_08	Performs self-critical review of their own educational practice (workplace based teaching, tutorials, simulation training or lectures)	1
TM_IS_09	Participates in human factors and patient safety training	1,2,3,4

Higher/Advanced Level [For all trainees]

Upon completion of the higher-level competencies in medical education the senior trainee will be prepared for their role as an effective clinical educator. They must be ready to take on the responsibility of clinical teaching, supervision and assessment in a career grade post in anaesthesia. Learning in this area continues throughout ST years 5, 6 and 7.

It is essential that trainees at this level be allocated as teacher on teaching lists with more junior colleagues in order to get experience of clinical supervision. They should keep a log of the lists on which they provide clinical supervision, including feedback from the trainees supervised.

All trainees must teach in a variety of settings that must include opportunistic clinical teaching, tutorial/seminars and formal lectures. Their portfolio must include their reflections and the audience feedback relating to several such episodes. They will have trainee insight into generic professional capabilities and skills in important areas such as human factors and crisis resource management. Simulation techniques will be important in providing safe learning opportunities for individuals and teams and they will be able to participate in simulator based training sessions.

They will be able to perform workplace-based assessments reliably and understand their responsibilities in terms of patient safety in the context of clinical and educational supervision. They will have knowledge of the many diverse roles and responsibilities of clinical educators and the educational governance framework within which they work, explicitly the role of the GMC, NHS employing organisations, the Deaneries and the role of the College. They will have a commitment to ensuring their ongoing continuing professional development in the field of medical education.

Every trainee must provide the ARCP with evidence of training in education in line with the minimum learning outcomes. This will often include attendance at suitable 'How To Teach' events. Attendance at external courses is not necessary where suitable local teaching is available and has been approved by the School of Anaesthesia.

Learning Outcomes:

- Is prepared for the consultant role of clinical teacher and assessor in the workplace
- Is a valued member of the departmental educational team as participant and teacher
- Delivers excellent theatre teaching in the course of clinical supervision
- Uses an appropriate range of educational knowledge and skills in delivering a variety of presentations
- Prepares and delivers excellent teaching on a variety of topics

- Performs workplace-based assessments reliably
- Exercises leadership in terms of patient safety in the context of clinical supervision
- Understands the many diverse roles and responsibilities of clinical educators
- Has a broad knowledge of the educational governance framework within which they work; explicitly the role of the GMC, NHS employing organisations, the Deaneries and the role of the College
- Demonstrates a commitment to ensuring their ongoing continuing professional development in the field of medical education
- Keeps a comprehensive reflective portfolio of learning and of their engagement with ongoing professional development

Knowledge		
Competence	*Description*	*GMP*
TM_HK_01	Understands the formal responsibilities of clinical trainers	3
TM_HK_02	Knows the importance of always ensuring safe supervision of learners and takes wide responsibility for this including checking the safety of any teaching being undertaken by trainee anaesthetists within their clinical arena	2,3
TM_HK_03	Knows how to plan a 'teaching list' for a more junior trainee	1,3
TM_HK_04	Understands how to use a wide range of educational methods to provide a effective clinical learning opportunities, such as: opportunistic workplace-based training, lectures, part- and whole-task simulator training, full immersion high fidelity simulation, audio-visual feedback and behavioural debriefing	1
TM_HK_05	Understands the educational principles underlying the preparation of effective lessons and presentations	1
TM_HK_06	Describes the assessment strategy employed by the RCoA in the context of their own learning and the learning of others	1
TM_HK_07	Explains the roles and responsibilities of Clinical and Educational Supervisors and Consultant/SAS trainers	1,3
TM_HK_08	Understands the importance of assessing and evaluating learning and is able to distinguish between formative and summative assessment	1
TM_HK_09	Understands the role of, and the appropriate conduct of, the workplace-based assessments	1,3
TM_HK_10	Understands the importance of providing timely, specific, non-judgemental and developmental feedback	1,3
TM_HK_11	Explains the importance of their own behaviour as a role model for more junior trainees	1,2,3
TM_HK_12	Recognises the importance of personal development as a role model to guide trainees in aspects of good professional behaviour	1
TM_HK_13	Explains the roles and responsibilities of educational agencies involved in educational commissioning and governance including, but not exclusively: the GMC, the DoH, Deaneries, Colleges and NHS Education Commissioners	1

Knowledge		
Competence	*Description*	*GMP*
TM_HK_14	Knows how to provide a level of clinical supervision appropriate to the competence and experience of the trainee	1,2,3
TM_HK_15	Outlines the structure of the effective appraisal review	1
TM_HK_16	Knows how to raise concerns about a poorly performing trainee	1,2,3
TM_HK_17	Describes the appropriate local course of action to assist a trainee experiencing difficulty in making progress within their training programme	1,3

Skills		
Competence	*Description*	*GMP*
TM_HS_01	Teaches trainees and others in a variety of settings to maximise knowledge, effective communication and practical skills; and to improve patient care	1,2,3,4
TM_HS_02	Creates good learning opportunities to deliver the curriculum	1,3
TM_HS_03	Shows consideration for learners including their emotional, physical and psychological well being with their development needs; acts to endure equality of opportunity for students, trainees, staff and professional colleagues	1,3
TM_HS_04	Identifies the learning needs of trainees	1
TM_HS_05	Demonstrate effective lecture, presentation, small group and bed-side teaching sessions	1
TM_HS_06	Makes appropriate use of teaching aids and visuals to enhance formal teaching	1
TM_HS_07	Engages in opportunistic teaching of more junior trainees in clinical settings	1,3
TM_HS_08	Engages in simulator-based learning	1
TM_HS_09	Assists in simulator-based teaching	1,3
TM_HS_10	Supervises junior trainees in the course of routine and emergency anaesthesia	1,3
TM_HS_11	Is able to lead departmental teaching programmes including journal clubs	1,3
TM_HS_12	Encourages discussions with colleagues in clinical settings to share knowledge and understanding	1,3
TM_HS_13	Accurately and reliably uses the workplace-based assessment tools	1
TM_HS_14	Show willingness to participate in workplace-based assessments and demonstrates a clear understanding of their purpose	1

Skills		
Competence	*Description*	*GMP*
TM_HS_15	Gives appropriate feedback for the purpose of training clinical professionals	1,3
TM_HS_16	Receives feedback appropriately for the purpose of self-improvement	1,3
TM_HS_17	Assesses the quality of teaching both classroom and workplace-based and records this in their reflective portfolio	1,3
TM_HS_18	Conduct developmental conversations as appropriate e.g.: appraisal, supervision, mentoring	1,3
TM_HS_19	Maintains honesty and objectivity during appraisal and assessment	1,3
TM_HS_20	Provide appropriate career support, or refers trainee to an alternative effective source of career information	3
TM_HS_21	Recognise the trainee in difficulty and take appropriate action including, where relevant, referral to other services	1,2,3
TM_HS_22	Participate in strategies aimed at improving patient education e.g. talking at support group meetings	1,2,4
TM_HS_23	Show willingness to take up formal training as a trainer and respond to feedback obtained after teaching sessions	1,3
TM_HS_24	Demonstrates a willingness to advance own educational capability through continuous learning	1
TM_HS_25	Acts to enhance and improve educational provision through evaluation of own practice	1
TM_HS_26	Balances the needs of service delivery with education	1

Optional additional Advanced Level unit of training for an 'In' or 'Out' of programme Fellowship placement

This optional advanced training is intended for trainees who are considering developing a special interest in medical education in their consultant career and might include a certificate in medical education. To undertake this training the learner must be supervised by an individual recognised as an expert in *anaesthetic* medical education by the School of Anaesthesia. The availability of proper teaching and supervision must be ensured before a trainee is allowed to embark on this module.

The objective is to provide familiarity with the principles and practice of education such that the learner can plan to develop a special interest in some aspect of education in their subsequent career. The College makes the following recommendations for this placement:

Trainees must have at least 2.5 days a week of protected time for their education learning during their module that can be up to 12 months long

They should undertake frequent teaching sessions in a variety of settings ranging from formal lecturing to opportunistic teaching in clinical situations

They should be formally allocated to supervise and teach more junior colleagues in clinical situations including the operating theatre

They should conduct practical skills training using both part-task trainers and intermediate fidelity simulators

In the course of their module they should undertake the organisation of an educational meeting and should keep a written account of the process in their portfolio

They should organise an education project or development and should keep a written account of the process in their portfolio

Core learning objectives:

- Teaches in a variety of ways using a variety of teaching aids in order to deliver interesting sessions
- Teaches a wide variety of learners in a wide variety of settings
- Engages with inter-professional learning
- Receives good feedback on teaching
- Is familiar with relevant educational theory e.g. principles of adult learning, learning styles etc relevant to medical education
- To be able to plan and prepare a course; including designing the curriculum, planning appropriate teaching to cover the curriculum, organising a timetable and

planning any assessment

- Understands relevant theory relating to planning assessments such as understanding validity and reliability
- Is able to revue, understand and explain to others the significance of developments in education and medical research
- Is expert in the use of teaching aids
- Teaches using intermediate-fidelity simulation
- Is able to act as an advocate for education in departmental planning

Assessment

- Presents a portfolio of their achievements as a higher trainee which should include engagement with and completion of significant projects in teaching, in the organisation of teaching and in developing an understanding of educational theory.

Knowledge		
Competence	*Description*	*GMP*
TM_AK_01	Describes relevant educational theories and principles	1
TM_AK_02	Outlines adult learning principles relevant to medical education	1
TM_AK_03	Understands the concept of preferred learning styles	1
TM_AK_04	Understands how to choose appropriate learning methods for developing specific learning outcomes	1
TM_AK_05	Understands the processes leading to the acquisition of practical skills	1
TM_AK_06	Lists the features influencing the efficacy of an assessment methodology [validity, reliability, feasibility etc]	1
TM_AK_07	Knows what is meant by reliability and discusses its importance and the factors that influence it	1
TM_AK_08	Knows what is meant by validity and discusses the different types of validity that have been described	1
TM_AK_09	Understands how to plan small-group teaching	1
TM_AK_10	Knows how to facilitate small-group discussions	1
TM_AK_11	Understands how the participants personality influences their performance in small-group teaching	1
TM_AK_12	Understand how to develop a curriculum for a teaching/learning task	1
TM_AK_13	Discusses the process of developing lessons/learning sessions from curriculum	1

Knowledge		
Competence	*Description*	*GMP*
TM_AK_14	Knows the importance of preparing hand-outs for formal teaching sessions	1
TM_AK_15	Understand the various factors that contribute to the under-performance of learners	1,3
TM_AK_16	Understands the use of e-learning in the overall context of teaching	1
TM_AK_17	Describes the role of non-technical skills in the practice of anaesthesia	1
TM_AK_18	Lists the uses of simulation and discusses its appropriate use in medical education	1
TM_AK_19	Understands the variety of simulator methods available [actors, standardised patients, part-task trainers, high and intermediate fidelity]	1
TM_AK_20	Describes appropriate ways to use simulation in training	1
TM_AK_21	Discusses how mistakes are made and errors occur in practice and how simulator training can help clinicians to be aware of problems and improve safety	1,2
TM_AK_22	Describes the use of simulators for team and communication skill training	1,3
TM_AK_23	Describes the principles of crisis resource management in anaesthesia	1,2
TM_AK_24	Knows how to use part-task trainers and intermediate fidelity simulators in small-group teaching	1
TM_AK_25	Knows how to organise an educational event [meeting] • Discusses the choice of sessions, speakers etc • Discusses timing of sessions, breaks etc • Discusses the organisation of facilities – including meals etc • Discusses the arrangements for organising registration etc on the day • Understands the need for appropriate feedback and discusses how to feed this back to the participants	1
TM_AK_26	Differentiate between formative and summative assessment and define their role in medical education	1
TM_AK_27	Outlines the role of workplace-based assessments, the assessment tools in use, their relationship to course learning outcomes, the factors that influence their selection and the need for monitoring evaluation	1
TM_AK_28	Understands the importance of research in the development of education practice and achieves competence in understanding the methodology and statistics involved	1
TM_AK_29	Recognise the importance of the role of the physician as an educator within the multi-professional healthcare team and uses medical education to enhance the care of patients	1,2

Knowledge		
Competence	*Description*	*GMP*
TM_AK_30	Demonstrates a willingness to become involved in the wider medical education activities and fosters an enthusiasm for medical education activity in others	1,3
TM_AK_31	Contributes to educational policy and development at local or national levels	1,3
TM_AK_32	Demonstrate knowledge of relevant literature relevant to developments and challenges in medical education and other sectors	1
TM_AK_33	Accepts the need to participate in national and international practice through membership of specialist societies the reading of relevant specialist journals and participation in education meetings	1
TM_AK_34	Accepts the responsibilities inherent in the role of advocate and arbiter within the field of medical education	1
TM_AK_35	Accepts that their special training in this area places a responsibility upon them to understand that others will necessarily be less expert than they are and thus to behave sensitively when asked for advice	1,3
TM_AK_36	Describes how their special training in education will contribute to their further career development	1
TM_AK_37	Accepts that experts in a field have a particular responsibility for the safety and quality of their service over and above their personal clinical contribution	1,2
TM_AK_38	Accepts that their special knowledge and experience of education places a responsibility upon them to teach and lead within the area	1,2,3
TM_AK_39	Describes the general and specific criteria for the proper development of education within the clinical and management contexts of a department of anaesthesia	1,3
TM_AK_40	Accepts the responsibility of informing managers of any developments in this field of practice that is likely to have impact on the safety, quality and cost of services	1,2,3
TM_AK_41	Participates in departmental management discussions surrounding this area of practice	1,3
TM_AK_42	Be able to critically evaluate relevant educational literature	1

Skills		
Competence	*Description*	*GMP*

TM_AS_01	Has undertaken a variety of teaching – including planning the sessions and delivering education using several methods	1
TM_AS_02	Has taught at a variety of levels such as medical students, foundation trainees, CT and ST trainees in anaesthesia and in other specialties	1,3
TM_AS_03	Has undertaken teaching in inter-professional events	1,3
TM_AS_04	Has presented at formal meetings	1,3
TM_AS_05	Has produced an appropriate hand-out to accompany presentation[s]	1
TM_AS_06	Has produced feed-back form for teaching	1
TM_AS_07	Uses part-task trainer and intermediate-fidelity simulator for clinical teaching	1
TM_AS_08	Has led small-group seminars; acting as facilitator	1,3
TM_AS_09	Produces excellent visual-aids using Powerpoint© or similar programme	1
TM_AS_10	Experienced Powerpoint© user; able to incorporate sound and video in presentations	1
TM_AS_11	Teaches others how to develop effective presentations using Powerpoint©	1,3
TM_AS_12	Contributes to educational research or projects e.g.: through the development of research ideas of data/information gathering	1,3
TM_AS_13	Engages in activities to help others develop their medical education capabilities	1,3
TM_AS_14	Be able to manage personal time and resources effectively to the benefit of the educational faculty and the need of the learners behaviour	1
TM_AS_15	May engage in education research including the acquisition of associated research methodologies and statistical techniques	1
TM_AS_16	Teaches ‘education’ at intermediate and higher level	1
TM_AS_17	Has recorded experiences of advanced training module in a comprehensive education portfolio	1
TM_AS_18	Has attended a national or international medical education meeting	1
TM_AS_19	Able to engage in the introduction of a new educational development [course, meeting, assessment etc]	1
TM_AS_20	Has organised an educational meeting	1

Management

At all stages of training the doctor is expected to develop an understanding of the management systems within which they work, at the local level of the trust and at the national level. In this field no distinction is made between the capabilities of basic and intermediate training and no assessment is required beyond the reports of supervising consultants and MSF.

The higher training must equip the trainee with a full understanding of the consultant's role in departmental management and furnish them with the knowledge necessary to embark upon minor departmental management roles as they begin their consultant career. It is acknowledged that opportunities for trainees to undertake tasks within the departmental management are few compared with the number of higher trainees and that many will not have an opportunity to demonstrate their skills in practice.

In the absence of in-service opportunities to learn and practice management it is suggested that most trainees will be required to attend formal teaching events organised around the higher curriculum.

Advanced training requires that the trainee undertakes a placement to work with a manager on secondment. Where such placements do not involve clinical work only six months credit will be allowed against the CCT programme. Though longer placements are permitted these will require adjustment of the CCT date.

Basic/intermediate level

Learning outcomes:

- Understands the structure of local management
- Engages with departmental organisational processes
- Observes local and national systems for clinical governance

Knowledge

Competence	*Description*	*GMP*
MN_BK_01	Describes the guidance given by the GMC regarding doctors in management	1
MN_BK_02	Describes the local management structures facilitating clinical governance	1
MN_BK_03	Describes the role of the clinical director and medical director	1
MN_BK_04	Understand how working practices are affected by national and European legislation on hours of work and rest periods	1
MN_BK_05	Describes the purpose of mandatory training	1
MN_BK_06	Understands the processes of trust indemnity for errors in patient management	1
MN_BK_07	Understands the areas of liability that may not be covered by trust indemnity	1
MN_BK_08	Understands the principles of recognising equality and diversity in the workplace	1,3,4
MN_BK_09	Describes the management framework of medical education, including the role of the RCoA, Postgraduate Dean, and the General Medical Council.	1
MN_BK_10	Understands local processes for scheduling work and organising supervision	1
MN_BK_11	Understands the need for inter-professional understanding, cooperation and learning	1
MN_BK_12	Understands the key role IT plays in the modern NHS	1

Skills		
Competence	*Description*	*GMP*
MN_BS_01	Commits to the principles of clinical governance	2
MN_BS_02	Complies with local mandatory training	1
MN_BS_03	Complies with local practices for health and safety, control of infection etc	1,2,3,4
MN_BS_04	Cooperates with local systems for the allocation of work, teaching and supervision	1,3
MN_BS_05	Organises their personal anaesthetic service effectively when responsible for an operating list, emergency theatre, obstetric analgesia, preoperative assessment clinic etc	1
MN_BS_06	Demonstrates the use of, including but not exclusively: • Patient Administration Systems [PAS] • Electronic Patient Records [EPR]	1

	• Laboratory and radiology order communication systems • Anaesthetic and ICU Information Management Systems • Laboratory Information Management Systems [LIMS] • Theatre management systems • Picture Archiving and Communication Systems [PACS] • Radiology Information Systems [RIS] • Maternity systems	

Higher level

Learning outcomes:

- Understands the structure of relevant national management and how this integrates with local management
- Able to organise their own contractual, job planning, and quality review processes
- Ready to undertake departmental administrative and Managerial roles with appropriate guidance and support

Knowledge		
Competence	*Description*	*GMP*
MN_HK_01	Knows how funding is provided for medical services within the trust	1
MN_HK_02	Knows how care trusts commission services	1
MN_HK_03	Understands how patients are referred for hospital treatment	1,3,4
MN_HK_04	Describes the local structure of NHS management in their locality and knows that the structures vary between commissioning bodies and between the countries of the UK	1
MN_HK_05	Describes the ways that services for anaesthesia, pain medicine and critical care are structured including an appreciation of local differences	1
MN_HK_06	Understand that healthcare is always subject to change and debate as a result of political, social, technical, economic, organisational and professional factors that impact on provision of service • Recognises their role as an advocate for quality and consistency in patient care in the face of such debates • Accepts that compromise in such debates may have impact on medical care	1
MN_HK_07	Understand the principles of: • Clinical coding • National Service Frameworks • Health regulatory agencies [e.g., NICE, Scottish Government] • NHS Structure and relationships • NHS finance and budgeting • Consultant contract and the contracting process	1

	• Resource allocation • The role of the Independent sector as providers of healthcare • Patient and public involvement processes and role	
MN_HK_08	Knows the process for completion of training and admission to the specialist register	1
MN_HK_09	Understands the process for appointment to a substantive post	1
MN_HK_10	Understands the processes of annual appraisal, re-certification and revalidation in substantive posts	1,3
MN_HK_11	Understands the systems for job planning and annual review	1
MN_HK_12	Understands the working of the local and national ACEA process	1

Skills		
Competence	*Description*	*GMP*
MN_HS_01	Undertakes simple local, department based organisational activities, if called upon, such as • Assisting with organising trainee service and educational placements • Organisation of departmental meetings (Audit, Journal Club, Teaching etc) • Organisation of an 'event' e.g. ALS, ATLS, Management course	1,3
MN_HS_02	Completes training documentation correctly	1
MN_HS_03	Able to organise job application	1
MN_HS_04	Able to negotiate job-plan	1
MN_HS_05	Attends department management meetings and contributes to discussion (if allocated this responsibility)	1,3
MN_HS_06	Promotes, and is receptive to, inter-professional cooperation and working	3
MN_HS_07	Ready to take an active role in promoting the best use of healthcare resources	1,3
MN_HS_08	Ready to work with stakeholders to create and sustain a patient-centred service	3,4
MN_HS_09	Ready to employ new technologies appropriately, including information technology	1
MN_HS_10	Able to conduct an assessment of the community needs for specific health improvement measures	1

Advanced level

Trainees may undertake an advanced module of management training. For this to be effective it needs to be at least six months long and it is recommended that placements of a year be considered. Such placements may include a day per week of general duties in anaesthesia but the shift pattern must be adjusted to allow the trainee to participate fully in trust management activities. The trainee must work under the supervision of a senior manager (who need not be a doctor). The trainee must work closely on a day to day basis with their supervisor, and should be delegate tasks within their supervisors management responsibility. The placement may be to any sector of NHS management not necessarily one directly concerned with anaesthesia.

The learner must participate in the development of a management response to introduce a new or changed practice. They should be involved with every stage of the project which should include preparation of the proposal, development of an action plan, promoting the proposal to stakeholders, carrying through the proposal and monitoring the effects of implementation. This project should be recorded in a reflective diary which will form the basis of their assessment. The capacity to offer participation in a project is a sine qua non of allowing a trainee to undertake advanced training.

Where trainees are undertaking this module in association with a formal university based qualification in management at the advanced diploma or masters level then the requirements of this module can be varied to reconcile them with the work and assessment tasks required for that qualification. This MUST be agreed by the RCoA and the GMC in advance.

Learning outcomes:

- Understands the management process and structures at Trust level. Knows the functions of the various management and administrative departments and how they communicate and cooperate.
- Understands the national processes by which health policy is developed, promoted, disseminated, introduced and monitored
- Able to plan a project involving change and characterise the steps in its development
- Has a deep understanding of the role of the different professionals in the organisation of the health service and knows the importance of encouraging inter-professional understanding and working

Assessment

- Maintains reflective portfolio of secondment including detailed report of a ‘project’
- Presents a synopsis of their experiences as an advanced management trainee in a local educational forum and obtains formal feedback which is kept in their portfolio

- Teaches one or more management seminars for trainee anaesthetists
- Researches and prepares an article on an aspect of the role of doctors in management to a standard suitable for publication
- Attends national course on management for doctors or local multi-specialty or inter-professional learning events

Knowledge		
Competence	*Description*	*GMP*
LOCAL		
MN_AK_01	Has a sound understanding of the important roles in trust management including clinical director, medical director, finance director and chief executive	1
MN_AK_02	Understands the divisions of management, responsibility and lines of accountability within their organisation	1
MN_AK_03	Understands the process of commissioning and the systems in place locally for agreeing contracts with commissioners	1
MN_AK_04	Understands the role of commissioning trusts	1
MN_AK_05	Understands how secondary services such as anaesthesia are accounted for in developing contracts	1
MN_AK_06	Knows how the hospitals budget is calculated	1
MN_AK_07	Knows how to develop a proposal for a management innovation (new service, expanded service, educational development etc)	1
MN_AK_08	Understands their special role in explaining and promoting the management process within their clinical specialty	1
MN_AK_09	Understands the importance of reading journals to keep abreast of trends in management	1
NATIONAL		
MN_AK_10	Understands the role of the commissioning bodies, its responsibilities and how the commissioning groups and providers cooperate and communicate	1
MN_AK_11	Understands the role of the commissioining bodies in workforce development and planning	1
MN_AK_12	Understands how national service and quality targets are set and is familiar with the organisations and processes used to monitor those targets	1
MN_AK_13	Understands the structure of the Department Of Health and its departments	1
MN_AK_14	Understands the role of Royal Colleges in health policy and management and the role of the Academy of Royal Colleges	1
MN_AK_15	Understands how health policy is developed including the role of public consultation	1
MN_AK_16	Understands the role of the public and patient representatives in determining health policy	1,3,4

MN_AK_17	Understands the impact of ethical issues on health policy and the development of new treatments	1
MN_AK_18	Knows about recent trends in management (current examples are: The productive series, lean methodologies etc)	1

Skills		
Competence	*Description*	*GMP*
MN_AS_01	Undertakes management tasks on behalf of their supervisor including: • Preparing papers to present at meetings • Researching issues to brief relevant members of the team • Preparing presentations • Delivering presentations • Developing option appraisals in relation to impending decisions	1,3
MN_AS_02	Attends management meetings and where appropriate contributes to debate and discussion	1,3
MN_AS_03	Undertakes a project to develop a proposal involving a change of practice. (This is an essential element of a secondment to management)	1
MN_AS_04	Attends national or international meetings relating to service organisation – preferably in the role of official trust representative – and reports relevant outcomes to local management	1,3
MN_AS_05	Is a champion for efficient effective management process	1
MN_AS_06	Is a champion of inter-professional cooperation and learning	1,3